



INFORMATION COMMUNICATION TECHNOLOGY

TEACHER GUIDE

GRADE 12



Federal Democratic Republic of Ethiopia
Ministry of Education

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INTRODUCTION TO THE TEACHER GUIDE

A perfect guide for an ICT teacher is one that provides support to the teacher to engage the students in joyful learning. Information and Communication Technologies (ICTs) refer to the possibilities offered by the convergence of data processing techniques, electronic media, and telecommunications, a convergence that has become evident over the past few years.

ICTs are grouped under two categories: *traditional* and *new*. Traditional ICTs are radio, television, and fixed line telephones etc., which have been gradually ingrained in the daily habits and lives of people and communities. New ICTs consist of computers and specific data processing applications accessible through those computers (e-mail, Internet, Word processing, and other data processing applications).

New ICTs are now found on the development agenda of African countries like Ethiopia, and strategies have been gradually implemented to integrate them into the development process. Many countries have initiated significant reforms in the telecommunications sector: privatizing companies, liberalizing and ending national monopolies in this sector.

This Teacher Guide will help the teachers to:

- explain how Information and Communication Technology (ICT) has the potential to make a real improvement to teaching and learning in schools.
- demonstrate a wide variety of ways in which ICT can be used to enhance learning, offering a fresh burst of inspiration for them i.e., the busy school teachers.
- take a structured approach, ensuring that the students can be guided progressively through all the contents in order to achieve the required standards for achieving Qualified Teacher Status, and also to continue their development in ICT to an advanced level.
- analyze all the common ICT tools and explain how they can exploit these tools for effective learning.
- explore how students can learn with ICT, how their skills develop, and how these skills can aid their learning.
- provide a framework for planning, analyzing and evaluating teaching with ICT.
- use Internet, educational trips and other aids to support class room teaching.
- prepare additional activities and assessments for the students.
- offer a range of innovative tasks, resources and methods of assessment.
- use key ideas, skills and techniques of ICT in other curriculum areas.

The guide also provides websites that have additional content for the teacher.

UNIT 1

INFORMATION SYSTEMS

(15 PERIODS)

UNIT OUTCOME

Students will be able to:

- understand the concept of E-learning, E-commerce, E-government, E-banking and E-libraries.

SUGGESTED LESSON PLAN

Sub-units	Number of Periods
1.1 Basic of E-Learning	3
1.2 Basics of E-Government	4
1.3 Basics of E-Banking	2
1.4 Basics of E-Libraries	2
1.5 Basics of E-Commerce	2
1.6 System Analysis	2

STRUCTURE OF THE UNIT

1.1 Basics of E-Learning

In this sub-unit, we will learn about basics of e-learning. The topics to be learnt are:

- Define electronic learning
- Advantages and disadvantages of e-learning
- Technology necessary for e-learning
 - Information technology
 - Telecommunication technology
 - Internet connection
- How e-learning works?

1.2 Basics of E-Government

In this sub-unit, we will learn about basics of e-government.

The topics to be learnt are:

- Definition of e-government
- Advantage of e-government
- Application of e-government
- Services delivered by e-government
- Status of e-government in Ethiopia.

1.3 Basics of E-Banking

In this sub-unit, we will learn about basics of e-banking.

1.4 Basics of E-Libraries

In this sub-unit, we will learn about basics of e-libraries.

1.5 Basics of E-Commerce

In this sub-unit, we will learn about basics of e-commerce.

1.6 System Analysis

In this sub-unit, we will learn about system analysis. The topics to be learnt are:

- Overview
- System problems

REVIEW OF THE UNIT

- E-learning is a flexible term used to describe a means of learning through technology such as a network, browser, CD-ROM or DVD multimedia platforms.

- The main advantages of e-learning are:
First-in market, Learner control, Enhanced retention, Timely and Easy access, Interactive Mode, Assessment and Feedback, Up-to-date content, State-of-the-art Environment.
- Technology is the most variable element in e-learning.
- Technology necessary for e-learning are:
Information Technology, Telecommunication Technology and Internet connection.
- E-government is also known as electronic government.
- The main advantage of e-government is to improve the efficiency of the current government system.
- E-government applications empower citizens and businesses to transact government businesses online.
- The four types of e-government services are G2C, G2B, G2E and G2G.
- The status of e-government in Ethiopia will certainly improve in the coming years with implementation of ICT.
- E-banking also known as Electronic Fund Transfer (EFT), uses computer and electronic technology as a substitute for checks and other paper transactions.
- E-libraries are the physical sites and/or websites that provide 24-hours online access to digitized audio, video, and written material.
- E-commerce is the purchasing, selling, and exchanging of goods and services over computer network through which transactions or terms of sale are performed electronically.

- A system is defined as a collection of related components that interact to perform a task in order to accomplish a goal.
- The *Systems Development Life Cycle (SDLC)* is a step-by-step process that many organizations follow during systems analysis and design.
- The *Feasibility Study* should include an initial statement of the functional and technical (non-functional) requirements for the system.
- The objective of *System Analysis* is to gather data, analyse the data and write a report.

ROLE OF THE STUDENTS

In this unit, the students are supposed to learn Information Systems. The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter. At present, students have better ways of learning ICT.

- The way in which students learn has changed, and that sitting in a passive mode in large lecture halls is not the expectation.
- Due to advancement in technology, today's students are different than those for whom the educational system was initially designed for because students "think and process information fundamentally differently from their predecessors" having grown up around computers, video games, and the Internet.
- They represent the generation which is completely surrounded by ICT where e-mail, instant messaging, and cell phones are integral parts of their lives.

ADDITIONAL CLASS ACTIVITIES FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 1.1: Learning Models

Students in their class will discuss and demonstrate the learning models.

What is e-learning?

E-learning can be thought of as the learning process created by interaction with digitally delivered content, services, and support. It involves intensive use of Information and Communication Technology to serve, facilitate, and revolutionize the learning process.

Learning Models

Figure 1.1 shows three main learning models that we have come to recognize over the years.

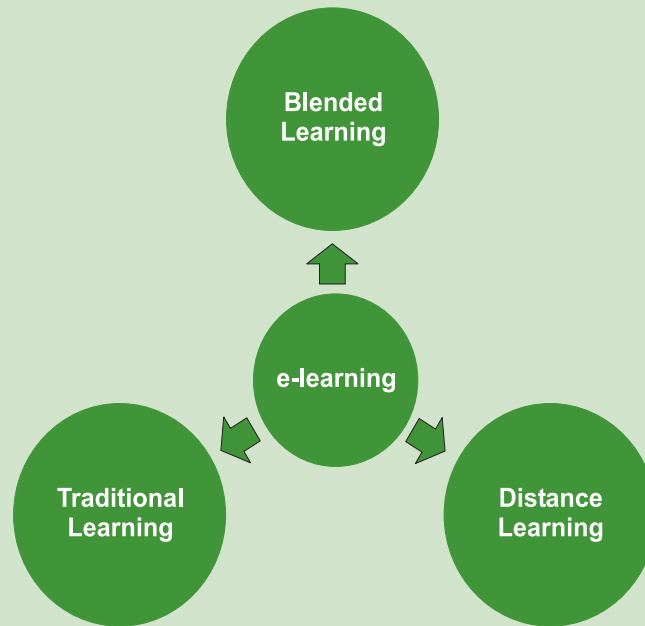


Fig 1.1: Learning models

1. *Traditional learning.* In traditional learning, students go to a school, college, or other physical space to learn. Information and Communication Technology can enhance the learning process, but is not necessarily included. For example, data show and presentations can be thought of as an implementation of e-learning within a traditional learning institution.
2. *Distance learning.* In distance learning, an instructor and students are separated by time, location, or both. Education or training courses are delivered to remote locations via synchronous or asynchronous means of instruction. Distance education does not preclude the use of the traditional classroom.
3. *Blended learning.* Blended learning combines multiple models to learning. For example, students in a traditional class can be assigned both print-based and online materials.

ACTIVITY 1.2: E-learning—a Tool to Facilitate Teachers’ Work and Enhance the Learning Process

The ICT teacher in the class will explain and demonstrate the concept of e-learning and discuss how it can be made more interesting.

E-learning

E-learning refers to formal and non-formal education that uses electronic delivery methods such as Internet-based learning delivery packages, CD-ROM, online video conferencing, websites or e-mail to manage the relationship between teacher and learners.

Some ways to use the e-learning tool effectively are:

Create games, quizzes or crosswords

- Create activities, matching games, crosswords or quizzes
- Help students revise and assimilate new material

- Conduct online exams or print randomized tests
- Share and exchange activities with other teachers

Make them available to students or groups

- Your activities are available online
- You can limit access to your materials or make them accessible via web address
- Create group/class web pages with activities, forum, important information, files
- Send individual or mass e-mail messages to your students.

View and analyse results

- Results are calculated automatically and stored in your database
- Results can be compared and sorted by different criteria
- You can export results to other programmes, and use them in the way you want
- Use some website, *e.g.*, www.kubbu.com to stimulate your students and improve their results.

ACTIVITY 1.3: Electronic Payment Systems

Students in their class will explain and discuss about the electronic payment systems, their risks and security.

Electronic Payment System

An electronic payment system is needed for compensation for information, goods and services provided through the Internet—such as access to copyrighted materials, database searches or consumption of system resources—or as a convenient form of payment for external goods and services—such as merchandise and services provided outside the Internet. It helps to automate sales activities, extends the potential number of customers and may reduce the amount of paperwork.

Some electronic payment systems available today are given below:

- *Secure Socket Layer (SSL)*: Client submits credit card information using encryption based on public keys.
- *CyberCash*: Customer registers credit card with CyberCash and selects a signature key. Requires special software on the client, but hides credit card information from merchant.
- *Secure Electronic Transaction (SET)*: The customer obtains a signature key from the card issuer. This method requires special software running on the client to encrypt and sign credit card information.
- *Open Market*: It provides multi-mechanism collection services for web browsers.
- *Mondex*: It provides smart-card based electronic currency.
- *Electronic Check*: It provides a PC card-based credit-debit payment instrument that can be sent across the Internet, but clears through the existing banking network.

Risks and Security

From the customer's perspective:

- stolen payment credentials and passwords
- dishonest merchants or financial service providers
- disputes over quality of services or goods

From merchant's perspective:

- forged or copied payment instruments
- insufficient funds in customers account, especially with off-line payment systems
- dishonest or slow financial service providers

From the financial service provider's perspective:

- stolen customer or service credentials
- forged or copied payment instruments
- customers not paying (applies only to credit models)

The risk may be shifted in one direction or the other by using a credit or debit model and by special agreements.

ACTIVITY 1.4: E-Government Websites

The ICT teacher in the class will discuss and demonstrate about the e-government Websites

What Are Good E-government Websites?

Among the factors that make a good e-government website, the most important are perhaps:

- the quantity and quality of the information provided;
- the way in which this is presented and made available;
- the level of interactivity of the site;
- the availability of partial or full online services to the public;
- the level of accessibility to the disabled and other visitors using alternative technologies.

Examples of E-government Websites

Some examples of good e-government websites are given below:

- Singapore eCitizen Portal (URL: www.ecitizen.gov.sg)
- South African Government (URL: www.gov.za)

ANSWERS TO TEXTBOOK ASSESSMENTS**Assessment 1.1****Fill in the Blanks**

1. E-learning
2. IT, Telecommunication, Internet connection
3. Learning Management System
4. Telecommunication

State Whether True or False

1. True
2. False
3. False
4. True

Answer the Following

1. **E-learning** is a flexible term used to describe a means of teaching through technology such as a network, browser, CD-ROM or DVD multimedia platforms.
2. Advantages and disadvantages of e-learning are given below:

Advantages: The e-learning setup, if implemented in quality way, offers many benefits to the users. The main advantages of e-learning are:

- (i) *First-in Market:* The e-learning model enables the placement of content on the Web as soon

as it is ready without having to wait for printing, packaging and shipping through distribution channels. This results in cutting down the lead-time between the development of a course and its availability to learners. The early availability of content gives the learner a headstart over others.

- (ii) *Learner Control*: You can learn at any time and at any place. All you need for e-learning is a Web connection. You can limit the duration of an e-learning session to study only the volume of content that you can fully absorb.
- (iii) *Enhanced Retention*: Since you follow a learning style that suits you, e-learning enhances your retention. Also, the e-learning material is delivered in small logical modules known as skillets. This results in better retention and recall for a learner.
- (iv) *Timely and Easy Access*: E-learning is available 24 hours a day, 7 days a week. Therefore, e-learning enables you to learn at the time that is convenient to you. The timely retrieval of the learning material enables you to practice what you have learned. You can gain access to the e-learning material from any location that has a computer and an Internet access.
- (v) *Interactive Mode*: As an e-learner, you have access to a web tutor at all times. Experts are also available for you to resolve content-related queries.

E-learning also allows you to chat with co-learners on different topics related to their subject and participate in discussion forums. *Chat is the typed discussion among participants who are online at the same time; it is just like telephone conversation, except that messages are typed rather than spoken.*

- (vi) *Assessment and Feedback*: E-learning provides you with assessment exercises that test you on the course that you are learning. On-line tests are typically optional self-initiated tests. You get a dynamic set of questions to answer. Unlike tests in CBT (Computer-based Training), these tests give you a feedback comparing your performance with that of other learners who have attempted the test.

- (vii) *Up-to-date Content*: The e-learning technology allows the dynamic updation of information on courses. Therefore, unlike CBT or books, the content in an e-learning course is updated regularly. This enables you to gain access to the latest information on the course.
- (viii) *State-of-the-art Environment*: The future of all activities in educational and commercial spheres is on the Internet. Therefore, most of the new development in educational technologies is Web-based. Most transactions are changing from physical to virtual, and the Internet is at the core of everything. Therefore, with e-learning, you work in a state-of-the-art environment that is going to be the environment of the future.

Disadvantages: Although e-learning is very useful for the users, but it suffers from some limits that lead to its disadvantages. The disadvantages of e-learning are given below:

- (i) *Up-front Investment*: Up-front investment required for an e-learning solution is larger due to development costs. Budgets and cash flows will have to be negotiated.
- (ii) *Technology Issues*: Technology issues that play a factor include whether the existing technology infrastructure can accomplish the training goals, whether the additional technology expenditures can be justified, and whether compatibility of all software and hardware can be achieved.
- (iii) *Inappropriate Content*: Inappropriate content for e-learning may exist according to some experts, though is limited in number. Even the acquisition of skills that involve complex physical/motor or emotional components (for example, juggling or mediation) can be augmented with e-learning.
- (iv) *Cultural Acceptance*: Cultural acceptance is an issue in organizations where student demographics and psychographics may predispose them against using computers at all, let alone for e-learning, unavailability of required technologies.

- (v) *Portability*: Portability of training has become a strength of e-learning with the proliferation of network linking points, notebook computers, PDAs, and mobile phones, but still does not rival that of printed workbooks or reference material.
 - (vi) *Reduced Social and Cultural Interaction*: Reduced social and cultural interaction can be a drawback. The impersonality, suppression of communication mechanisms such as body language, and elimination of peer-to-peer learning that are part of this potential disadvantage are lessening with advances in communications technologies.
3. Technology is the most variable element in e-learning. The more advanced the technology becomes, the more options there are to further e-learning. It has increasingly limitless potential.

The necessary technologies for e-learning are listed below:

- Information Technology
 - Telecommunication Technology
 - Internet Connection
4. The e-learning programs feature real-world applications and use a multi-pronged approach involving interactive online Internet web casts, simulation software and self-study assignments with a mentor on call. The courses consist of a set number of modules delivered over a given time frame. Presentations and group discussions are conducted using a live, interactive software system. For each e-learning module the users generally have an initial reading assignment (which is delivered to him/her in electronic format in advance of the online presentations). Figure 1.2 shows a model of e-learning.

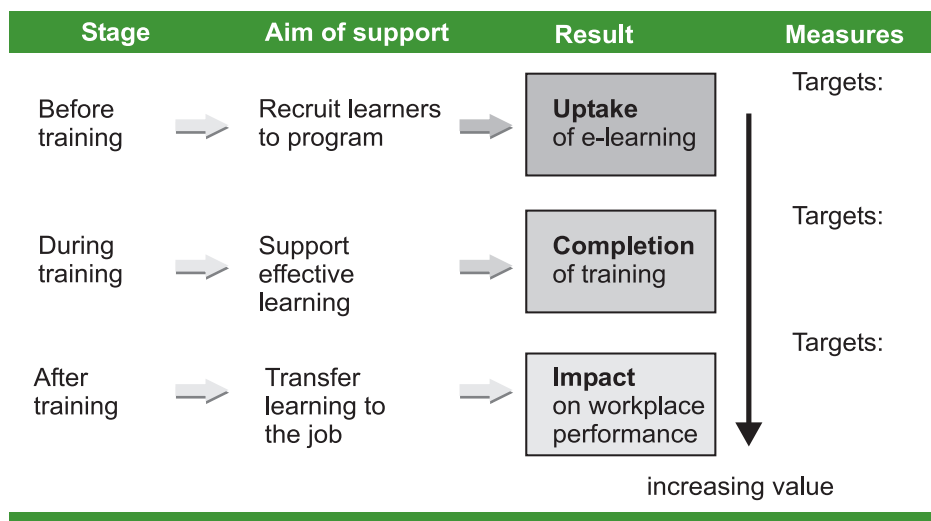


Fig. 1.2: Model of support for learners using e-learning in workplaces

There are coursework or problems to be submitted and in some cases there are practical exercises, using simulation software and remote labs that the user can easily do from his/her home or office. Users also have ongoing support from the instructors as well as course coordinators via phone, fax and e-mail.

Suggested Activities

Refer to sub-unit 1.1 of the Student Textbook for doing the activities.

Assessment 1.2

Fill in the Blanks

1. e-government
2. E-administration
3. G2C, G2B, G2E, G2G

State Whether True or False

- | | | |
|----------|---------|----------|
| 1. True | 2. True | 3. False |
| 4. False | 5. True | |

Answer the Following

1. Some electronic systems are listed below:
 - (i) E-learning system
 - (ii) E-government system
 - (iii) E-banking system
 - (iv) E-libraries system
 - (v) E-commerce system
2. E-government, also known as electronic government, refers to government's use of information technology to exchange information and services with citizens, businesses, and other arms of government.

or

"E-government" refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government.

3. There is a great impact of e-government on society. Some advantages of implementing an electronic government are given below:

The main advantage of an electronic government is to improve the efficiency of the current government system. That would in return save money and time. The introduction would also facilitate better communications between governments and businesses. An example would be, e-procurement which facilitates Government-to-Government (G2G) and Business-to-Business (B2B) communication; this will permit smaller business to compete for government contracts as well as larger business. This will have the advantage of creating an open market and stronger economy. Business and citizens can obtain information at a faster speed and it is possible at anytime of the day.

In addition, moving away from a heavily paper based system to an electronic system would reduce the need for man power. Thus, this would allow the process to be handled by lesser employees and therefore to reduce operations cost.

The ability of an e-government service to be accessible to citizens irrespective of location throughout the country brings the next and potentially biggest benefit of an e-government

service. The society is moving toward the mobile connections.

4. The different services by e-government are given below:

Analogous to e-commerce, which allows businesses to transact with each other more efficiently Business-to-Business (B2B) and brings customers closer to businesses *i.e.*, Business-to-Consumer (B2C), e-government aims to make the interaction between government and citizens (G2C), government and business enterprises (G2B), and inter-agency relationships (G2G) more friendly, convenient, transparent, and inexpensive. Figure 1.3 shows four types of e-government services.

