EXPLOITING THE INTERNET

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.

3.1 GENERAL CONCEPT OF WEBSITE DESIGN

You have already studied about basic concepts of Internet and WWW in Grades 9, 10 and 11. In this unit, we will further exploit the Internet.

● Definition of Website

A computer with a domain name is called a website (site). Figure 3.1 shows the Microsoft Office website.

Fig. 3.1: Microsoft Office website (office.microsoft.com)

● **Definition of Webpage**

A webpage is a document on the World Wide Web that can include text, picture, sound, and video. Figure 3.2 shows a webpage.
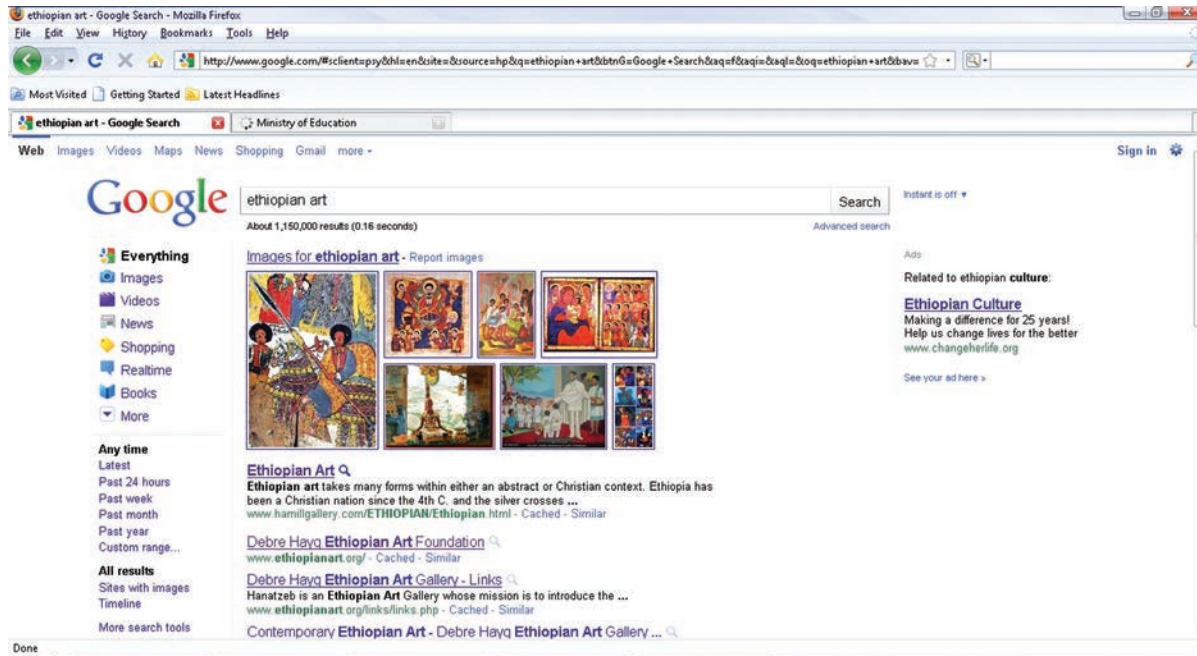