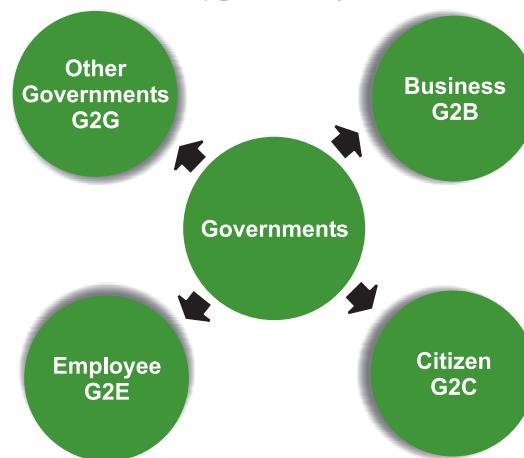


Fig. 1.3: Four types of e-government services

The four types of e-government services are given below:

- (i) *Government-to-Citizen (G2C)*: This includes information dissemination to the public, basic citizen services such as license renewals, ordering of birth/death/marriage certificates and filing of income taxes, as well as citizen assistance for such basic services as education, healthcare, hospital information, libraries, and the like.
- (ii) *Government-to-Business (G2B)*: These transactions include various services exchanged between government and the business community, including dissemination of policies, memos, rules and regulations.
- (iii) *Government-to-Employee (G2E)*: These services encompass G2C services as well as specialized services that cover only

government employees, such as the provision of human resource training and development that improve the bureaucracy’s day-to-day functions and dealings with citizens.

(iv) *Government-to-Government (G2G)*: These services take place at two levels—at the local or domestic level and at the international level. G2G services are transactions between the central/national and local governments, and between department-level and attached agencies and bureaus. At the same time, G2G services are transactions between governments, and can be used as an instrument of international relations and diplomacy.

Suggested Activities

Refer to sub-unit 1.2 of the Student Textbook for doing the activities.

Assessment 1.3

Fill in the Blanks

- 1. E-banking
- 2. E-libraries

- 3. B2B, B2C, C2B, C2C
- 4. speed, cost saving, no boundaries, ease of networking

State Whether True or False

- 1. True 2. False 3. False
- 4. True 5. False

Answer the Following

- 1. The working of e-banking is given below:
E-banking or electronic banking involves a variety of transactional areas, ranging from direct deposit of paychecks, obtaining cash from an ATM, to using a debit card to purchase goods and services. Electronic banking and the resulting financial transactions involve the transmission of financial data and transfer of funds through various modes such as computers, phones, and other technological advanced devices. Figure 1.4 shows the dataflow diagram for bank account customer.

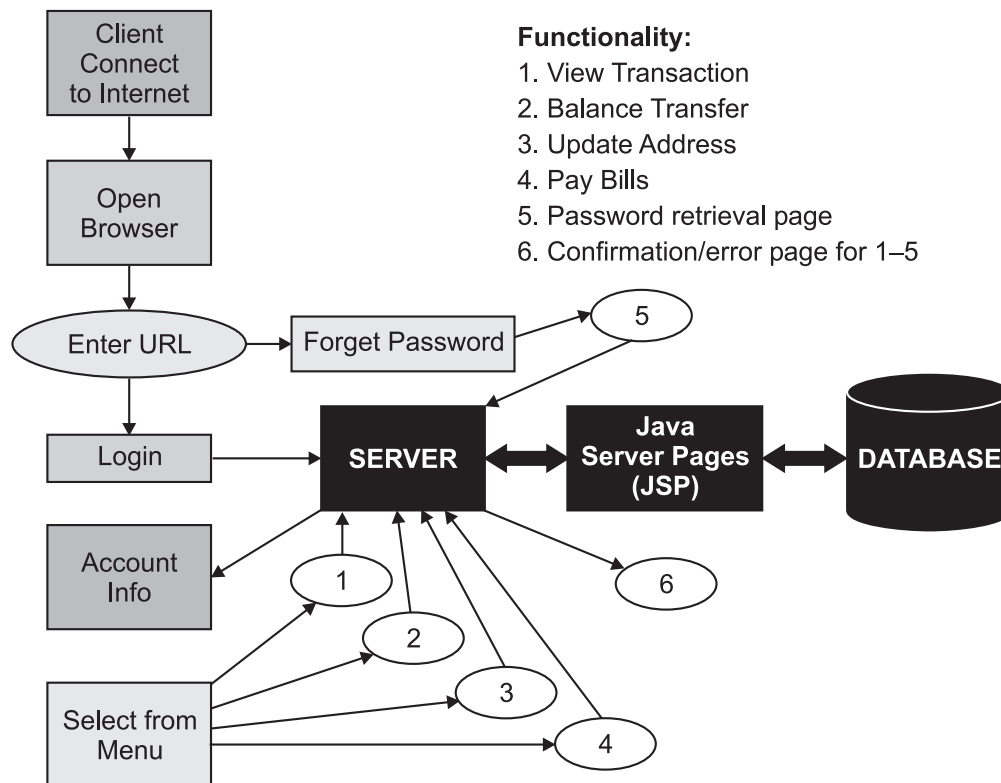


Fig. 1.4: Dataflow diagram for bank account customer

2. The working of e-libraries is given below:

E-library or Digital Library or Online Library or Virtual Library refers to all the library resources that are available online through computers and databases. E-libraries are different from the open Internet, as they have restricted access.

The e-library allows a user to search, retrieve, save and reuse the library resources in real time on the World Wide Web. It is a ‘virtual’ library whose content is the aggregation of many independent websites, rather than a physical collection that is kept in a central repository. We call each website a ‘resource’. The architectural model of a Digital Library is shown in Fig. 1.5 in terms of a data-flow diagram.

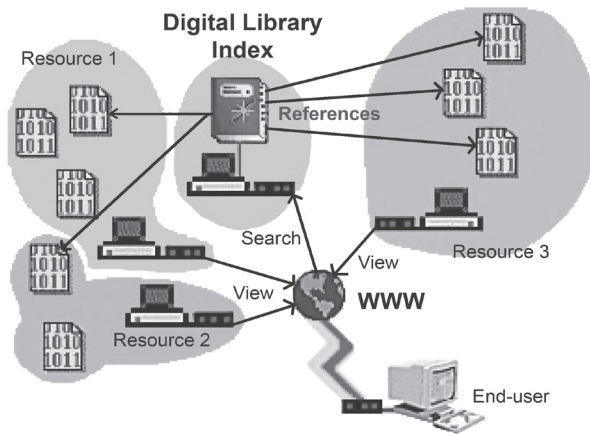


Fig. 1.5: Architectural Model for Client/Server interaction of a Digital Library

Data Flow: The Digital Library Index provides a list of resource documents, from which the end-user can make a selection; this happens in a dialog between end-user and Index server. When the end-user has selected a document of his/her interest, the *reference* to this document is passed from the

Index server to the user’s Web browser. The user’s browser then downloads the referred-to *content* directly from a resource server for viewing.

3. The working of e-commerce is given below:

E-commerce or electronic commerce works like conventional commerce with the same process of selling and purchasing goods or services for a price. The difference is that goods and services in e-commerce are bought and sold over the Internet using a credit card. Transactions can be done globally 24 hours a day and 7 days a week, unlike conventional commerce. There are no weekly holidays or closing time as with conventional stores.

The Process

The merchant showcases the products intended to be sold on a website and specifies the price of each product. The customer logs on to the website, chooses products and adds them to a shopping cart. The customer connects to the transaction server and gives credit card details to purchase the goods. The merchant’s transaction server then connects to the credit card processing server to check if the customer has the required funds to pay for the goods and services purchased.

Once the processing server approves of the transaction and reports that the customer has funds, it authorizes the transfer of funds from the customer’s bank to the bank of the merchant. On receipt of the money, the merchant’s server confirms the sale to the customer and the products are delivered to the customer by the merchant. Figure 1.6 illustrates the working of e-commerce:

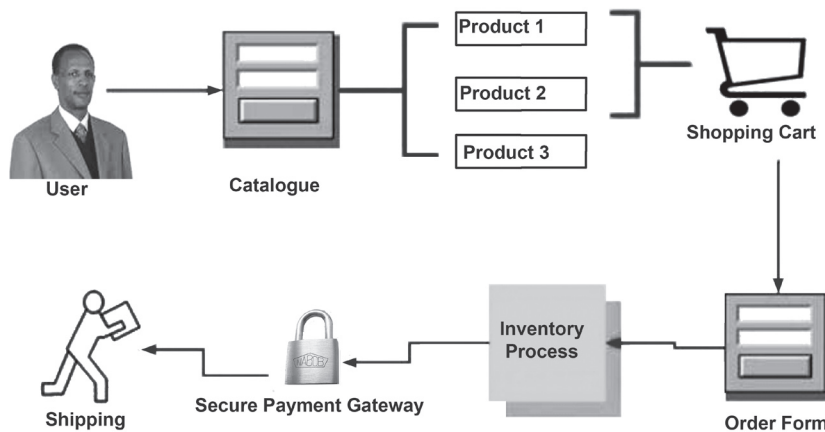


Fig. 1.6: Working of e-commerce

Suggested Activities

Refer to sub-units 1.3 to 1.5 of the Student Textbook for doing activities 1 and 2.

ACTIVITY 3: Choosing a Topic (say E-commerce) and Designing a Presentation Which Gives Full Information on the Topic

In groups, students will choose a topic (say E-commerce) and design a presentation which gives full information on the topic.

First of all design a presentation on E-commerce. To present a slide show, perform the following steps:

- Click *Slide Show* tab.
- Click *From Beginning* button (see Fig. 1.7).

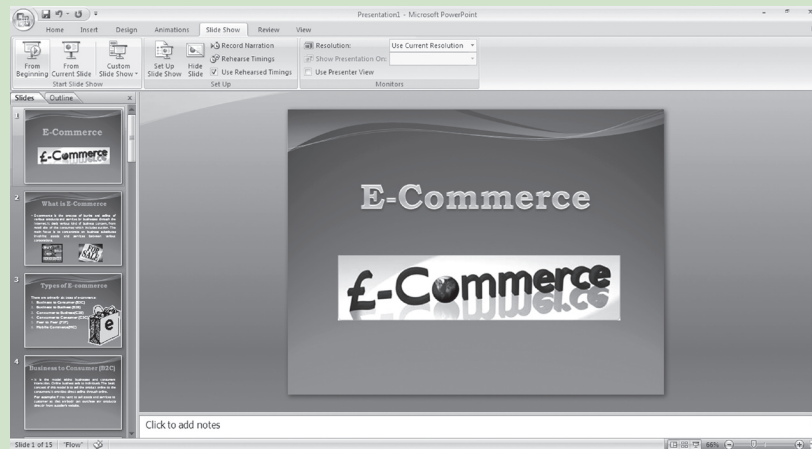


Fig. 1.7: Starting slide show

- Run the presentation by clicking the left mouse button at each slide. At the black screen, click the left mouse button again (see Fig. 1.8).



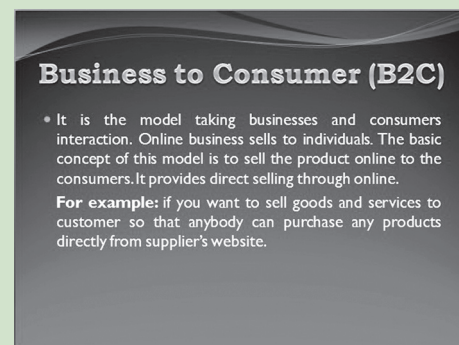
Slide-1



Slide-2




Slide-3



Slide-4

Business to Business (B2B)

- B2B e-commerce is simply defined as e-commerce between companies. This is the type of e-commerce that deals with relationships between and among businesses. This model defines that Buyer and seller are two different entities. It is similar to manufacturer issuing goods to the retailer or wholesaler.



Slide-5

Consumer to Business (C2B)

- A consumer posts his/her project with a set budget online and within hours companies review the consumer's requirements and bid on the project. The consumer reviews the bids and selects the company that will complete the project. For example, websites priceline.com, shopbot.com support C2B.

Slide-6

Consumer to Consumer (C2C)

- It helps the online dealing of goods or services among people. Though there is no major parties needed but the parties will not fulfill the transactions without the program which is supplied by the online market dealer such as www.eBay.com.



Slide-7

Peer to Peer (P2P)

- **Business-to-government (B2G)** is a derivative of B2B marketing and often referred to as a market definition of "public sector marketing" which encompasses marketing products and services to various government levels - including federal, state and local - through integrated marketing communications techniques such as strategic public relations, branding, marcom, advertising, and web-based communications.

Slide-8

Mobile Commerce(MC)

- It deals with conducting the transactions with the help of mobile. The mobile device consumers can interact each other and can lead the business. Mobile Commerce involves the change of ownership or rights to utilize goods and related services.



Slide-9

Advantages of E-Commerce

- It increases sales and thus decreases costs of the goods.
- Advertising on the web can make a big or small firm's promotional message reach out to potential customers all over the world.
- A firm can reach narrow market segments that are widely scattered throughout the world.
- Low cost medium disseminating information and processing transactions.
- Provides the buyers a wider range of choices than traditional commerce technology.
- Help protect against frauds and theft losses because electronic payments can be easier to monitor than payments made by cheques.
- Enables people to work from home and has an added benefit of reduction in traffic and pollution caused by employees who have to communicate to office.

Slide-10

Disadvantages of E-Commerce

- Things like food, jewelry, antiques etc. can never turn to e-commerce because it is not possible to inspect them from remote locations.
- Many firms have had trouble recruiting and retaining employees with the technological, design and business process skills needed to create an effective electronic commerce presence.
- Frauds are not completely eliminated in the e-commerce transactions.
- Cyber laws are not properly enacted and the existing ones are not clearly defined.

Slide-11

Impact of Electronic Commerce

- Financial values-
 - Restructuring of Distribution and Supply Chain
- Strategic values-
 - Competitive advantage - business procedures
 - Customer Relationship Management

Slide-12



Slide-13



Slide-14



Slide-15

Fig. 1.8: Slides in the presentation

➤ Press *Esc* to exit the slide show.

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. system
2. Modelling
3. Systems analysis and design
4. System Analysis

State Whether True or False

1. True
2. False
3. False
4. True

Multiple Choice Questions

1. (d)
2. (d)
3. (b)
4. (a)

Match the Following

1. (d)
2. (a)
3. (b)
4. (c)

Answer the Following

1. *System*: It is defined as a collection of related components that interact to perform a task in order to accomplish a goal.

Identifying System Problems: One must know what the problem is before it can be solved. Systems are created to solve problems. We can think of the systems approach as an organized way of dealing with a problem.

Problems may be functional—that is, the system may be incomplete, not fulfilling all the program requirements. Problems may be technical (non-functional)—for example, the system may be too slow, sized too small, or be obsolete and inefficient in terms of hardware and software. Problems may also relate to system cost or to access, limiting the ability of personal to use system information to full potential.

System problem identification step should also include a determination of the seriousness of

each problem and its effects on factors such as clients and financial considerations.

2. *Functional and Non-functional System Requirements:*

The *Feasibility Study* should include an initial statement of the functional and technical (non-functional) requirements for the system. An overview of the system requirements should reflect a broad range of factors, for example:

- Functional, programmatic requirements;
- Information needs;
- System needs;
- Interface and matching requirements;
- Processing and data flow needs;
- Storage and retrieval requirements;
- Inputs;
- Outputs;
- Workload, projected overtime;
- Validation and internal control needs;
- Security/Privacy requirements;
- Emergency response, back-up, and disaster recovery;
- Accessibility requirements for the disabled; and/or
- Space and Environment.

The requirements should be stated briefly and in functional terms, to the extent possible. Their development during the *Feasibility Study* supports the selection of suitable alternatives. These functional and non-functional requirements are greatly expanded later in the planning phase through the *Requirements Analysis*.

Suggested Activities

Refer to sub-unit 1.6 of the Student Textbook for doing the activities.

ALTERNATIVE TEACHING APPROACHES

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning about “Information Systems”.

ADDITIONAL QUESTIONS

1. Explain e-learning and e-government.
2. Explain e-banking and e-libraries.
3. Explain e-commerce.
4. What are the six phases of the Systems Development Life Cycle (SDLC)?

UNIT 2

ENHANCING THE USE OF SOFTWARE

(24 PERIODS)

UNIT OUTCOME

Students will be able to:

- choose appropriate software tools to solve problems illustrate ideas clarify thinking in the other subjects chosen for study in Grade 11.

SUGGESTED LESSON PLAN

Sub-unit	Number of Periods
2.1 Using Application Software	24

STRUCTURE OF THE UNIT

2.1 Using Application Software

In this sub-unit, we will learn about Using Application Software. The topics to be learnt are:

- Word Processing Software
- Presentation Software
- Spreadsheets
- Publishing Software
- Databases

REVIEW OF THE UNIT

- Software required to solve some specific task of daily use is generally called application software.
- Word processor is general purpose application software that facilitates creation and formatting of text documents.

- Presentation software is general purpose application software that facilitates creation of presentations on any particular topic.
- Spreadsheet is general purpose application software that facilitates creation of worksheets that stores text and numerical data in tabular form. Performing basic statistical analysis including graphs is the main utility of this software.
- Publishing software is general purpose application software that facilitates creation of a wide variety of professional-looking publications intended for print or online presentation.
- Database Management System (DBMS) is a general purpose application software that facilitates creation, maintenance, and the use of database for an organization and its end users.

ROLE OF THE STUDENTS

In this unit, the students are supposed to enhance the use of software. The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter.

In today's world, every student must be ICT literate regardless of the student's background, gender, family income, geographic location, or disability.

Different type of technologies can be used by the students to enhance the use of software. Various technologies deliver different kinds of content and serve different purposes in the classroom. For example, word processing and e-mail promote communication

skills, database and presentation software promote presentation skills of students. So, it is important for the students to choose appropriate software tools to solve problems, illustrate ideas, and clarify thinking in the other subjects chosen.

ADDITIONAL CLASS ACTIVITY FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 2.1: Using MS-Publisher 2007, Create a Flyer that Includes a Favorite Family Recipe and the Historical and Cultural Information About it

In small groups, the students will create a flyer that includes a favorite family recipe and the historical and cultural information about it.

Flyer and it's Design

It is a one-page, one sided publication that is designed to be read at a glance. We should not underestimate the task of designing a good flyer; we need to distill the information down to the minimum number of words that will convey our message and arrange the text with graphics for maximum impact.

Materials Required

Collect the following material for creating the flyer:

- (i) Handout on recipe (ii) Food timeline (iii) History of food
- (iv) Sample recipe flyer (v) Food, culture, and tradition

Creating Flyer

To create a flyer, perform the following steps:

- (i) Choose your favorite family recipe and research it.
- (ii) Open Office Publisher 2007.
- (iii) Using the sample recipe flyer, create a recipe flyer about your dish (see Fig. 2.1).

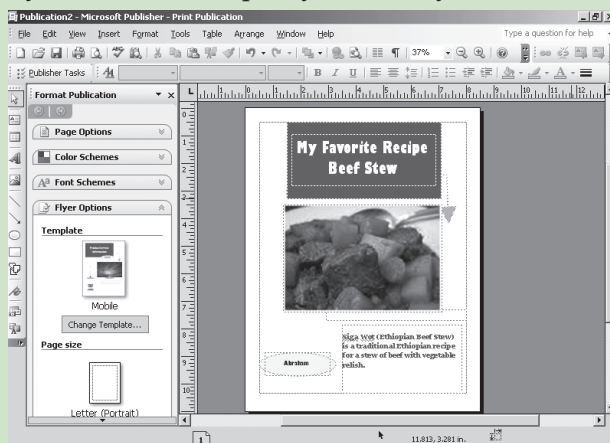


Fig 2.1: A flyer created on Ethiopian recipe

- (iv) Proofread your flyer and correct any spelling or grammatical errors.
- (v) Do a design check on your flyer.
- (vi) Save the publication.

Conclusion

Students can be assessed on their recipe flyer content, writing conventions, and design.

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

- | | |
|-----------------|-------------------|
| 1. Application | 2. Word processor |
| 3. Spreadsheets | 4. database |

State Whether True or False

- | | |
|----------|---------|
| 1. False | 2. True |
| 3. False | 4. True |

Multiple Choice Questions

- | | |
|--------|--------|
| 1. (b) | 2. (d) |
| 3. (a) | 4. (c) |

Match the Following

- | | |
|--------|--------|
| 1. (c) | 2. (d) |
| 3. (b) | 4. (a) |

Answer the Following

1. *Application Software*: Software required to solve some specific task of daily use is generally called application software. Some general purpose application software and their uses are given below:

- (i) Word Processing Software—Used for document creation.
- (ii) Presentation Software—Used for presenting information.
- (iii) Spreadsheet Software—Used for financial calculation.
- (iv) Desktop Publishing Software—Used for desktop publishing.
- (v) Database Management Software—Used for database management.

2. *Word Processing Software*: It is the application software which processes the textual information including typing, editing, formatting and printing.

Word processor is the most common software application. The best-known word processing software is probably Microsoft Word. It offers a

much improved way of dealing with documents than the typewriter.

Usage areas: Word processors are commonly used by students, writers, authors, desktop publishing professionals and layout artists. These are used to create documents such as letters, memos, reports, research papers, brochures, announcements, newsletters, envelopes, labels, and much more.

3. *Presentation Software*: It is the application software which uses graphics, animation, sound and data or information to make presentations. It is general purpose application software that facilitates the creation of presentations on any particular topic. Microsoft PowerPoint is a well known presentation software.

Usage areas: Presentation software is mainly used in business and classrooms. It is an effective tool when used for training purposes and provides a useful environment for teachers and students.

4. *Spreadsheet Software*: Spreadsheet software is general purpose software application which allows users to create tables and financial schedules by entering data and formulas into rows and columns in a document called a worksheet. Microsoft Excel is a popular example of spreadsheet software.

Usage areas: Spreadsheet software is mainly used for business and personal purposes. It is useful in many areas like accounting, budgeting, charting/graphing, financial analysis, and scientific applications. For example, a teacher who uses a spreadsheet to record student marks is able to determine student averages and class means very quickly—that means the minute one number in the spreadsheet is changed, the calculations are up-to-date everywhere within the spreadsheet.

5. *Publishing Software*: Publishing software is general purpose software which allows users to create and edit pages for print and online publications. It can be used to create flyers, posters, books, magazines, and brochures.

Desktop Publishing (DTP) involves mixing text and graphics to produce high-quality output for commercial printing, using a PC and mouse, scanner, laser or ink-jet printer, and DTP software. Microsoft Office Publisher 2007 is a well known DTP program with which you can create a wide variety of professional-looking publications intended for print or online presentation.

Usage areas: Publishing software is mainly used in education, graphic design, career assistance, business, and crafts and personal projects etc.

6. *Database Software:* A database is a collection of interrelated files in a computer system. Database Management System (DBMS) is general purpose application software that sets up and controls the structure of a database and access to the data. The most widely used form of database, especially on PCs, is the relational database, in which data is organized into related tables. Microsoft Access is one of the principal PC database programs.

Uses areas: Databases are mainly used in tourism, banking, airlines, schools, colleges, universities, credit card transactions, telecommunication, finance, sales, manufacturing, and human resources etc.

Suggested Activities

Refer to sub-unit 2.1 of the Student Textbook for doing the activities.

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning about “Enhancing the Use of Software”.

ADDITIONAL QUESTIONS

- What are the following types of application software used for?
 - Word processing software
 - Presentation software
 - Spreadsheet software
 - Publishing software
 - Database software.
- Describe some popular features of spreadsheet and publishing software.
- Describe the basic features of a relational database.
- Design a database structure having two tables to store information about an actor/actress. The first table should contain personal information about the actor/ actress and the second table should contain information about his/her movies.
- Discuss querying database and testing the hypotheses.

UNIT 3

EXPLOITING THE INTERNET

(21 PERIODS)

UNIT OUTCOME

Students will be able to:

- understand the concept of webpage design
- understand and differentiate between the different kinds of websites
- recognize the steps required for website design
- design a simple and attractive website.

SUGGESTED LESSON PLAN

Sub-units	Number of Periods
3.1 General Concept of Website Design	2
3.2 Planning a Website	3
3.3 Website Design Considerations	4
3.4 Website Development	12

STRUCTURE OF THE UNIT

3.1 General Concept of Website Design

In this sub-unit, we will learn general concept of website design. The topics to be learnt are:

- Definition of website
- Definition of webpage
- Definition of Home page
- Types of website
 - Static and Dynamic
- Application of website

3.2 Planning a Website

In this sub-unit, we will learn about planning a website. The topics to be learnt are:

- Determining the purpose of the website

- Content Identification
- Knowing the Audience

3.3 Website Design Considerations

In this sub-unit, we will learn about website design considerations. The topics to be learnt are:

- Page layout of the website
- Create content
 - Use of images
 - Page size (Creating & formatting tables)
- Fonts (Adding design Elements)

3.4 Website Development

In this sub-unit, we will learn about website development. The topics to be learnt are:

- Adding Text
- Adding Image
- Creating hyperlinks
- Inserting Table
- Inserting Frames
 - Adding Web effects
 - Inserting animations
 - Using scripts
 - Using Java applets

REVIEW OF THE UNIT

- A computer with a domain name is called a website (site). There are basically two main types of websites—*Static and dynamic*.
- In designing a website you should take into account the website’s purpose and audience.
- While designing a website, you must consider that a successful website should have clearly identified goals and provide useful and attractive content that draws your audience to your site again and again.
- For developing a website, you require web design software. For example, Web Page Maker.
- A hyperlink connects the webpage with other pages of webpage or to pages on other websites.

ROLE OF THE STUDENTS

In this unit, the students are supposed to exploit the Internet. The activity based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter.

Today the students rely on the computer for both educational and entertainment purposes. You already know that the Internet is an extremely useful resource for every computer user. Students can conduct research for school projects, chat with friends, surf the Web and share music and photographs. With the wide variety of websites students visit on a daily basis, it is important to have a behind-the-scenes look at how the websites are created. An ideal way to do this is by creating Web design projects that allow the students to explore design tools and techniques.

ADDITIONAL CLASS ACTIVITY FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 3.1: The Risks of Online Intimacy

The teacher will explain the risks of online intimacy to students.

Online Intimacy

Online intimacy means a successful friendship relation using the Internet.

How To Make Online Friends?

It is not very easy to take care of a friendship with someone you cannot see or feel. This is the main issue that online friendship faces. Without the physical presence of the person, it is very difficult to form a friendship that would last forever. Yet some people argue that not being able to see each other is an advantage. Some people are not quite confident about their looks and some are afraid to speak up in public or a group. Online friendship is very helpful for such people (see Fig. 3.1).

Relationship Websites

The relationship websites give us the opportunity to meet a friend online.

For example, *personals.yahoo.com*, *www.friendsonline.ca*, *www.onelovenet.com*, *www.makefriendsonline.com*, *www.newfriends4u.com*, *ethiopianpersonals.com*. These websites may expose you to a wider variety of friends than is possible in more conventional way, as through school, church, or club activities.

Risks of Online Intimacy

- Online life and real life are not the same
- Online friendship can be emotionally intense
- Online text communication does not allow nonverbal communication
- People meeting online showcase their good points only

In summary, we can say that Internet does allow the possibility that two friends may develop real rather than false intimacy.



Fig. 3.1: Online friendship

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. website
2. its style, the web technologies required, the hosting costs, the budget required for it
3. web
4. hyperlink

State Whether True or False

- | | |
|---------|----------|
| 1. True | 2. False |
| 3. True | 4. True |

Multiple Choice Questions

- | | |
|--------|--------|
| 1. (b) | 2. (c) |
| 3. (d) | 4. (d) |

Match the Following

- | | |
|--------|--------|
| 1. (c) | 2. (d) |
| 3. (b) | 4. (a) |

Answer the Following

1. **Website:** A computer with a domain name is called a website (site)

Types of Websites: There are basically two main types of websites—*static* and *dynamic*.

- (i) *Static website:* It is a site like a printed paper as it is unchangeable once it is printed. It is usually built using several tools such as Kompozer or Dreamweaver. People are not able to change your webpage if you have a static website other than if you use WYSIWYG (What You See Is What You Get), text editors and template based editors. Only you may edit or transform your static website. For example, someone's web portfolio is an example of a static site. It is only one page and is updated on average once a month.
- (ii) *Dynamic website:* It is a site which allows the user to share data with the website. It is usually built with a programming language such as ASP, PHP or JAVA. Now-a-days most business websites are dynamic. One may enter his/her info when registering on the site as well as being able to buy products and services. For example, *www.paypal.com*.

Some well-established Websites:

Some well-established websites are listed below:

- | | |
|---------------------------------------|--------------------------------|
| (i) <i>www.yahoo.com</i> | (ii) <i>www.google.com</i> |
| (iii) <i>www.youtube.com</i> | (iv) <i>www.telecom.net.et</i> |
| (v) <i>www.hi5.com</i> | (vi) <i>www.nazret.com</i> |
| (vii) <i>www.ebay.com</i> | |
| (viii) <i>www.ethiopianreview.com</i> | |

2. The two types of websites are *static* and *dynamic*. These are quite different from one another when it comes to attributes and utilization. A website must attract people of all ages.

You will have to identify a website type depending on your needs and what you would like to get out of your website. Both static and dynamic websites are appropriate alternatives. If you want to develop a professional site with lots of capabilities then a dynamic is an excellent choice. Alternatively, if you are a newbie in this field and want to build any sort of website, then you can think about developing a static website. Remember to consider just how much time you want to put into your website and what you would like to offer to the website visitors, and the appropriate site will be simple to choose.

3. **Website Planning:** In designing a website you should take into account the website's purpose and audience. A good designer knows how to achieve the effects called for in the most flexible, efficient, and elegant way. To design a website, you should have a thorough knowledge in hypertext, multimedia, Java, and other programming possibilities as well as knowledge about how particular website structures affect an audience.

Determining the Purpose of the Website

Determining the purpose of the website is most important for its success. First of all you should develop a plan. With a good plan, you may know in advance what you are going to do and the correct order in which all things need to be done.

The important questions to be considered are:

- (i) Why you want to create a site?
- (ii) What do you want or expect your site to accomplish?
- (iii) Are you planning on using your site to generate a passive income by sell products or information or it is just for friends and family?
- (iv) Is it because others are doing it?

Some common purposes for Websites are:

- (i) *Online Store*: It is the most important reason for building a website. If your primary purpose is selling physical goods, focus on creating an online store that gives visitors simple and easy shopping.
- (ii) *Brand Awareness*: If your primary focus is on delivering an offline service, you may want an online brochure. This sort of website can deliver useful, practical information about your service and help you to develop your image and build trust and customer loyalty.
- (iii) *Online Services*: For delivering an online service, you will have to build an infrastructure for the delivery of your service. This type of website is more complex and you will need to anticipate what you will feature in your product catalogue, and how you will handle online payments and process online orders.
- (iv) *Affiliate Commissions and Advertising*: Another reason for building a website may be to make money through promoting affiliate programs, which offer you a commission on sales. You may want to earn money by putting up the banners of other business on your website. To earn a sufficient amount of money, you would require hard work and planning.

Clearly defining the purpose of your website, before you start building it, would ensure that your website is optimized to achieve the required purpose. After all, you can only meet your goals when you know what they are. You will have to balance your business goals, the needs of your audience, and your resources to create an effective website.



No matter what the purpose of your website may be, make sure that you keep track of the visitors of your website. A traffic tracking system would give you valuable information about the persons that are visiting your website. It would also enable you to make important decisions related to the optimization of your website.

Content Identification

Planning is the first step in building a good website. After determining the purpose of the website, the website designer must plan the content. The content of a website is everything that is in it. The contents may include one or all of the following:

- (i) The text on web pages.
- (ii) The graphics in the website.
- (iii) The colors and style of the website.

The important points to be considered about the content of a website are:

- (i) What content will it contain?
- (ii) What content will drive people back to it?
- (iii) What are the sources for content?
- (iv) Who will write the content?

The content of website is to provide the users or customers with information. Planning the content of a website is a much more comprehensive project than it first appears. To properly plan content for a website it is necessary to first make assumptions on what will be of most value to visitors. There are many tools to aid in the planning phase of website creation. Some useful online tools for planning a website are:

- (i) JumpChart (URL: www.jumpchart.com)
- (ii) RapidRabbit (URL: rapidrabb.it)
- (iii) WriteMaps (URL: www.writemaps.com)
- (iv) MindMeister
(URL: www.mindmeister.com)

A good website developer will be able to utilize the above mentioned online tools and other offline tools (for these visit websites: www.balsamiq.com, www.glify.com, www.axure.com) along with the information from the content manager to decide on which information will be most important for a website.

The content of website is the stuff that draws and keeps an audience. The composition of the content should follow directly from the stated website purpose and audience. So the website designer can prepare a set of content features that relate to the audience's activities, interests, and concerns. For example, a website about a school ICT fair might list rules of the fair, the location and details about the upcoming events, statements by judges, and descriptions of past winning projects.

Always remember that website design process builds on its content.



Truly great websites pay attention to content and organization. The content of a website must be determined by the type of website and its purpose.

Knowing the Audience

A website designer should know about his/her website's audience. It may be family, friends, and potential employers. Using age appropriate material helps ensure that the online audience will remain interested and continue to visit the website. The websites which want to attract the young viewers should follow current trends and incorporate music, graphics and special effects that hold their interest. For older viewers these may have 3D graphics and soothing music. Website designs that have too much information are often difficult to navigate and may also deter the less experienced Internet audience.

4. Refer to sub-units 3.3 and 3.4 of the Student Textbook for the answer.

5. Create a list of all of the content that you would like to include on your website that both achieves your goals and would be of interest to your audience. At this point, just write whatever comes to mind; do not try to organize it.

Use of Images

An image might be the focal point of a webpage. Your eye is drawn to an image because it is an image, not because of the position it has in the layout. So, look at the other elements on the page to make small changes (*e.g.*, position and spacing etc.) to the elements and margins around the image to create an interesting design. Also the captions should go with each image separately.

Align your images. Balance the graphics and text on a page. When you are considering your layout, remember that images are the major part of the design, not just afterthoughts.

Page Size (Creating and Formatting Tables)

Designing a professional looking website involves much more than simply displaying text. Page size plays an important role while designing webpages. In order to organize your page, you can use tables. Tables will change the look of the webpage. Originally, tables let people present data (mostly numbers) in a column format. Designers have found the ways to improve the layout of their pages using tables. Although a bit complicated and sometimes difficult to understand, tables do improve your layout and let you present your material in a more eye-appealing way.

Suggested Activities

Refer to sub-units 3.1 to 3.4 of the Student Textbook for doing activities 1, 2, 3, 4 and 6.

ACTIVITY 5: Writing a Report discussing What must be Considered When Designing a Website. Develop your Design into a Website. The Site Should have at Least Three Pages Including Various Design Elements

In small groups, the students will discuss and design website having at least three pages including various design elements.

What Must be Considered when Designing a Website?

Consider the following points when designing a website:

- Determine the purpose of the website.
- Know your audience.

- Select technology to use.
- Design web architecture which must be easy to navigate for the visitors.
- The content to be posted on your website must be properly organized for the visitors so that they can easily access the information or content on your website.
- Have a search engine friendly URL that will be easier for visitors to remember.
- Color combination or the layout of your website design has to be appropriate.
- In order to be on the safe side, you must use limited amount of pop up ads on your website.

Developing the Design into the Website

Web Page Maker is an easy-to-use web page editor that allows you to create and upload web pages in minutes without knowing HTML. We will use Web Page Maker to design the website.

To design the website, perform the following steps:

1. Click *Start* → *All Programs* → *Web Page Maker* → *Web Page Maker*

Or



Double-click on the *Web Page Maker* icon on the desktop of your computer. The Web Page Maker window opens (see Fig. 3.2).

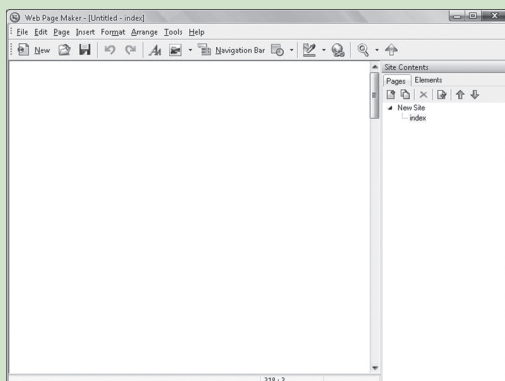


Fig. 3.2: Web Page Maker window

2. Click on *File* menu and then click on *Page Setup*. The *Page Setup* dialog box appears (see Fig. 3.3).

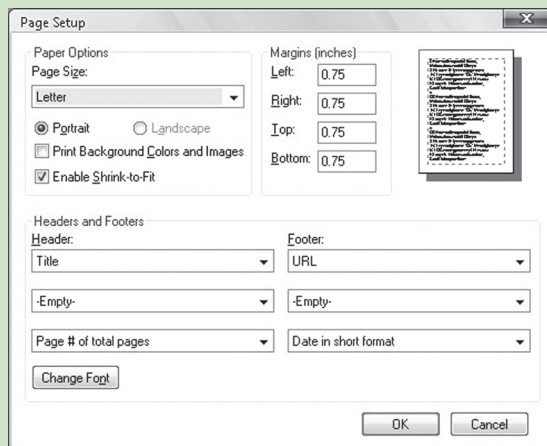



Fig. 3.3: Page Setup dialog box

Now, set the Page Size, Margins, Headers and Footers. Change font if you want. Click *OK*.

3. Add two more pages in addition to the Home Page by clicking *Add New Page*  button in *Pages* tab under *Site Contents* in the *Site* panel (see Fig. 3.4).

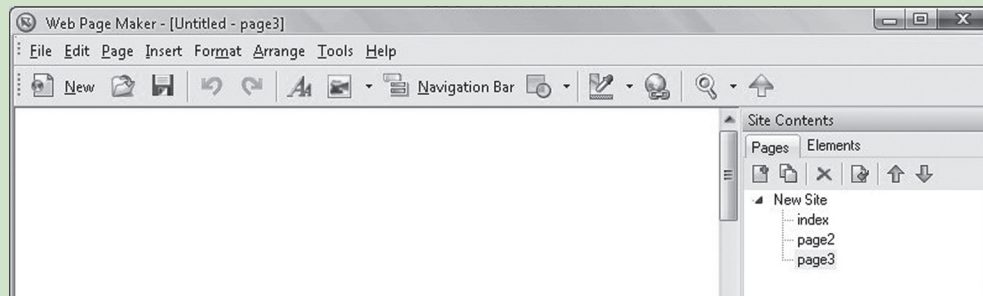


Fig. 3.4: Adding pages

4. For setting the background, right click on the Work window. A menu appears. Click *Properties* option (see Fig. 3.5).

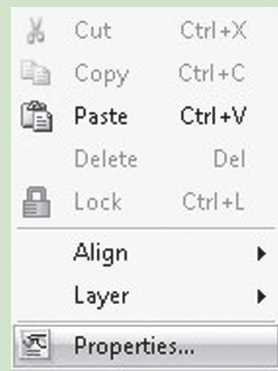


Fig. 3.5: Clicking Properties

5. The *Page Properties* dialog box appears. Select the background image you want (see Fig. 3.6).

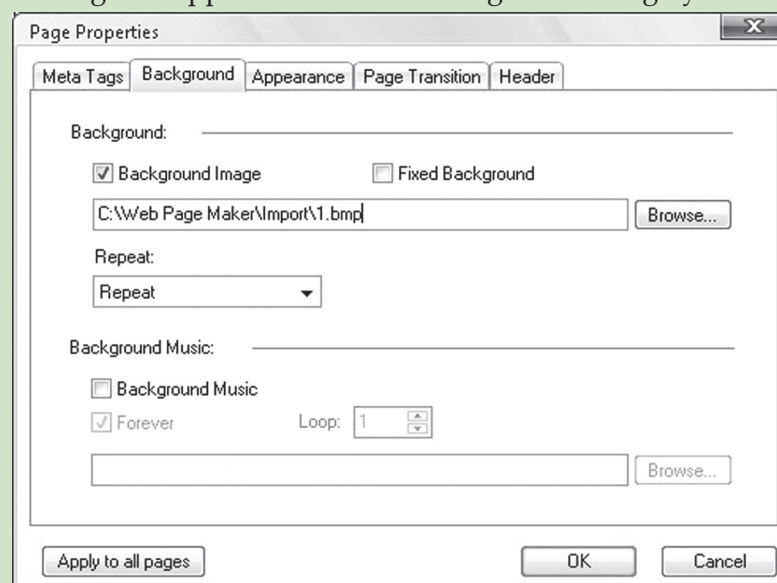



Fig. 3.6: Page Properties dialog box

You can select different backgrounds for individual webpages of your website.