Fig. 3.2: A webpage

● **Home Page**

The first page you see at a website is like the title page of a book. This is the home page, or welcome page, which identifies the website and contains links to other pages of the site. Figure 3.3 shows the home page of the website *www.eth op antreasures.co.uk*.
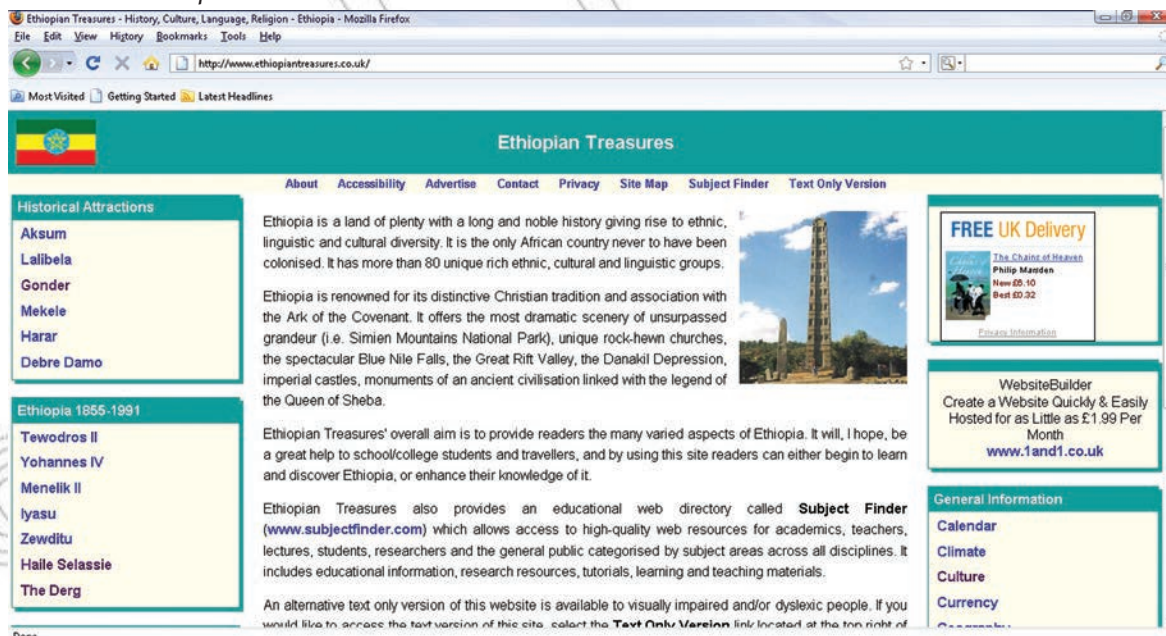

Fig. 3.3: Home page of the website www.ethiopiantreasures.co.uk

If you have your own website, it might have just one page—the home page. Large websites have hundreds of pages.

> The contents of home page often change. Or they may disappear, and so the connecting links to them in other webpages become links to nowhere.

• Types of Website

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

1. **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.

2. **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*) *www.yahoo.com*

(*ii*) *www.google.com*

(*iii*) *www.youtube.com*

(*iv*) *www.telecom.net.et*

(*v*) *www.ethiopianreview.com*

(*vi*) *www.hi5.com*

(*vii*) *www.nazret.com*

(*viii*) *www.ebay.com*

• Application of Website

There are several applications of websites on the Internet each specializing in a particular service or use. Some are selling something, some are entertaining everyone and some just want to share their knowledge with others. Some websites act as vehicles to communicate with other people in the form of blogs. The different applications of websites are educational, commercial, governmental and entertainment etc.

Educational Website

Education forms an integral part in developing an individual's character. There are many online sites offering detailed information on education. For example, *www.kidsknowit.com*. Figure 3.4 shows one of the best educational website (*www.thegateway.org*).

Fig. 3.4: An educational website

Commercial Website

Commercial websites operate as online businesses. For example, *firebrand.com*. Figure 3.5 shows a commercial website *(www.ebay.com)*.

Fig. 3.5: A commercial website

Governmental Website

A governmental website contains general information about that country, its arts, culture, historic sites, economy, and government, and news etc. For example, *www.mfa.gov.et*. Figure 3.6 shows a governmental website (*www.moe.gov.et*).
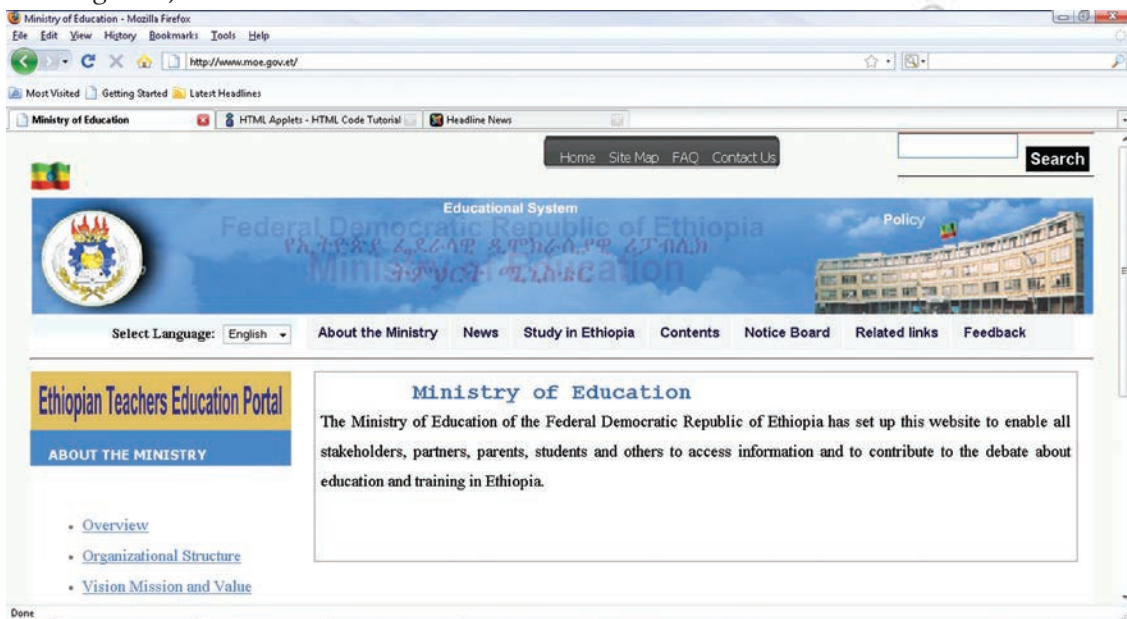