Similarly, you can set other properties from Appearance, Page Transition and Header tabs.

6. Adding Text to Web Page

Click on **Text**  button in toolbar to add text. Click on Work window and set the size of text box. Double-click in the created Text Box. It will open the *Text Editor* (see Fig. 3.7). Type the desired text and click *OK*.

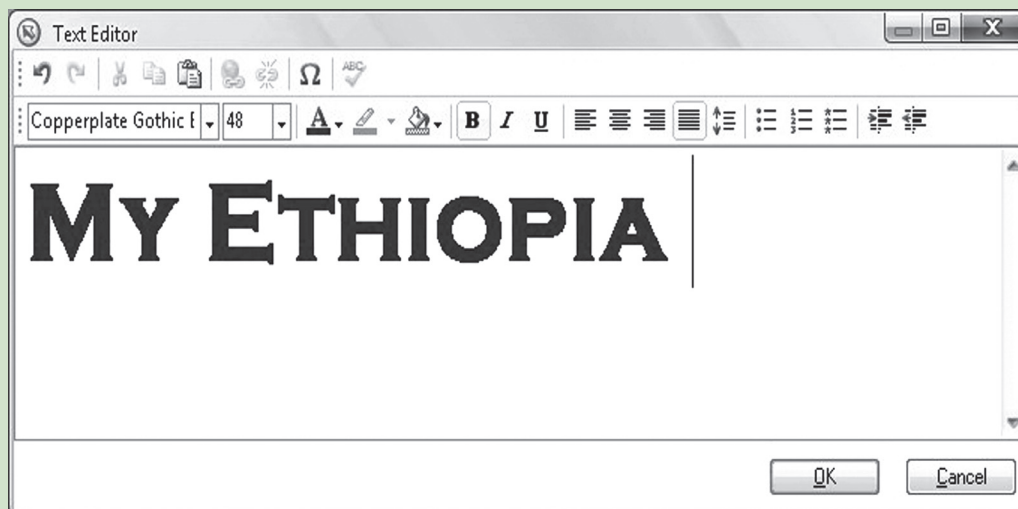


Fig. 3.7: Typing text in the Text Editor

The typed text in the *Text Editor* will appear in your webpage. Similarly, you can add text at other places of the Web page by adding separate text boxes and typing text in them. Format the text as per your need. After adding the text the webpage looks like the page shown in Fig. 3.8.



Fig. 3.8: Webpage after typing the text

7. Adding Image

For adding image click *Insert* → *Image* → *From files...* (see Fig. 3.9).

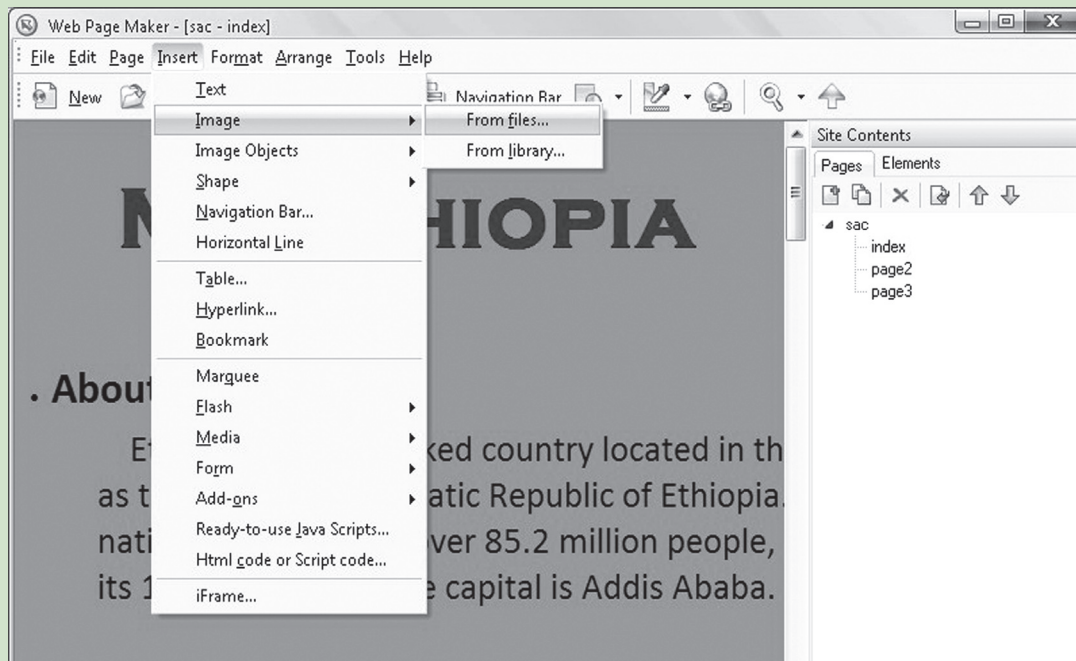


Fig. 3.9: Getting ready to add image to webpage

The *Open* dialog box appears. Select the image to be inserted and click *Open* button. The selected image will be inserted on the Webpage. Drag and resize the image as per your requirement (see Fig. 3.10).

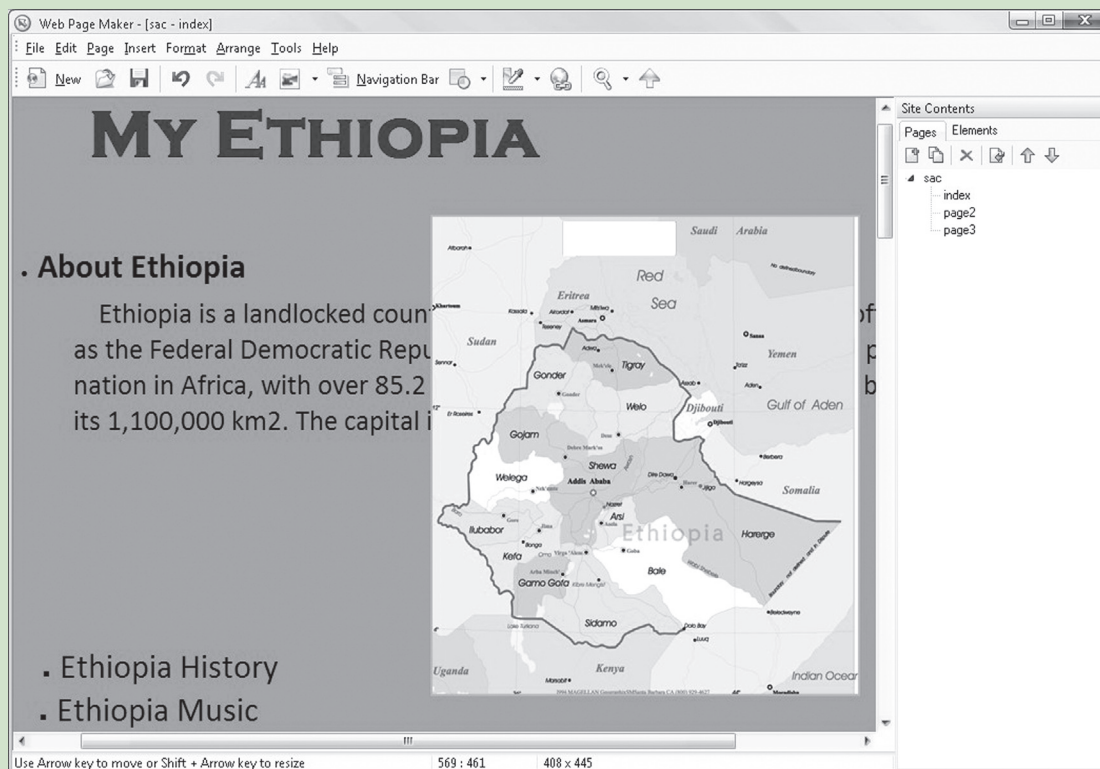


Fig. 3.10: Webpage after adding image

8. Adding Navigational Elements

To add navigational elements click *Insert* → *Navigation Bar...* (see Fig. 3.11) or click *Navigation Bar* button from toolbar.

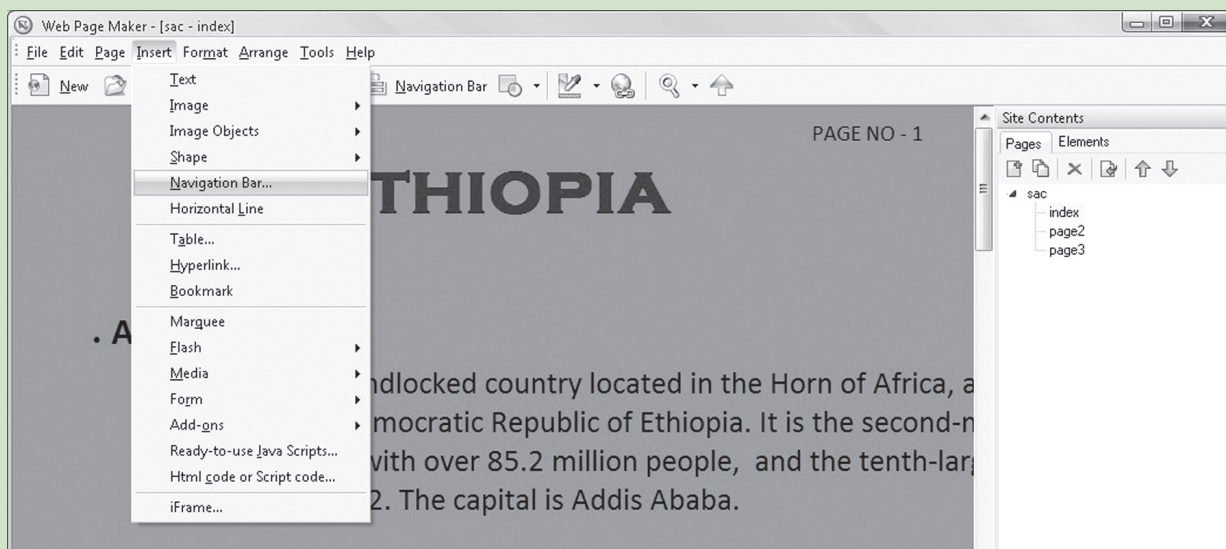


Fig. 3.11: Getting ready to add Navigational elements

The *Select Navigation Bar Style* box opens. Select a template of your choice from the list and then click the OK button (see Fig. 3.12).

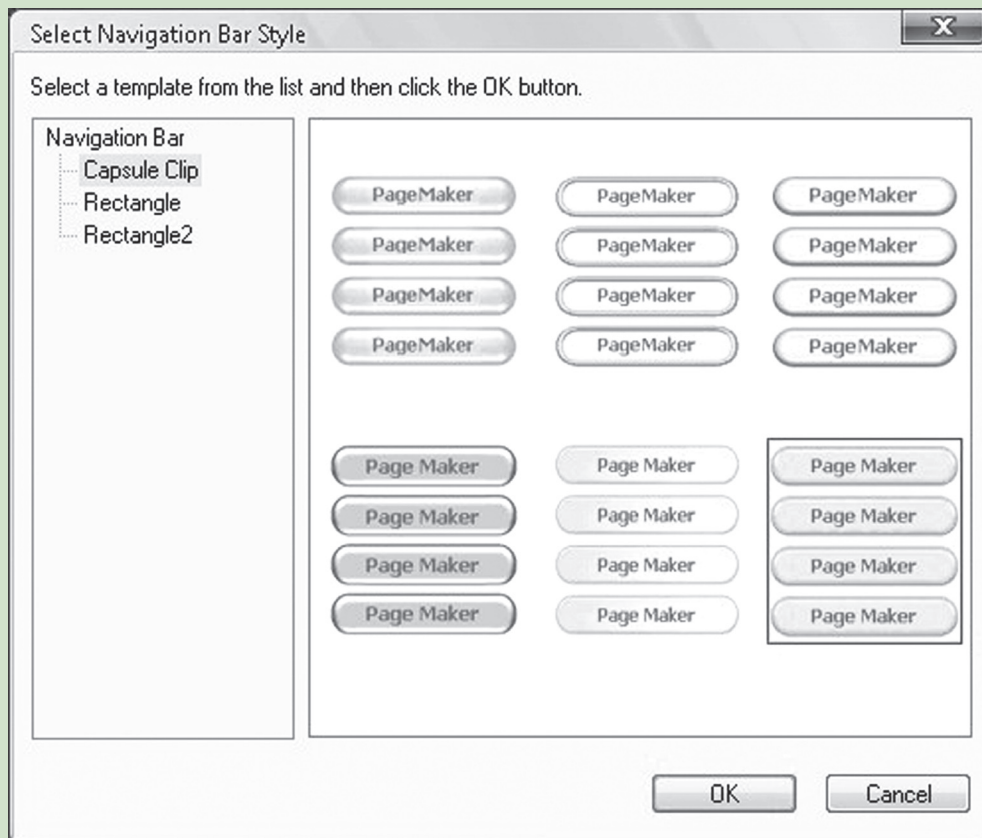


Fig. 3.12: Selecting a template from Navigational Bar Style

The *Navigation Bar* dialog box opens. Click *OK*. It will insert the selected navigation bar on the webpage. Drag it at the desired position on webpage (see Fig. 3.13).

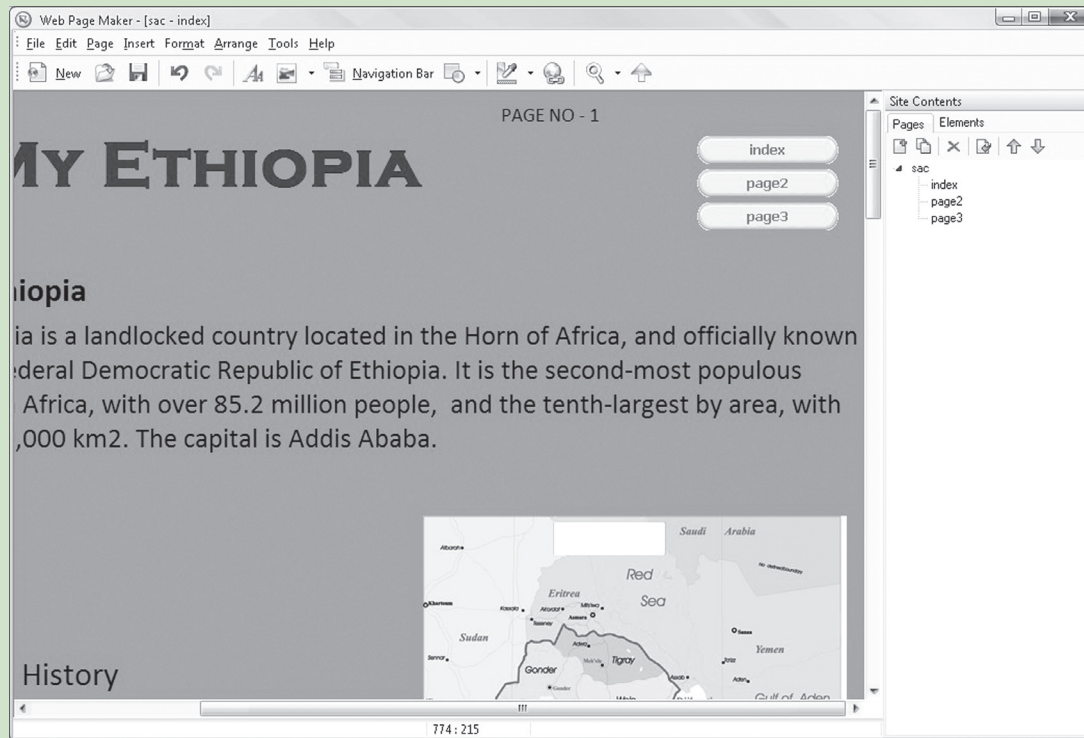



Fig. 3.13: Navigational element inserted on the webpage

9. Adding Links

A hyperlink connects the webpage with other pages of website or to pages on other websites.

To add links (hyperlinks), select the text box and click on the *Hyperlink*  button on the toolbar. It will open the *Hyperlink* dialog box (see Fig. 3.14).

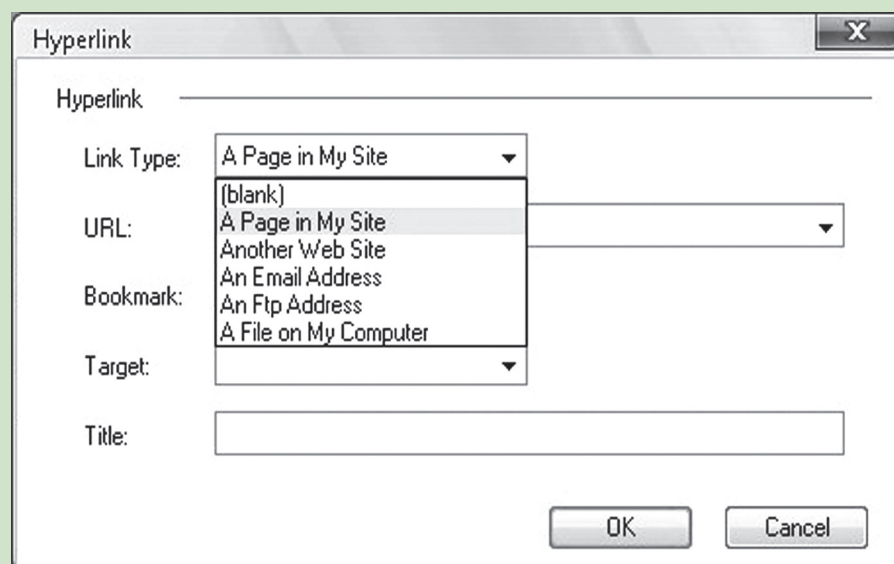


Fig. 3.14: Hyperlink dialog box

Setup the Link Type and other options. Click OK (see Fig. 3.15). Similarly set the hyperlinks of the desired websites for the other text boxes.

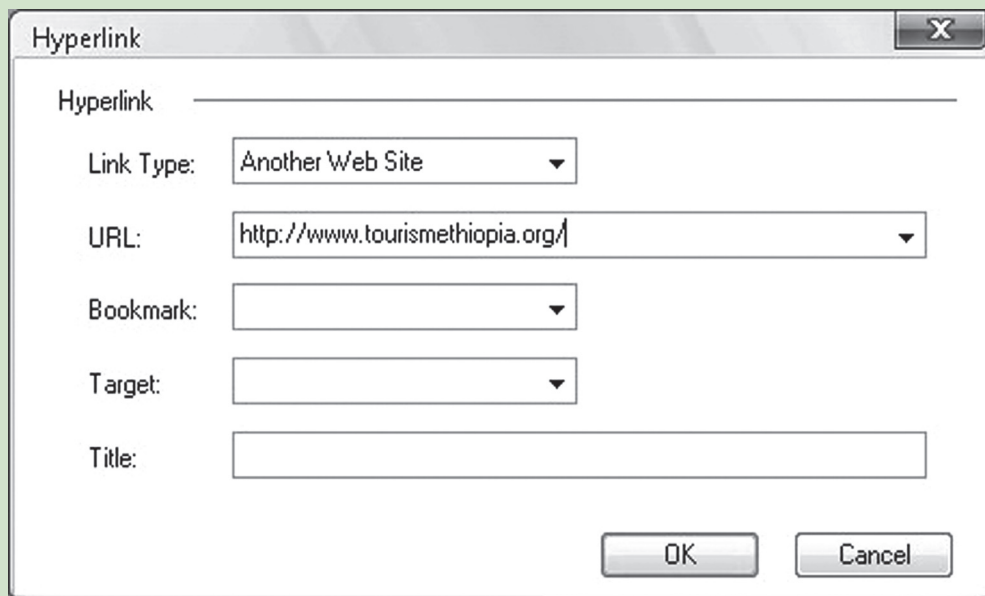


Fig. 3.15: Setting up the hyperlinks

10. Similarly, add the text, images and hyperlinks on the other pages of the website.

11. **Inserting Table**

To insert the table, click *Insert* → *Table...* It will open the *New Table* dialog box. Type the number of Rows and Columns. Click *OK*. It will open the *Table Editor*. Type the contents of table and apply the desired fonts (see Fig. 3.16).

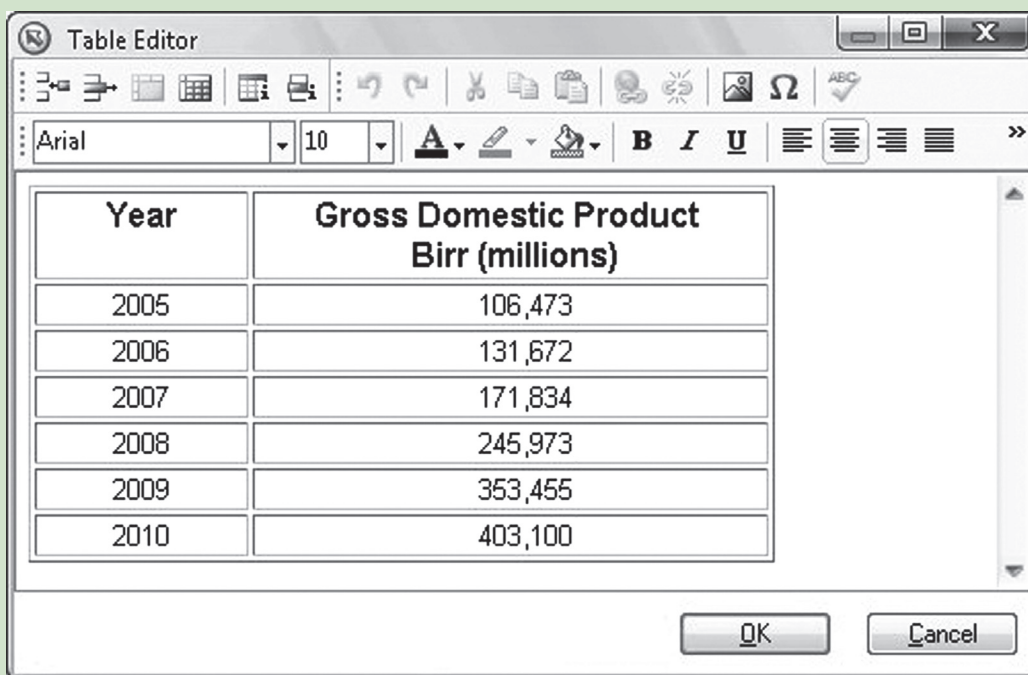


Fig. 3.16: Typing the contents in a table

Click *OK*. The table will be inserted in the selected webpage (see Fig. 3.17).

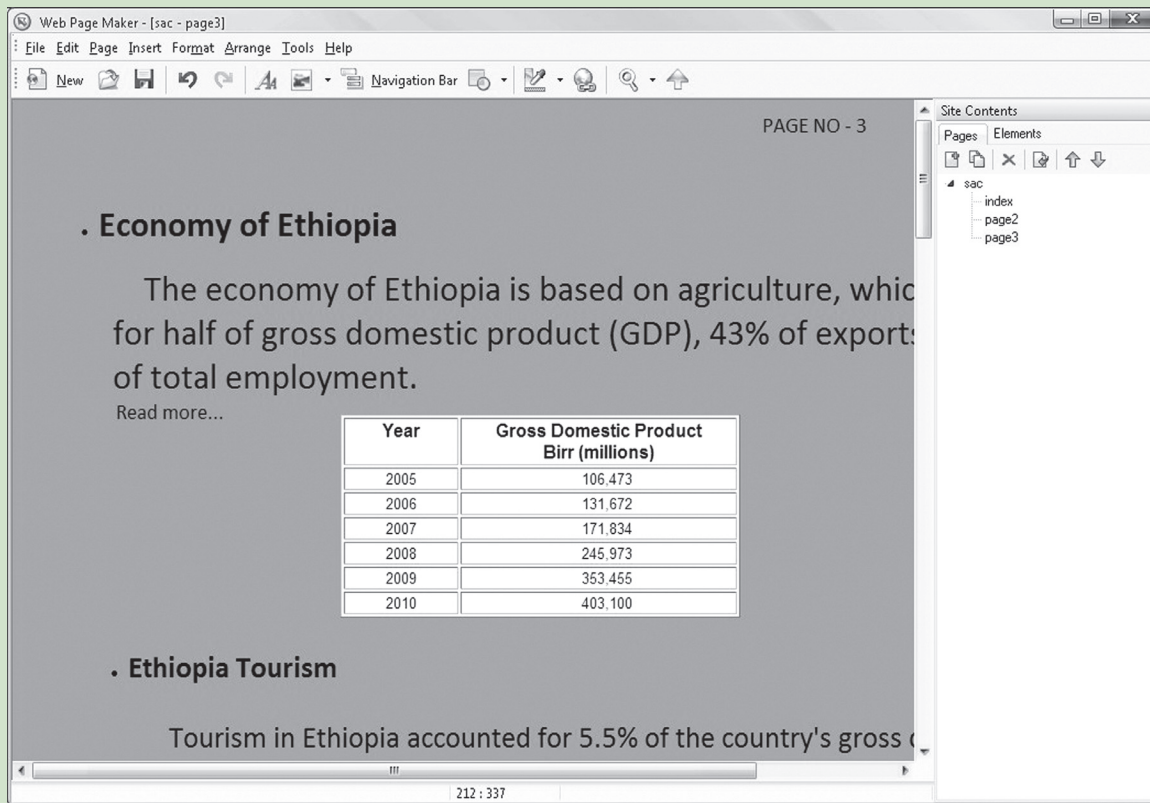


Fig. 3.17: Webpage after inserting table in it

12. Inserting Frames

To insert frames click *Insert* → *iFrame*.... It opens the *iFrame* dialog box. Enter the Web URL of the website (see Fig. 3.18).

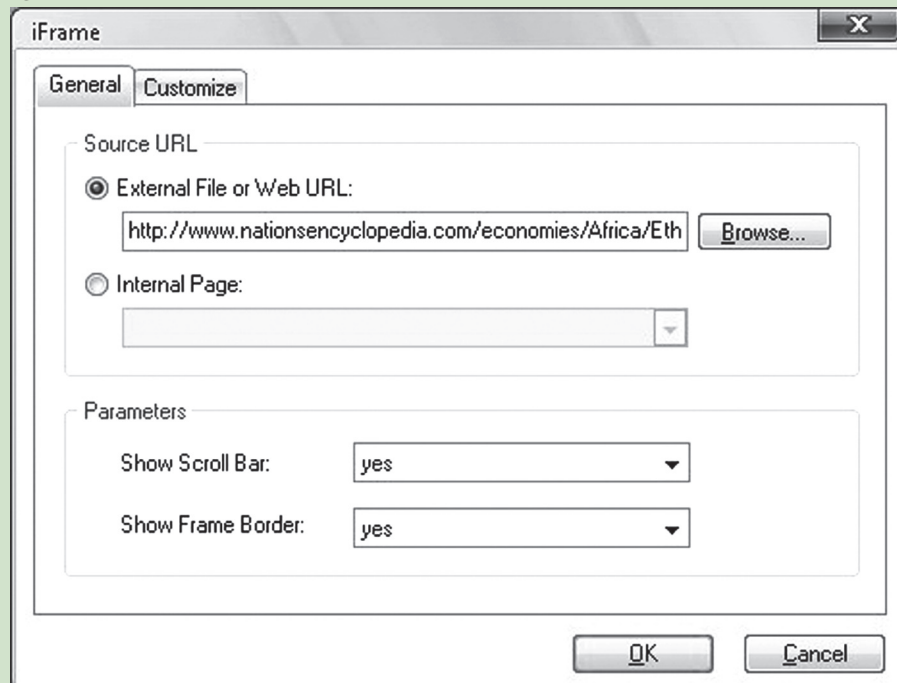


Fig. 3.18: Entering Web URL

Click *OK*. It will insert a *iFrame* in the webpage (see Fig. 3.19).

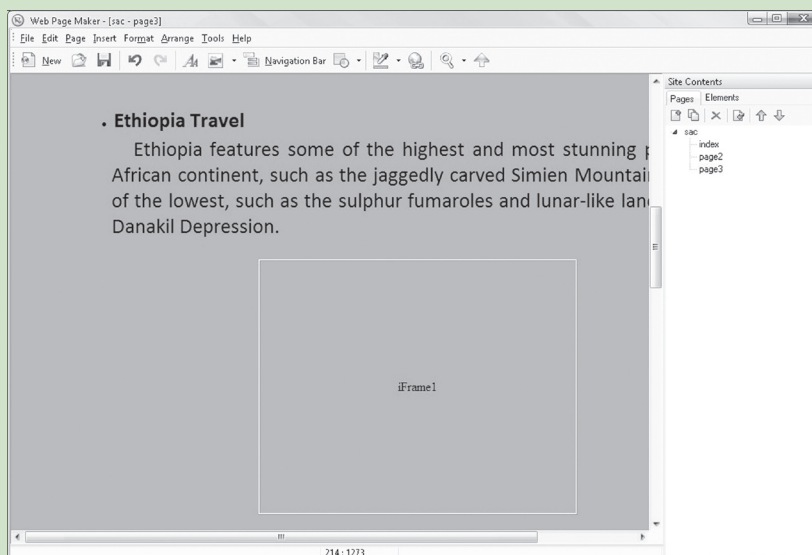


Fig. 3.19: A webpage after inserting frame in it

By clicking on *iFrame*, we can see the contents of another webpage linked through the hyperlink. Similarly, insert the frames on other pages (if you want).

13. Insert Animations

To insert animation click *Insert* → *Marquee*. It will insert an animation text box on the web page. Double-click to open the *Text Editor*. Enter the text and click *OK*. The animation effect of the text box will be applied on the webpage (see Fig. 3.20).

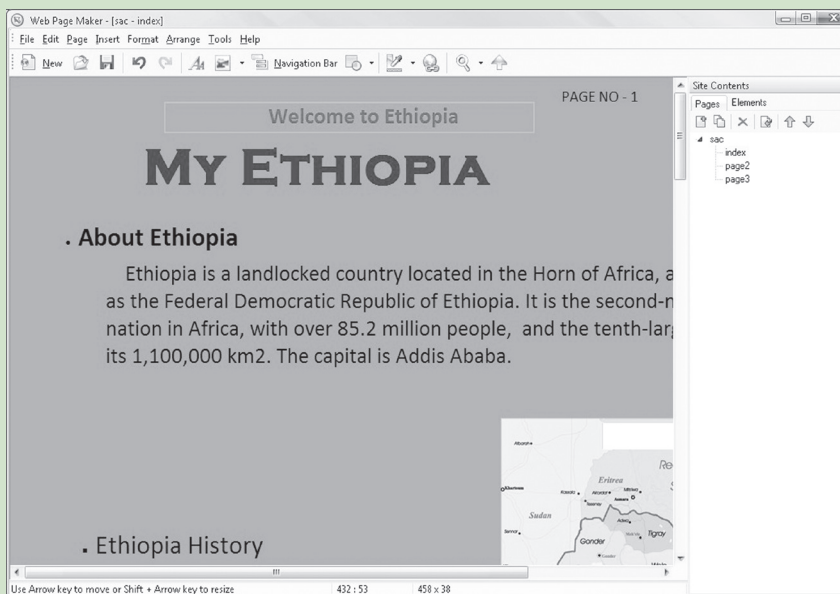


Fig. 3.20: Inserting animation on webpage

14. Inserting interactive buttons

Radio buttons are little circles located in front of various options; selecting an option with mouse places a dot in the corresponding circle. Radio buttons are used to interact with the same webpage.

To insert a radio button click *Insert* → *Form* → *Radio Button*.

15. Using Scripts

We can insert various scripts in our webpage for producing special effects on webpage.

To insert the script click *Insert* → *Ready-to-use Java Scripts....* The *Predefined Javascript* dialog box opens. Select the java script you want to insert on your web page and click *OK* (see Fig. 3.21).

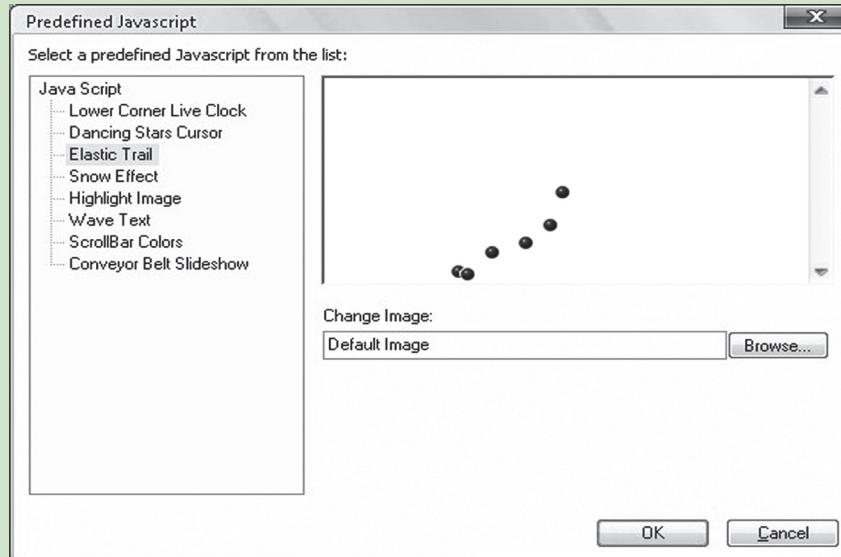


Fig. 3.21: Selecting Java Script

The selected java script will be inserted on the webpage (see Fig. 3.22).

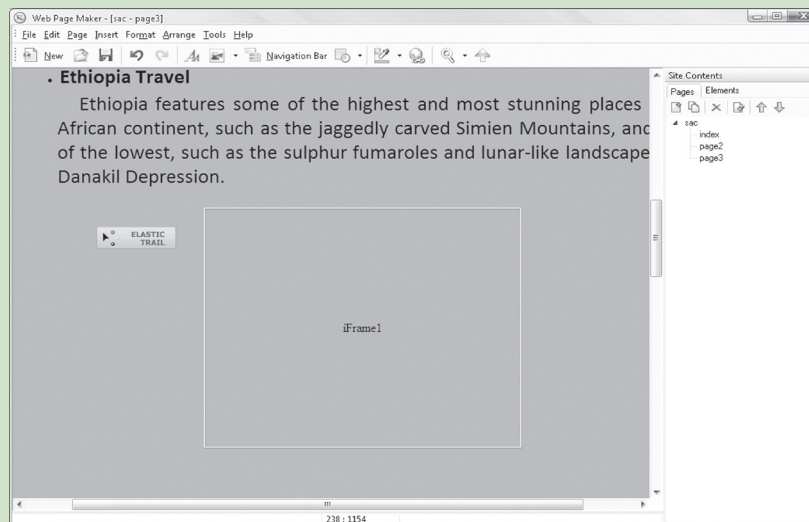


Fig. 3.22: A webpage after inserting Java Script

Now, the website has been developed.

16. Save your design.

17. Exporting design to HTML

To export the website to HTML, perform the following steps:

Click *File* → *Export to HTML*

Browse the Folder where you want to place your HTML file.

Let us place the HTML file in C:\New Folder

18. Now go to the selected Folder, that is, C:\New Folder (see Fig. 3.23) and open the *index.html* file in your Web Browser.

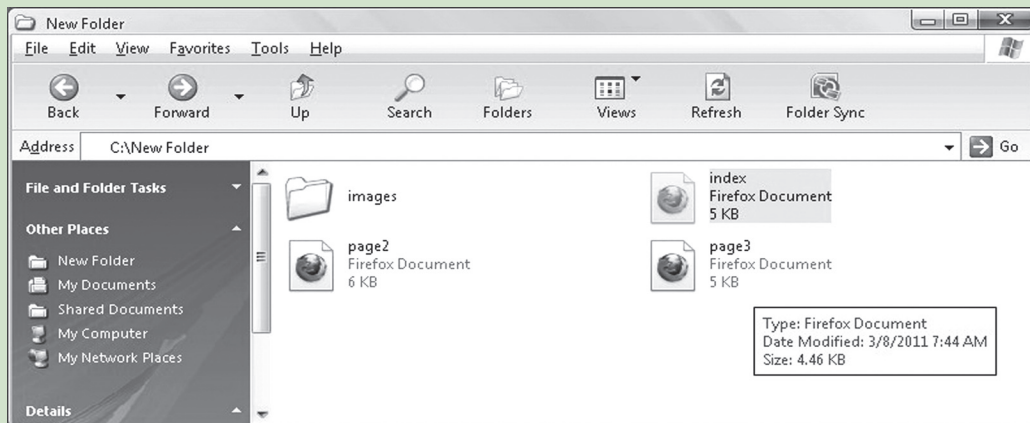


Fig. 3.23: Selecting index.html file for browsing

Your webpages will look as shown in the following figures:

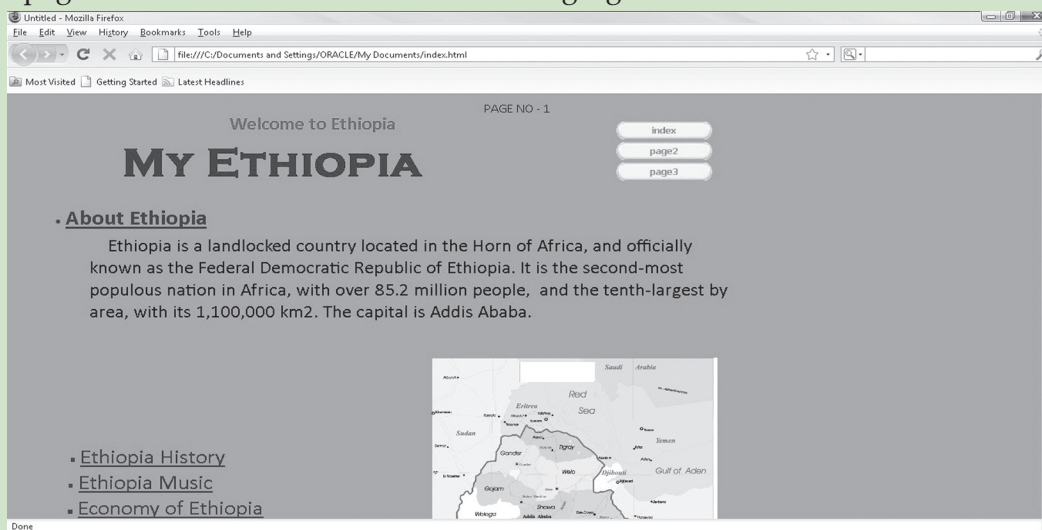


Fig. 3.24: WebPage-1

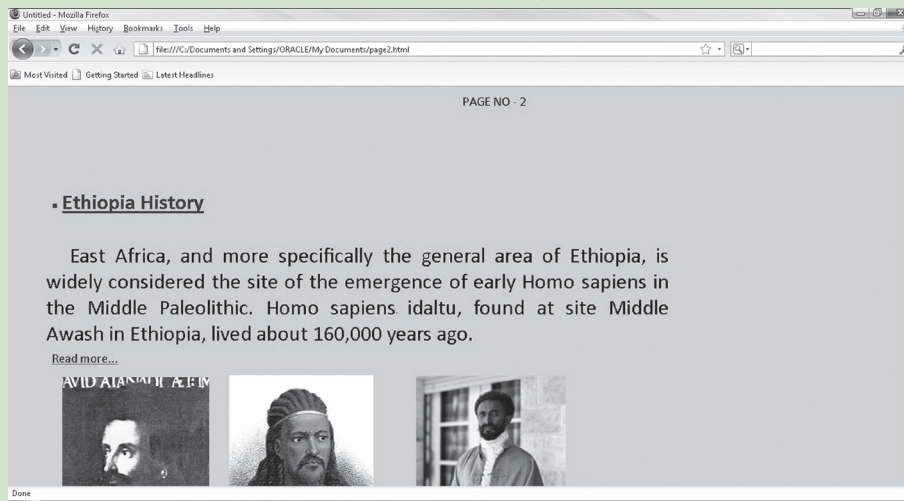


Fig. 3.25: WebPage-2

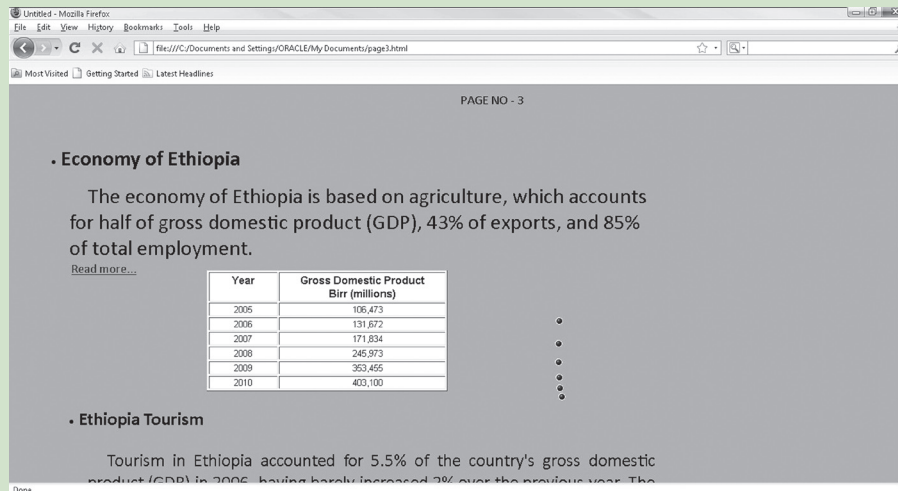


Fig. 3.26: WebPage-3 showing inserted Table and Java Script effect

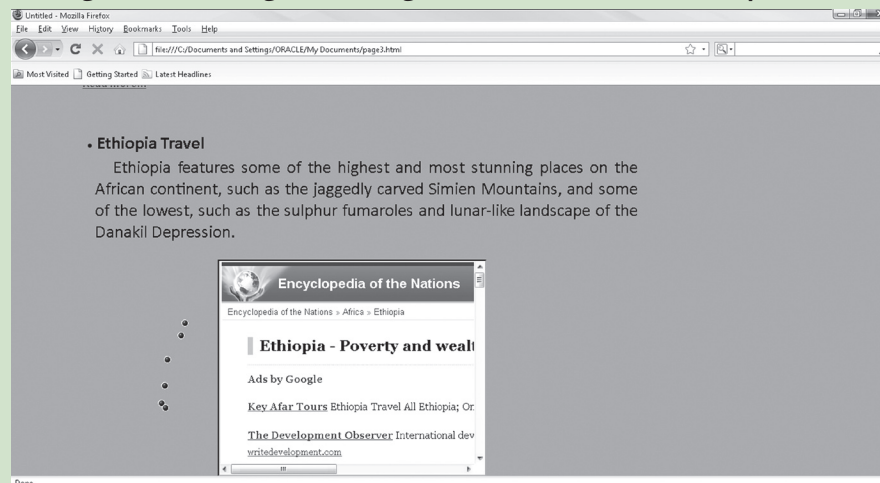


Fig. 3.27: WebPage-3 showing iFrame and Java Script Effect

19. Finally exit the browser and close the Web Page Maker.

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning about “Exploiting the Internet”.

ADDITIONAL QUESTIONS

1. List and explain the applications of websites.
2. What points must be considered in planning a website? Explain.
3. List some web page design/authoring software.
4. How will you create your own simple website? Explain.

UNIT 4

IMAGE PROCESSING AND MULTIMEDIA SYSTEMS

(27 PERIODS)

UNIT OUTCOME

Students will be able to:

- recognise components of multimedia and work with these components effectively
- understand the meaning and use of multimedia production
- create interactive applications using Multimedia applications.

SUGGESTED LESSON PLAN

Sub-units	Number of Periods
4.1 Basics of Multimedia	3
4.2 Multimedia Authoring	2
4.3 Introduction to Multimedia Authoring Tools	3
4.4 Inserting and Editing Text	3
4.5 Working with Images and Graphics	3
4.6 Page Transitions, Positioning and Motion Icon	3
4.7 Libraries	3
4.8 Working with Sound and Digital Movies	5
4.9 Overview of Film Editing	2

STRUCTURE OF THE UNIT

4.1 Basics of Multimedia

In this sub-unit, we will learn about Basics of Multimedia. The topics to be learnt are:

- Definition of multimedia
- Importance of multimedia
- Components of multimedia

- Hardware and Software requirements for multimedia
- Multimedia and hypermedia

4.2 Multimedia Authoring

In this sub-unit, we will learn about Multimedia Authoring. The topics to be learnt are:

- Stages of multimedia authoring
- Authoring tools examples
- File formats of sound, image and video

4.3 Introduction To Multimedia Authoring Tools

In this sub-unit, we will learn about Introduction to Multimedia Authoring Tools. The topics to be learnt are:

- Screen elements of multimedia application
- Creating a new project
- Building a basic piece
- Editing an icon

4.4 Inserting and Editing Text

In this sub-unit, we will learn about Inserting and Editing Text. The topics to be learnt are:

- Inserting display icon
- Inserting text into a text field

- Importing and pasting text
- Defining and applying text style
- Editing and formatting text as required

4.5 Working with Images and Graphics

In this sub-unit, we will learn about Working with Images and Graphics. The topics to be learnt are:

- Importing an image or graphic; pasting an image or graphic
- Modifying an image or graphic
- Drawing an image
- Filling colour
- Wait icon
- Erase icon

4.6 Page Transitions, Positioning and Motion Icon

In this sub-unit, we will learn about Page Transitions, Positioning and Motion Icon. The topics to be learnt are:

- Transitions
- Selecting transitions
- Positioning objects
- Types of positions
- Types of motion
- Using motion icon

4.7 Libraries

In this sub-unit, we will learn about Libraries. The topics to be learnt are:

- Creating
- Saving
- Closing and opening
- Selecting a library
- Adding icons to the library
- Using an icon from a library

4.8 Working with Sound and Digital Movies

In this sub-unit, we will learn about Working with Sound and Digital Movies. The topics to be learnt are:

- Sound icon
- Importing sound
- Changing the sound's play speed
- Working with digital movies
- File formats
- Importing a digital movie
- Setting playback conditions
- Turning the sound off

4.9 Overview of Film Editing

In this sub-unit, we will learn about Overview of Film Editing. The topic to be learnt is:

- Basics of Film Editing

REVIEW OF THE UNIT

- Multimedia is the combined use of several media, such as motion-pictures, slides, and music.
- Multimedia authoring involves collating, structuring and presenting information in the form of a digital multimedia, which can incorporate text, audio and still and moving images.
- Multimedia authoring tools are the tools that are used for creating various types of multimedia applications.
- Display icons are the ones that display some image or graphic.
- The wait icon provides a way to pause or delay any onscreen action. Delay can be a set time interval or may require a mouse click to continue.
- The multimedia library contains visual and audio elements (icons) required for developing new multimedia contents.
- The process of editing clips includes previewing and trimming them to eliminate unnecessary material. It also includes revising clip properties such as speed, direction, and duration.

ROLE OF THE STUDENTS

In this unit, the students are supposed to learn about image processing and multimedia systems. The activity

based method should be followed to understand the subject matter which is the best way of better understanding of the subject matter.

The students already know the basics of image processing and multimedia from Grade 11. They are

supposed to enhance their knowledge in this field. Since the field of multimedia is rapidly changing; students must read related articles and resources available on the Internet to keep up with the latest developments.

ADDITIONAL CLASS ACTIVITY FOR GIFTED STUDENTS OR SLOW LEARNERS

ACTIVITY 4.1: Use of Multimedia in the Classroom

In small groups, the students will explain and demonstrate the use of multimedia in the classroom.

Multimedia

Multimedia is the combination of more than one type of media. The media types can include text, graphic images, animation, audio and video. Figure 4.1 shows multimedia tools.

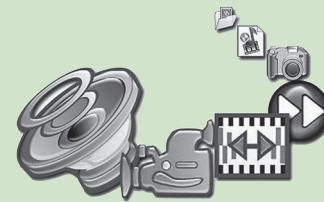


Fig. 4.1: Multimedia tools

Software Packages for Multimedia Projects

Multimedia projects can be created using many commonly used types of software. Some packages are:

- (i) Word processing software (MS-Word)
- (ii) Presentation graphics software (MS-PowerPoint)
- (iii) Web page authoring software (Dreamweaver and FrontPage etc.)
- (iv) Multimedia packages (Macromedia Authorware, Adobe Premier and Macromedia Flash etc.)

Figure 4.2 shows Macromedia Authorware package for working with multimedia.

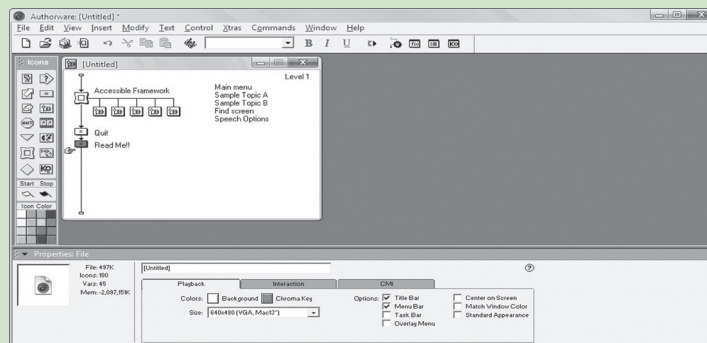


Fig. 4.2: Macromedia Authorware

Types of Projects to be Developed

Students can use multimedia to create various types of classroom projects in their computer laboratory.

Types of multimedia projects that can be developed by students are:

- (i) **Electronic Portfolios:** Electronic portfolios are collections or displays of student work that are systematically compiled to demonstrate skill level, growth over time, or understanding of a particular concept or discipline. Generally, teachers provide students with directions, a list of content, and guidelines for building a portfolio. Web page authoring software or presentation graphics software can be used to create electronic portfolios.

- (ii) **Multimedia Slideshows:** Students can create slideshows consisting of text, graphic images, audio clips, and/or video clips for projects about almost any subject. Presentation graphics software can be used to create multimedia slideshows.
- (iii) **Slideshow Reviews and Drills:** Slideshow reviews and drills can be created by students to help them practice and study many types of learning content such as spelling words, vocabulary words, mathematical facts, and possible test questions. These slideshows can be created using presentation graphics software.
- (iv) **Tutorials:** Students can create multimedia tutorials that provide step-by-step directions to guide users through the components of a subject. Topics for tutorials can be just about anything with an instructional sequence. Tutorials can be created using word processing, presentation graphics, or web page authoring software.
- (v) **Research Presentations:** Multimedia research presentations can be created by students to present findings for research projects. These presentations can be developed using presentation graphics software.
- (vi) **Virtual Tours:** Students can create virtual tours of local places of interest and field trips locations using presentation graphics or web page authoring software. These tours can include text descriptions of the places with photographs, audio clips, or video.
- (vii) **Interactive Storybooks:** Students can write their own stories, format them, and add illustrations using word processing, presentation graphics or web page authoring.
- (viii) **Class Yearbooks:** Students can compile class yearbooks containing information about class activities, photographs, audio clips, music clips, and video clips from throughout the year. Class yearbooks can be compiled using web page authoring or presentation graphics software.

Figure 4.3 shows students creating their projects in a computer lab.



Fig. 4.3: Students creating their projects in Computer Lab (Courtesy: www.flickr.com)

So, we see that the multimedia plays a vital role in the classroom.

ANSWERS TO REVIEW QUESTIONS

Fill in the Blanks

1. Multimedia
2. text, graphics, animation, sound, video
3. Transitions
4. sound, images, video

State Whether True or False

1. False
2. True
3. False
4. True

Multiple Choice Questions

- | | |
|--------|--------|
| 1. (d) | 2. (a) |
| 3. (c) | 4. (b) |
| 5. (d) | |

Match the Following

- | | |
|--------|--------|
| 1. (b) | 2. (d) |
| 3. (a) | 4. (c) |

Answer the Following

- Multimedia** is the combined use of several media, such as motion-pictures, slides and music. Or in other words, it refers to technology that presents information in more than one medium—such as text, pictures, video, sound, and animation—in a single integrated communication.

Components of multimedia: The multimedia components are:

- Text:* In the past, content was produced primarily via text. Though additional elements have been added, text remains vital to multimedia applications. This is because text is still an effective way to communicate. In multimedia, text is used as headlines, subtitles, and captions. In addition to supplying content, text is used to give directions and communicate information, text-based menus and buttons help guide users through the multimedia applications, and electronic books, magazines, and reference materials still rely on text to inform and educate.
- Graphics:* Because most people like illustrations, visuals, graphics, 2D and 3D images are crucial to multimedia development. In fact, multimedia applications are predominately graphic. Because they play such a critical role, balancing graphics is essential. When designing a multimedia application, it is important not to get carried away with graphics. Adding just the right graphic and just the right number of graphics may help the user learn and retain more information in less time and with less effort.

Graphics that fit most needs are quite easy to find. Commercially prepared drawings called clipart come packaged with many application programs. Charts, another type of graphics, can convey a great deal of information in a very limited space. Photographs can also be used to enhance multimedia applications.

When a graphic or other multimedia object serves as a link to additional information about a topic, the link is called hypermedia.

- Animation:* Animation refers to graphic images that change or move. Animation can convey information, add visual interest, or draw attention to important information or links in a multimedia application. Animation is commonly used in advertising and marketing on the Web because the movement does grab the visitor's attention. By illustrating proper techniques or explaining complex procedures, animation can also serve as an excellent learning aid in computer-based training programs.

Like clipart and stock photography, animated graphics are available for purchase on CD-ROM or they can be downloaded from the Internet. In addition, commercial software and shareware can be purchased or downloaded and used to create simple or complex animations.

- Sound:* By incorporating sound into a multimedia application, you require the user to make use of yet another sense. This enhances the experience and increases the likelihood of user understanding and enjoyment.

In multimedia applications, sound that has been digitized is called audio. Audio can be obtained by capturing sound into a personal computer using a microphone, CD-ROM, or other input device. It can also be played from a synthesizer, keyboard, or other musical instrument that is connected to the computer using MIDI (musical instrument digital interface) port.

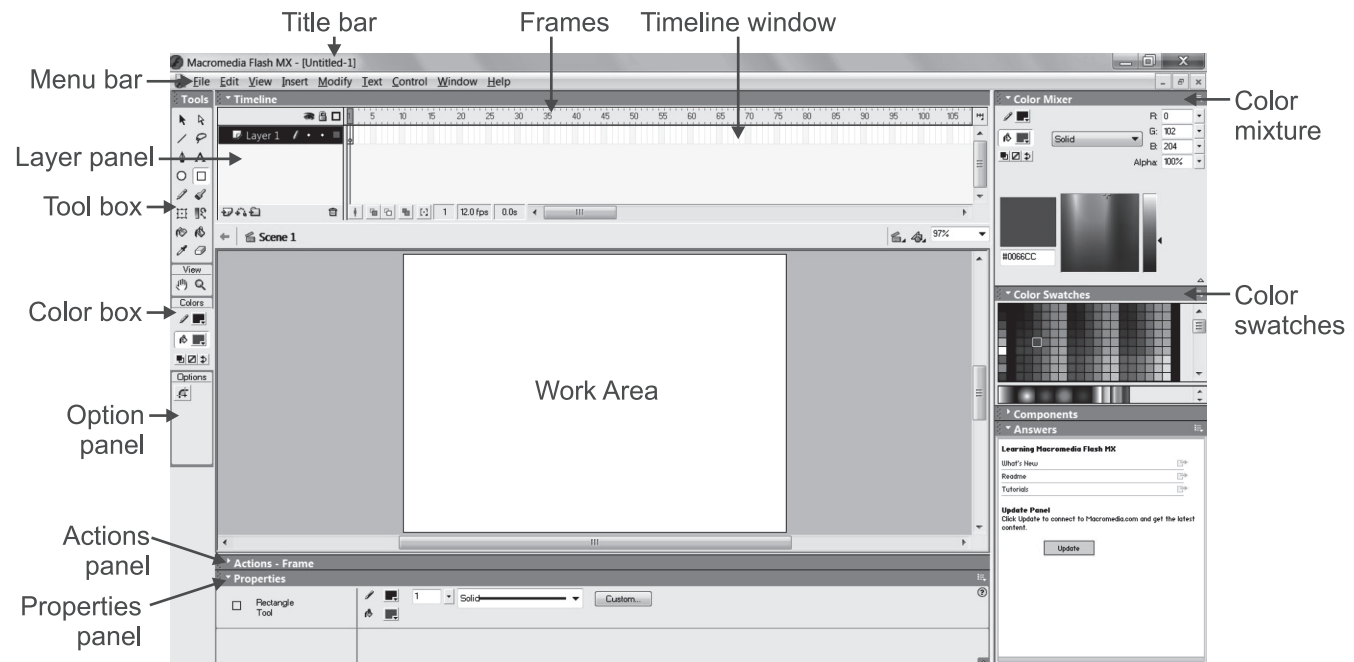
(v) *Video*: Video can do a great deal to enhance a presentation, illustrate a proper technique, or advertise a new product. Video files are photographic images played at speeds that make it appear as if the images are in full motion. Video files are incredibly large because a huge number of images are required to give the appearance of motion. Delivering video over the Internet is particularly challenging.

Interactive multimedia allows users to respond directly to and control media elements. Users of interactive multimedia become active participants in an application instead of passive recipients of information.

2. **Stages of multimedia authoring**: The five stages of multimedia authoring are:

- (i) *Analysis*: What do you need to do and what do you use to do it.
- (ii) *Design*: Create storyboards to tell the story of the project.
- (iii) *Development*: Incorporate data and set it up as a prototype or model.
- (iv) *Evaluation*: When the prototype application works the way you want it to, test it again, fine-tune it, make it attractive, and then review your work.
- (v) *Distribution*: When it is ready to go (after the evaluation phase), make it real. Package and distribute it.

3. The screen elements of Multimedia application Macromedia Flash shown below:



4. **Importing sound files**: You can import various sound in a multimedia project.

To import a sound file in Adobe Premier Elements 9, perform the following steps:

- (i) Click *Organize* → *Get Media* → *Files and Folders*.
- (ii) The *Add Media* dialog box opens.
- (iii) Browse the audio file you want to import and click *Open*.

(iv) The selected audio file will be imported in the project.

5. **Basics of Film Editing**: The process of editing clips includes previewing and trimming them to eliminate unnecessary material. It also includes revising clip properties such as speed, direction, and duration. You can also edit media clips generated by other programs in their original applications, from within Adobe Premiere Elements.

Trimming video clips

You can create a refined good-quality video file by removing unwanted sections and low-quality sections. Adobe Premiere Elements 9 enables you to efficiently handle blurred, shaky, and unwanted low-quality and low-interest sections of your video file. You can easily and quickly edit and fine-tune the video files. Smart trimming enables you to trim the low-quality sections of a video file. Smart trim can be done manually and automatically. You can trim clips from Timeline view or *Sceneline* view. However, you can trim only one clip at a time from the *Sceneline* view. Smart trimming is of two types, manual and automatic. Manual Smart trimming is the default mode. In this mode, you can specify the options that determine the trimmable sections. In the automatic Smart trim mode, Adobe Premiere Elements automatically determines the trimmable sections and you can choose to delete them or retain them.

Changing clip speed and duration*Changing clip speed*

To create a fast- or slow-motion effect, we can change clip speed. Changing clip speed changes the clip's duration. Speeding up a clip removes frames, thus shortening the clip duration. In the same way, slowing down a clip repeats frames and thus adds to the length of a clip. For audio clips, a change in speed also changes pitch. The *Time Stretch* command includes an option to maintain the original pitch of an audio clip at any speed.

You can change a clip's speed using the Timeline only—not the *Sceneline*.

Set the duration of a clip

The *duration* of a video or audio clip is the length of time it plays from its first frame (In point) to its last frame (Out point). The initial duration of a clip is the same as it was when the clip was imported or captured. Most often, you change a clip's duration by trimming frames from either

end. But you can also trim the end of a clip by designating a specific duration.

Unlike video, still images are not limited to the length of the original clip. You can set their duration to any length.

Freezing and holding frames*Export a video frame*

You can grab a single frame from a video clip to use as a still image in your current movie or to save as a still on your hard drive for use elsewhere. For example, you can use a still in your movie to show a character start an action, but then stop mid-action, frozen on the screen.

Play and hold a frame

To make the video start out as a still image and then begin to play, click the *Freeze Frame* button in the Monitor panel to create a still image from a frame, and then insert that still image at the location of the original frame.

Suggested Activities

Refer to sub-units 4.2 to 4.9 of the Student Textbook for doing the activities.

ALTERNATIVE TEACHING APPROACHES, ENRICHMENT MATERIAL

The ICT teachers can use Internet, charts, worksheets, models, go for educational field trips and subject experts can be called for seminars to enrich the teaching level and in turn help the students in learning about “Image Processing and Multimedia Systems”.

ADDITIONAL QUESTIONS

1. Describe several multimedia environments in which multimedia might be used.
2. Give examples of multimedia authoring tools.
3. List the sound, image and video file formats.
4. How will you import and paste images and graphics from other applications?

GRADE 12

MINIMUM LEARNING COMPETENCIES (MLCs)

S.No.	Units	Minimum Learning Competencies (MLCs)
1.	Information Systems	<ul style="list-style-type: none"> • Describe the advantages and disadvantages of E-learning • List the necessary technologies for E-learning • Explain how E-learning works • Listed some of the electronic systems • Explain the advantage of E-government • Explain the different services by E-government • Explain how E-banking works • Explain how E-libraries works • Explain how E-commerce works • Identify system problem • Recognize functional and non-functional system requirements
2.	Enhancing the Use of Software	<ul style="list-style-type: none"> • Solve problem specific software • Illustrating their ideas • Organising their contents • Querying their database • Testing hypotheses
3.	Exploiting the Internet	<ul style="list-style-type: none"> • Define website • Explain the different types of websites • List some well—established websites • Identify the type of website to be developed • Describe website planning • Explain how to design a webpage • Explain how to hyperlinks in a website • Insert images, buttons and animations into a webpage • Develop content for a website with uniform formatting

S.No.	Units	Minimum Learning Competencies (MLCs)
4.	Image Processing and Multimedia Systems	<ul style="list-style-type: none"> • Define multimedia • Explain importance of multimedia • List components of multimedia • Identify hardware and software necessary to run a multimedia package • Explain each stage of multimedia authoring • Give examples of authoring multimedia tools • Identify sound, image and video file formats • Identify screen elements of Multimedia application • Identify icons and their properties • Enter text in the presentation window • Import or paste text from another application to Multimedia application • Edit and format text as required • Import and paste images and graphics from other applications • Draw different shapes • Set the duration before a content on the presentation window is erased • Erase the contents of a presentation window • Position objects on the presentation window • Set different types of motions using the motion icon • Use pre-stored libraries • Create custom libraries • Add and use icons to a library as required • Insert sound icons • Import sound files • Set the property of sound files • Set the property of digital movie icons • Import movie files • Identify basics of film editing

GRADE 12 SYLLABUS

INTRODUCTION

In the preparatory schools students follow either the Social Science stream or the Natural Science stream; all students will continue to study IT.

In the long term, students will follow a common course of IT, irrespective of which stream they are in. This course will cover Information Systems, Basic troubleshooting, Image processing and Multimedia Systems in some depth. There will also be many opportunities to use software applications and tools that they have encountered during studies in earlier grades.

In future years, students may elect to follow a more-specialist course in Computer Science covering such areas as Computer Architecture, Systems Analysis and Design, Data Communications and Fundamentals of Programming.

In the short term, Grade 12 students will continue to follow the old Information Technology course until it is appropriate to introduce the new curriculum as described above.

UNIT 1: INFORMATION SYSTEMS (15 PERIODS)

Unit Outcome: Students will be able to:

- understand the concept of e-learning, e-commerce, e-government, e-banking and e-libraries.

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> • Define e-learning. • Describe the advantages and disadvantages of e-learning. • List the necessary technologies for e-learning. • Explain how e-learning works. 	<p>1.1 Basics of E-learning</p> <ul style="list-style-type: none"> • Definition of electronic learning • Advantages and disadvantages of e-learning • Technology necessary for e-learning <ul style="list-style-type: none"> – Information technology – Telecommunication technology – Internet connection • How e-learning works? 	<ul style="list-style-type: none"> • Explain the meaning of e-learning. • Let the teacher demonstrate the concept of e-learning with analogy to traditional face to face learning. • Learning management system (example Moodle).
<ul style="list-style-type: none"> • List some of the electronic systems. • Define e-government. • Explain the advantage of e-government. • Explain the different services by e-government. 	<p>1.2 Basics of E-government</p> <ul style="list-style-type: none"> • Definition of e-government • Advantages of e-government • Application of e-government • Services delivered by e-government • Status of e-government in Ethiopia 	<ul style="list-style-type: none"> • Describe in detail the main elements of atleast some of the electronic systems. • Let the teacher explain the definition of e-government and its application. • Teacher will organize a visit to one of the affrications listed above <i>e.g.</i>, a bank or arrange for a speaker to visit the class groups 4/5 students will offer a presentation of the affrications to the rest of the class all areas should be covered.

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> Explain how e-banking works. Explain how e-libraries work. Explain how e-commerce works. Identifying system problem. Recognize functional and non-functional system requirements. 	<p>1.3 Basics of E-Banking 1.4 Basics of E-Libraries 1.5 Basics of E-Commerce 1.6 System Analysis</p> <ul style="list-style-type: none"> Overview System problems 	<ul style="list-style-type: none"> Additionally teacher will demonstrate same sample e-government sites from the Internet. Students should explain about e-banking, e-libraries and e-commerce and others. The students work in groups. They must choose a topic which they have studied in this unit, and design a presentation which gives full information on the topic. The presentation should be at least 15 slides long, and all students in the group must participate in making the slides and providing information. Use resources like PCs Internet, LCD projector, List of useful illustrate sites. Students should Identifying system problem. Collect facts for existing system (e.g., interview, observation). Student should identify functional and non-functional system requirements.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students At Minimum Requirement Level

A student working at the minimum requirement level will be able to: Define E-learning, Describe the advantages and disadvantages of e-learning, List the necessary technologies for e-learning, Explain how e-learning works, list some of the electronic systems, Define e-government, Explain the advantages of e-government, Explain the different services by e-government, Explain how e-banking works, Explain how e-libraries works and Explain how e-commerce works.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

UNIT 2: ENHANCING THE USE OF SOFTWARE (24 PERIODS)

Unit Outcome: Students will be able to:

- choose appropriate software tools to solve problems illustrate ideas clarify thinking in the other subjects chosen for study in grade 11.

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> • Problem solving by specific software • Illustrating their ideas • Organising their contents • Querying their database • Testing hypotheses 	<p>2.1 Using Application Software</p> <ul style="list-style-type: none"> • Continue by revision use of <ul style="list-style-type: none"> ○ Word processor ○ Presentation Software ○ Spreadsheets ○ Publishing Software • Databases 	<ul style="list-style-type: none"> • Using the correct software tool will enhance knowledge of ICT the same time as the chosen subject. • Joint assessment by IT teacher and subject teacher to do the following: <ul style="list-style-type: none"> ○ Design a project where students can apply the knowledge of word, excel, database and presentation SW. ○ Creating a report in word which has header and footer, section break, formats, etc. ○ Create a database project that is used to create student database or customer above etc. • They can prepare a presentation for their project. • Prepare a brochure for their school to apply desktop publishing knowledge.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students At Minimum Requirement Level

A student working at the minimum requirement level will be able to solve problems by specific software, illustrate their ideas, organising their contents, Querying their database and testing their hypotheses.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

UNIT 3: EXPLOITING THE INTERNET (21 PERIODS)

Unit Outcome: Students will be able to:

- understand the concept of webpage design;
- understand and differentiate between the different kinds of websites;
- recognize the steps required for website design;
- design a simple and attractive website.

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> • Define website. • Explain the different types of websites. 	<p>3.1 General Concept of Website Design</p> <ul style="list-style-type: none"> • Definition of website • Definition of webpage <ul style="list-style-type: none"> ○ Home page • Types of website <ul style="list-style-type: none"> – Static and Dynamic • Application of website 	<ul style="list-style-type: none"> • Explain terminologies like website, webpage and homepage. • Explain the types of website with examples. • Demonstrate the difference between static and dynamic website. • Explain the different applications of websites, such as Educational, Commercial, Governmental and Entertainment.
<ul style="list-style-type: none"> • List some well-established websites • Identify the type of website to be developed. 	<p>3.2 Planning a Website</p> <ul style="list-style-type: none"> • Determining the purpose of the website. • Content identification • Knowing the Audience 	<ul style="list-style-type: none"> • Students should identify the following: <ul style="list-style-type: none"> ○ Knowing the audience. ○ Selecting technology to use. ○ Design of the web architecture. ○ Web content development. ○ Hosting the website to a web sector.

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> Describe website planning Explain how to design a webpage Explain how to hyperlink in a website 	<p>3.3 Website Design Considerations</p> <ul style="list-style-type: none"> Page layout of the website Create content <ul style="list-style-type: none"> Use of images Page size (Creating and formatting tables) Fonts (Adding design Elements) 	<ul style="list-style-type: none"> Discuss about the points to consider in planning a website. Explain the steps involved in website design with practical examples. Discuss the ways of adding different effects to a website. Students write a report discussing what must be considered when designing a website (<i>Twelve periods in the computer room are allowed for this assignment</i>), the students will develop their draft design into a website. The site should have at least three pages, and should include the design elements noted in the contents.
<ul style="list-style-type: none"> Insert images, buttons and animations into a webpage. Develop content for a website with uniform formatting. 	<p>3.4 Website development</p> <ul style="list-style-type: none"> Adding Text Adding Image Creating hyperlinks Inserting Table Inserting Frames Adding Web effects Inserting animations Using scripts Using Java applets. 	<ul style="list-style-type: none"> Adding and modifying graphics elements. Adding Navigational Elements. Adding links. Creating image maps and hotspots. Creating navigational structure. Adding Web effects. Inserting animations Inserting interactive buttons. Resources: PCs access to the internet, web design software. Students should demonstrate skill using a java script and java applets in their website.

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the student has achieved the minimum required level.

Students At Minimum Requirement Level

A student working at the minimum requirement level will be able to Define website, Explain the different types of websites, List some well-established websites, Identify the type of website to be developed, Describe website planning, Explain how to design a web page, Explain how to hyper links in a website, Insert images, Buttons and animations into a webpage, Develop content for a website with uniform formatting.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

UNIT 4: IMAGE PROCESSING AND MULTIMEDIA SYSTEMS (27 PERIODS)

Unit Outcome: Students will be able to:

- recognise components of multimedia and work with these components effectively;
- understand the meaning and use of multimedia production;
- create interactive applications using multimedia applications.

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> • Define multimedia. • Explain importance of multimedia. • List components of multimedia. • Identify hardware and software necessary to run a multimedia package. • Differentiate multimedia from hypermedia. 	<p>4.1 Basics of Multimedia</p> <ul style="list-style-type: none"> • Definition of multimedia • Importance of multimedia • Components of multimedia • Hardware and software requirements for multimedia • Multimedia and hypermedia 	<ul style="list-style-type: none"> • The teacher will explain the basic concepts mentioned under the content. • The students will participate in the discussion. • Students should differentiate Multimedia and hypermedia.
<ul style="list-style-type: none"> • List the stages of multimedia authoring. • Explain each stage of multimedia authoring. • Give examples of authoring multimedia tools. 	<p>4.2 Multimedia Authoring</p> <ul style="list-style-type: none"> • Stages of multimedia authoring • Authoring tools examples • File formats of sound, image and video 	<ul style="list-style-type: none"> • The teacher will explain and demonstrate stages of multimedia authoring. The teacher will explain and demonstrate Authoring tools examples like Macromedia Author ware, Adobe premier, Macromedia Flash and the students will practise. • Explain and demonstrate the steps involved in importing, pasting, defining styles, editing and formatting text and the students will practise.

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> Identify sound, image and video file formats. Identify screen elements of multimedia application. 	<p>4.3 Introduction to Multimedia Authoring Tools</p> <ul style="list-style-type: none"> Screen elements of multimedia application Creating a new project Building a basic piece Editing an icon 	
<ul style="list-style-type: none"> Identify icons and their properties. Build a piece. Edit icons. Enter text in the presentation window. Import or paste text from another application to multimedia application. Edit and format text as required. 	<p>4.4 Inserting and Editing Text</p> <ul style="list-style-type: none"> Inserting display icon Inserting text into a text field Importing and pasting text Defining and applying text style Editing and formatting text as required 	<ul style="list-style-type: none"> Students should apply Editing an icon: like Modifying properties, Displaying contents, Running and pausing a piece, and Saving and opening.
<ul style="list-style-type: none"> Import and paste images and graphics from other applications. Resize images properly. Draw different shapes. Fill the drawings with color. Set the duration before a content on the presentation window is erased. Erase the contents of a presentation window. 	<p>4.5 Working with Images and Graphics</p> <ul style="list-style-type: none"> Importing an image or graphic; pasting an image or graphic Modifying an image or graphic Drawing an image Filling colour Wait icon Erase icon 	<ul style="list-style-type: none"> Explain and demonstrate the steps involved in importing, pasting, images and graphics; drawing, colouring; erase and wait. The students will practise.

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> Apply different transitions as required. Position objects on the presentation window. Set different types of motions using the motion icon. Use pre-stored libraries. 	<p>4.6 Page Transitions, Positioning and Motion Icon</p> <ul style="list-style-type: none"> Transitions Selecting transitions Positioning objects Types of positions Using motion icon Types of motion 	<ul style="list-style-type: none"> Explain and demonstrate the steps involved in transitions, positioning and different types of motion. The students will practice.
<ul style="list-style-type: none"> Create custom libraries. Add and use icons to a library as required. 	<p>4.7 Libraries</p> <ul style="list-style-type: none"> Creating Saving Opening and Closing Selecting a library Adding icons to the library Using an icon from a library 	<ul style="list-style-type: none"> Explain and demonstrate the steps involved in using pre-stored libraries, creating libraries and adding and using icons. The students will practice.
<ul style="list-style-type: none"> Insert sound icons. Import sound files. Set the property of sound files. Insert digital movie icons. Set the property of digital movie icons. Identify the format of digital movies. Import movie files. 	<p>4.8 Working with Sound and Digital Movies</p> <ul style="list-style-type: none"> Sound icon Importing sound Changing the sound's play speed Working with digital movies File formats Importing a digital movie Setting playback conditions Turning the sound off 	<ul style="list-style-type: none"> Explain and demonstrate the steps involved in transitions, positioning and different types of motion. The students will practice. Explain and demonstrate the steps involved in using pre-stored libraries, creating libraries and adding and using icons. Explain and demonstrate the steps involved in using sound and in working with digital movies. The students will practice. <p>(Fourteen periods in the computer room are allowed for this assignment)</p>

Competencies	Contents	Suggested Activities
<ul style="list-style-type: none"> Identify basics of film editing. 	<p>4.9 Overview of Film Editing</p> <ul style="list-style-type: none"> Basics of Film Editing 	<p>The students will design and produce a multimedia presentation on an idea or theme of their own which has relevance to the work that they were doing in Grade 11.</p> <p>Resource: Multimedia package, Authoring tools: Macromedia Authorware, Adobe premier, Macromedia Flash, Scanner, Digital camera, Sound recorder.</p>

ASSESSMENT

The teacher should assess each student's work continuously over the whole unit and compare it with the following description, based on the specific objectives, to determine whether the students has achieved the minimum required level.

Students At Minimum Requirement Level

A student working at the minimum requirement level will be able to define multimedia, explain importance of multimedia, list components of multimedia, identify hardware and software necessary to run a multimedia package, differentiate multimedia from hypermedia, list the stages of multimedia authoring, explain each stage of multimedia authoring, give examples of authoring multimedia tools, identify sound, image and video file formats, identify screen elements of multimedia application, edit icons, enter text in the presentation window, import and paste images and graphics from other applications, set the duration before a content on the presentation window is erased, erase the contents of a presentation window, apply different transitions as required, create custom libraries, add and use icons to a library as required, insert digital movie icons, identify the format of digital movies and import movie files.

Students Above Minimum Requirement Level

Students working above the minimum requirement level should be praised and their achievements recognized. They should be encouraged to continue working hard and not become complacent.

Students Below Minimum Requirement Level

Students working below the minimum requirement level will require extra help if they are to catch up with the rest of the class. They should be given extra attention in class and additional lesson time during breaks or at the end of the day.

GLOSSARY

A

Absolute Reference: Commonly used in spreadsheet applications, it is a formulated cell reference that will not adjust when used to calculate the sum of specific cells.

Access: A database program which is a part of the Microsoft Office suite of programs.

Address Book: In e-mail, list of regular contacts' addresses held in the e-mail software.

AI (Artificial Intelligence): It is the branch of computer science concerned with making computers behave like humans.

Alignment: Positioning of text according to the margins and baseline.

Analog: It is any fluctuating, evolving, or continually changing process that represents data by measurement of a continuous physical variable.

Animation: The display of a sequence of images in a computer program or on a Webpage to give the impression of movement.

Application Software: A program that is designed to perform specific tasks.

ASCII: American Standard Code for Information Interchange. It is pronounced (as-kee).

Attachment: An attachment can be a file of almost any kind—a document file, an image file, a sound file or a video clip—that we can add, *i.e.*, attach, to an email.

B

B2B (Business-to-Business): Companies doing business with each other such as manufacturers selling to distributors and wholesalers selling to retailers constitute B2B type of e-commerce.

B2C (Business-to-Consumer): It comprises of businesses selling to the general public typically through catalogues utilizing shopping cart software.

Backup: To copy files or data to a second source or media so as to safeguard it.

Bandwidth: A measurement of how much data (bits per second) can be sent through a connection.

BCD: Binary Coded Decimal.

Binary: A basic numbering system consisting of 1s and 0s.

BIT (Binary DigIT): It is the smallest unit of processing of computerized data in terms of 1s or 0s.

Blog: (Slang term for a Weblog) A blog is a personal journal that can be accessed publicly and allow people to comment on the previously posted comments.

Bluetooth: A wireless networking technology using radio waves that enables user to send data and voice signals between devices over short distances.

BMP (Bitmap): It is a standard uncompressed format for Microsoft Windows and IBM OS/2.

Boolean Searching: Boolean searching is built on a method of symbolic logic developed by *George Boole*, a 19th century English mathematician. Most search engines support Boolean searches.

Bootng: Starting a computer by loading the operating system into memory.

Broadband: A general term used to describe a high-speed connection to the Internet.

Browser: Software program that allows the user to find and read encoded information in a form suitable for display especially on World Wide Web.

Byte: A combination of 8 bits to represent computer data transfer or data storage measurement.

C

Cell: Intersection of a row and column in a worksheet.

CD-ROM (Compact Disc Read-Only Memory): A durable and low cost circular optical storage device widely used to store large amounts of information.

Chat: The typed discussion among participants who are online at the same time; it is just like telephone conversation, except that messages are typed rather than spoken.

Clipart or Clip Art: A collection of image files that can be embedded or inserted into Web pages, word-processed documents, PowerPoint presentations, etc.

Compiler: A type of system software that translates a source program usually written in a high level language into a machine language.

Computer: An electronic device that accepts, processes, stores and outputs data under the control of a set of instructions.

Computer Laboratory: A special place where computers are kept to operate.

Computer Program: A set of instructions that the computer carries out to perform a given task.

Copy, Cut and Paste: Techniques of duplicating or removing data from one place and inserting it elsewhere.

Copyright: New technologies have raised all kinds of new issues relating to copyright—mainly because it has become so easy to copy materials from a variety of digital sources.

Cropping: The process of removing portions of an image to create focus or strengthen the composition.

CPU (Central Processing Unit): A processor on an IC chip (called a microprocessor) that serves as the ‘brain’ of the computer.

Cursor: A movable, blinking symbol that indicates the position on a computer screen where user action is needed.

D

Data: A collection of raw facts and figures or a raw input which when processed or arranged makes meaningful output.

Database: A structured collection of data that can be used for a variety of purposes.

Data Communications: The moving or sharing of encoded information between two or more data sources using an electronic medium.

DBMS (Database Management System): Application software which enables the storage, modification, retrieval, and querying of data in a database.

Debug: To test a program and remove all the bugs (errors).

Defragmenter Utility Program: It finds all the scattered files on the hard disk and reorganizes them as contiguous files.

Desktop: The primary display screen of a graphical user interface, on which various icons represent files, groups of files, programs, which can be moved, accessed, added to, deleted, etc. on a real desk

Desktop Publishing (DTP): Application software for laying out text, graphics and pictures in order to produce a professional-looking publication.

Digital: A system that defines data in a discrete, non-fluctuating (*i.e.*, non-analogue), numerical digits, specially 1s or 0s.

Digital Device: A device that works with discrete numbers or digits.

Directory: An organizing unit in a computer’s file system for storing and locating files. In a hierarchical file system, directories can contain subdirectories as well as files.

Disk Fragmentation: The scattering of portions of files about the disk in nonadjacent areas, thus greatly slowing access to the files.

Disk Cleanup Utility: It can search for and remove unnecessary files such as temporary files, or “temp files”.

Display Icons: The icons that display some image or graphic.

Distribution List: Also called a mailing list, is a collection of e-mail addresses that allows you to e-mail multiple people at one time.

Domain Name System: An addressing system in which abbreviations are used to indicate the type of organization or entity instead of whole name, for example, .edu for educational institution.

DSS (Decision Support System): A computer-based information system that provides a flexible tool for analysis and helps managers focus on the future.

Downloading: It means transmitting data from a remote computer to a local computer, as from a website to your own PC.

DVD: Digital Versatile Disc or Digital Video Disc.

Dynaset: Set of records returned by a query.

E

E-Banking: Use of computer and e-technology as a substitute for checks and other paper transactions.

E-Business: Business involving transactions using electronic media and technology.

E-Commerce: Buying and selling or business transaction conducted on the Internet.

E-Governance: Application of electronic means in governance.

E-Government: Government's use of information technology to exchange information and services with citizens, businesses, and other arms of government.

Electro Static Discharge (ESD): The release of static electricity when two objects come into contact.

E-Learning: Means of teaching through e-technology.

E-Libraries: The physical sites and/or websites that provide 24-hours online access to digitized audio, video, and written material.

E-Mail: Stands for Electronic Mail. This is a system of relaying messages across the Internet, from one Internet user to another.

Encryption: A system of coding that helps prevent access to private information on computer networks or on the Web.

EPROM: Erasable Programmable Read-Only Memory ("ee-prom"). It is a memory chip whose contents can be erased by a mechanism using ultraviolet light and reprogrammed for other purposes.

Ergonomics: The study of the interaction between people and machines.

ESS (Executive Support System): An easy-to-use Decision Support System made especially for top managers; it specifically supports strategic decision making.

F

Flash Player and Flash Professional: Software produced by Adobe for the development and viewing of animated and interactive sequences on the Web.

Firmware: A microprogram stored in read-only memory (ROM), designed to implement a function that had previously been provided in software.

Folder: An alternative word for a directory and which has become more common since the introduction of Windows.

Forms: Used to provide an easy to use interface for user to enter, view and modify data in a table.

Format: The arrangement of data for computer input or output, such as the number and size of fields in a record or the spacing and punctuation of information in a report. It is also to prepare a disk for reading and writing.

Format Painter: Helps to copy the format that has been applied to text and apply it to another.

Freeware: This is a shortened version of Free Software. Programmers offer their work without wanting pay in return.

FTP (File Transfer Protocol): A software protocol for exchanging information between computers over a network.

G

GIF (Graphics Interchange Format): It is pronounced "jif", supports upto 256 colors (8 bits per pixel).

Gigabyte (GB): 2 to the 30th power (1,073,741,824) bytes. One gigabyte is equal to 1,024 megabytes.

GIGO: It is an acronym that stands for Garbage In, Garbage Out.

Google: A popular search engine.

GUI (Graphical User Interface): A program interface that takes advantage of the computer's graphics capabilities to make the program easier to use. Well-designed graphical user interfaces can free the user from learning complex command languages.

H

Hacker: A person who spends his/her time trying to gain access to information stored on other people's computers all around the world.

Hardcopy or Hard Copy: Printed output from a computer, as opposed to output on screen.

Hardware: The physical equipment used in a computer system, such as the CPU, peripheral devices and memory.

Home Page: The initial page of a site on the World Wide Web.

HTML (Hypertext Markup Language): It is a collection of structuring and formatting tags used to create Web pages.

HTTP (Hyper Text Transport Protocol): The standard protocol for transferring hypertext documents on the World Wide Web.

Hyperlinks: A word or graphic display on one web page that allows a computer to shift to another related web page.

Hypertext: A method of storing data through a computer program that allows a user to create and link fields of information at will and to retrieve the data non-sequentially.

I

Icon: A picture or symbol to represent a command on a computer screen.

IC: Abbreviation for Integrated Circuit.

ICT: Information and Communication Technology.

IDE (Integrated Development Environment): A programming environment integrated into an application.

Image Processing: The set of computational techniques for analyzing, enhancing, compressing, and reconstructing images, generally with a digital computer.

Information: Meaningfully organized data.

Information System: A system that provides information to people in an organization.

Input: Anything that goes into a computer in order to be processed and/or stored.

Input Device: A device that allow people to put data into the computer in a form that the computer can use. For example, keyboard.

Internet Explorer: A browser produced by the Microsoft Corporation and supplied together with the Windows operating system.

Integrated Circuit (IC): A circuit of transistors, resistors, and capacitors constructed on a single semiconductor wafer or chip, in which the components are interconnected to perform a given function.

Interface: This is any type of point where two different things come together. Most often, the term is used to describe the programs between you and your computer like Windows, UNIX and others. What you see on the screen is the interface between you and what your computer is doing.

Interpreter: It translates and executes source program, written in high level language, statement-by-statement.

Internet: The Internet is a network of networks all of which use the same set of communications protocols.

Intranet: A private network for communications and sharing of information that, like the Internet, is based on TCP/IP but is accessible only to authorized users within an organization. An organization's intranet is usually protected from external access by a firewall.

ISP (Internet Service Provider): A company that provides access to the Internet.

IT (Information Technology): The development, implementation, and maintenance of computer

hardware and software systems to organize and communicate information electronically.

J

JAVA: A high-level programming language developed by Sun Microsystems.

Joystick: A device that looks a bit like a gear lever in a car. This is connected to a computer and is used mainly for controlling the cursor in fast action games.

JPEG (Joint Picture Experts Group): It is pronounced "jay peg". It supports 16.7 million colors (24 bits per pixel).

K

Keyboard: An input device which is used to enter information which the computer displays or processes.

Kilobyte (KB): This is about a thousand bytes of space. In reality, it is two to the 10th power or 1,024 bytes.

L

LAN (Local Area Network): A network that links together computers and peripheral equipment within a limited area, such as a building or a group of buildings.

Language Processor: Software that converts a high level language or assembly language code into machine understandable form.

Laptop Computer: A computer that is light and can easily be carried around.

Laser Printer: A type of printer that produces high-quality output at a reasonable speed.

LCD (Liquid Crystal Display): A method of displaying readings continuously using a liquid-crystal film, sealed between glass plates that changes its optical properties when a voltage is applied.

Learning Management System (or LMS): A software package that enables the management and delivery of learning content and resources to students.

Linker: A program specifically designed to combine or link together a large number of programs forming a single executable instruction set for these programs that can be loaded into the systems memory for quick execution.

Login: To attach to a computer using the user's ID.

LOGO (Logic Oriented, Graphics Oriented): A high level programming language specifically designed for its ease of use and graphics capabilities.

M

Mainframe: Second largest computer available after the supercomputer.

M-Commerce: Buying and selling of goods and services through wireless technology.

Megabyte (MB): About a million bytes of space. Actually it is 2 raised to the 20th power or 1,048,576 bytes of space.

Memory: Internal storage areas in the computer.

Microcomputer: A category of computer that is generally used for personal computing, for small business computing, and as a workstation attached to large computers or to other small computers on a network.

Microprocessor: An integrated computer circuit that performs all the functions of a CPU.

Microsoft Office: A suite of programs produced by Microsoft Corporation, comprising a Word-processor (Word), a Spreadsheet (Excel), a Presentation Program (PowerPoint), an Email package (Outlook), a Database program (Access), and a Desktop Publishing package (Publisher).

MIS (Management Information System): A computer-based information system that uses data recorded by Transaction Processing System as input into programs that produce routine reports as output.

MODEM: Stands for MODulator and DEModulator. It is a device that changes data from digital (computer language) to analog (phone line language) and then back again.

Moodle: An Open Source Course Management System (CMS), also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE).

Motherboard: The main circuit board of a microcomputer.

Monitor: The screen on which output from a computer is displayed.

Mouse: A pointing device that is used by moving it around on the desk and pressing (clicking) a button.

MPEG (Motion Picture Experts Group): A format to make, view, and transfer both digital audio and digital video files.

MS-Access: Database application software, provided by Microsoft.

MS-Excel: Spreadsheet application software, provided by Microsoft.

MS-PowerPoint: Presentation software, provided by Microsoft.

MS-Word: Word processing application software, provided by Microsoft.

Multimedia: The integration of two or more types of information (text, images, audio, video, animation, etc.) in a single application.

Multimedia Authoring: It involves collating, structuring and presenting information in the form of digital multimedia, which can incorporate text, audio, and still and moving images.

Multimedia Authoring Tools: Tools that are used for creating various types of multimedia applications.

N

Nanosecond: A billionth of a second. Many computer operations, such as the speed of memory chips, are measured in nanoseconds. Nanosecond is often abbreviated as ns.

Navigation: It is the process of finding the way, *i.e.*, navigating, around a series of menus within a computer program or finding the way around the World Wide Web by means of a browser.

Netiquette: The rules of etiquette that apply when communicating over computer networks, especially the Internet.

Network: A system containing any combination of computers and its peripherals, used to transmit or receive information.

Newsgroup: An online discussion community found on the USENET system. These groups cover thousands of different topics of information and are offered free of charge.

Node: In networks, a processing location. A node can be a computer or some other device, such as a printer.

Notebook Computer: A type of Laptop Computer, but lighter and thinner—and therefore easy to carry around.

O

OAS (Office Automation System): It combines various technologies to reduce the manual labour required in operating and efficient office environment.

Offline: Not connected to a computer or network of computers.

Online: Connected to a computer or network of computers, especially the World Wide Web.

Operating System: A system software program that works as a bridge between computer hardware and the user. Operating systems perform basic tasks, such as recognizing input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.

Outlook: A popular e-mail program, part of the Microsoft Office suite of programs.

Output: Anything that comes out of a computer after being processed.

Output Device: A device that translates information processed by the computer into a form that humans can understand.

P

PDA (Personal Digital Assistant): A handheld device that combines computing, telephone/fax, and networking features and serves as an organizer for personal information.

PDF (Portable Document Format): A technology developed by Adobe and was designed to capture all of the elements of a printed document and place it in a single image file.

Pen Drive: A secondary storage device that can be used to easily transfer files between USB-compatible systems.

Peripheral: Any external device attached to a computer.

Pixel: The smallest element of an image that can be individually processed in a video display system.

Plotter: A computer output device that draws images on paper using a pen.

Podcasts: Online broadcasts that can be downloaded to portable devices.

Portal: A Webpage, website or service that acts as link or entrance to other websites on the Internet.

Printout: Anything produced on a printer after being processed by a computer program.

Primary Key: A set of one or more values in a database that uniquely identifies a record in a table.

Primitives: The LOGO commands are known as 'Primitives'.

Procedure: The sequence of actions or instructions to be followed in solving a problem or accomplishing a task. It may be used at one or more points in a computer program.

Processor: A device that processes programmed instructions and performs tasks. The speed at which

the CPU processes information internally is measured in MegaHertz (MHz) and GigaHertz (GHz). 1 GHz is equal to 1,000 MHz.

Programmable Read-Only Memory (PROM): A special memory chip that is blank when first purchased. It can be written to by the user by using a special hardware program. Once the data is written to it, it cannot be erased or changed.

Protocol: A set of rules governing the format of messages that are exchanged between computers.

Public Domain: Material that is copyright free, whose copyright has expired, or which cannot be copyrighted.

Q

Query: Used to retrieve information on a certain condition from a database.

R

RAM (Random Access Memory): A volatile computer memory available to the user for the temporary storage and manipulation of data.

Relative Reference: The default reference in a spreadsheet package.

Reports: Used to present data in a printed format.

Resolution: A measure of the number of pixels or small dots displayed on a computer display screen, printer or scanner.

ROM (Read-Only Memory): A memory in which program instructions, operating procedures, or other data are permanently stored, generally on electronic chips during manufacture, and that ordinarily cannot be changed by the user or when power is switched off.

Router: A device in a network that handles message transfers between computers.

S

Scroll Bar: A widget found in graphical user interface and used to show and control which portion of a document is currently visible in a window. A window may have a horizontal or, vertical scroll bar, or both.

Scanner: A device used to convert hard copy, e.g., a printed page, photograph or photographic negative, into a form that can be stored on a computer.

Screen Saver: A moving picture or pattern that appears on the screen when you have not used the mouse or keyboard for a specified period of time.

Scroll: To move up and down or from side to side through a document or a Window to view or access all of its contents.

Search Engines: A computer program that searches documents, especially on the World Wide Web, for a specified word or words and provides a list of documents in which they are found.

Serial Port: A port or interface that can be used for serial communication, in which only 1 bit is transmitted at a time. Most serial ports on personal computers conform to the RS-232C or RS-422 standards.

Server: This is a mainframe computer that serves the other computers attached to it.

Sheet Tab: In spreadsheet applications, this refers to a tab at the bottom of a worksheet that acts as a means to identify or access different sheets within a workbook.

Slide Show: Used to display the slides in a desired sequence.

SMS (Short Message Service): A popular wireless service that is used for sending and receiving short messages up to a maximum of 160 characters. The service is used for text messaging between cell phones that are on a GSM (Global System for Mobile) network.

Software: The set of instructions used to direct the operation of a computer, as well a documentation giving instructions on how to use them.

Social Networking: The grouping of individuals or organizations into specific groups.

Source Code: Program code written in a high level language.

Source data: Data for which the chart is prepared.

Spam: The disruptive unwanted messages, especially commercial messages posted on a computer network or sent as e-mail.

Spreadsheet: A document which helps to organize data in rows and columns that intersect to form cells.

Supercomputer: High-capacity computer with thousands of processors that is the fastest calculating device ever invented.

Switch: In networks, a device that filters and forwards packets between LAN segments.

Syntax: Grammatical rules and structural patterns governing the ordered use of appropriate words and symbols for issuing commands, writing code, of a programming language.

System: Collection of related components that interact to perform a task in order to accomplish a goal.

Systems Analysis and Design: A six-phase problem-solving procedure for examining an information system and improving it.

Systems Development Life Cycle (SDLC): A step-by-step process that many organizations follow during systems analysis and design.

System Software: It is a set of master programs that keeps the computer system working.

T

Task bar: The bar that contains the start button and appears by default at the bottom of the desktop.

TCP/IP: Acronym for Transmission Control Protocol/Internet Protocol, the suite of communications protocols used to connect hosts on the Internet.

Technology: It is the usage and knowledge of tools, crafts, techniques, or systems, or methods of organizations.

Telecommunication: The transmission of messages over significant distances for the purpose of communication

Terabyte (TB): 2 to the 40th power (1,099, 511, 627, 776) bytes.

TIFF (Tagged Image File Format): It stores compressed files with a flexible number of bits per pixel.

TPS (Transaction Processing System): A computer-based information system that tracks the transactions needed to conduct business.

Toolbar: A row or rows of buttons on a display screen that are clicked on to select various functions in a software application or web browser.

Topology: In networking, this refers to the physical or logical arrangement of a network.

Touch-sensitive Screen: A display screen which enables the computer to react to the touch of a finger.

Transistor: A semiconductor device that amplifies, oscillates, or switches the flow of current between two terminals by varying the current or voltage.

Trojan: A type of computer virus that is loaded into an unsuspecting users system via a host program such as a free game.

Turtle: A triangular shape pointer used in LOGO that helps in drawing figures.

Twitter: A microblogging facility that allows users to post very short texts (maximum 140 characters) containing snippets of information about what they are doing at a given moment, news items, links to websites or comments on events.

U

UNICODE: Binary coding scheme that uses 2 bytes (16 bits) for each character. It allows almost all the written languages of the world to be represented using a single character set.

Uploading: It means transmitting data from a local computer to a remote computer, as from your PC to a website you are constructing.

UPS (Uninterruptible Power Supply): It is a backup power unit that provides continuous power when the normal power supply is interrupted.

URL (Uniform Resource Locator): A protocol for specifying addresses on the Internet. It is an address that identifies a particular file on the Internet, usually consisting of the protocol as http, followed by the domain name.

User: Someone attached to a server or host.

User-friendly: Mainly used to describe software. Software that is easy to use and offers guidance if the user does silly things is described as user-friendly.

Utility Program: A program developed to run within an Operating System to perform a specific service.

V

Videoconferencing or Video Conferencing: A computer-based communications system that allows a group of computer users at different locations to conduct a “virtual conference” in which the participants can see and hear one another as if they were in the same room participating in a real conference.

Virus: A program or piece of code that is loaded onto your computer without your knowledge and runs against your wishes.

W

W3C (World Wide Web Consortium): An international non-profit organization which acts as a resource centre for the World Wide Web, and is active in setting technical standards.

WAN (Wide Area Network): A network in which computers are connected to each other over

a long distance, using telephone lines and satellite communications.

WAV: Stands for WAVeform sound format. Microsoft’s format for encoding sound files.

Webcam: A camera connected to a computer and linking it to the Internet.

Web page or Webpage: A single, usually hypertext document on the World Wide Web that can incorporate text, graphics, sounds, etc.

Web server: A computer that runs specific software to serve web pages to the Internet.

Web site: A connected group of pages on the World Wide Web regarded as a single entity, usually maintained by one person or organization and developed to a single topic or several closely related topics.

Wizard: A utility that provides guided sequence to perform complex task easily and quickly.

Wifi: Wireless Fidelity, also known as wireless networking, a way of transmitting information without cables that is reasonably fast and is often used for laptop computers within a business or school campus instead of a Local Area Network (LAN) that uses cable connections.

Wikis: Webpages that can be viewed and modified by anyone with a Web browser and Internet access.

Word Processor: Software that processes textual matter and creates organized documents.

Workstation: The computer attached to the Internet.

WWW (World Wide Web): Series of servers or computers that are interconnected through hypertext.

WYSIWYG: What You Say Is What You Get.

X

XML (eXtensible Markup Language): It is a markup language, not limited to Web documents.

Y

YouTube: A website to which we can upload our own video clips and view video clips uploaded by others: <http://www.youtube.com>.

Z

Zip Disks: The disks with a special high-quality magnetic coating that have a capacity of 100, 250 or 750 megabytes.

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