Fig. 3.6: A governmental website

Entertainment Website

Entertainment is a part of life. There are many online sites which are source for entertainment news, celebrity gossip and pictures. For example, *www.eonline.com*. Figure 3.7 shows an entertainment website (*www.addiszefen.com*).
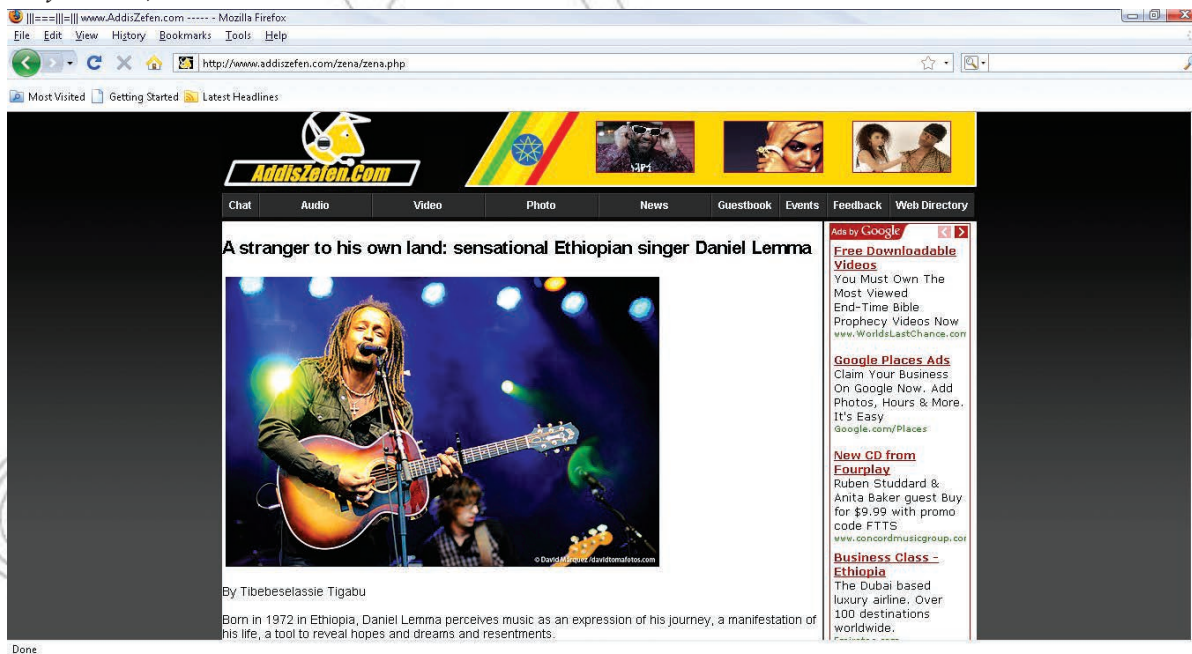

Fig. 3.7: An entertainment website

ACTIVITY 3.1

DEMONSTRATE THE DIFFERENCE BETWEEN STATIC AND DYNAMIC WEBSITE

In small groups, the students will demonstrate the difference between static and dynamic website.

Static Website

This is a website whose content can only be changed by the web developer. It can be seen as an online brochure or catalogue. It is one of the most common and simplest to set up. It can showcase your personal information, products or company online in a great style. It is also extremely practical for starters on the Internet. It is easily navigable and browser friendly too. However, it is not simple to improve because alterations would require Web programming mastery. Hence, a static website is rather appropriate where modifications are not required.

Figure 3.8 shows a static website developed by a student, namely Senya Ali of Addis Ababa city in Ethiopia.
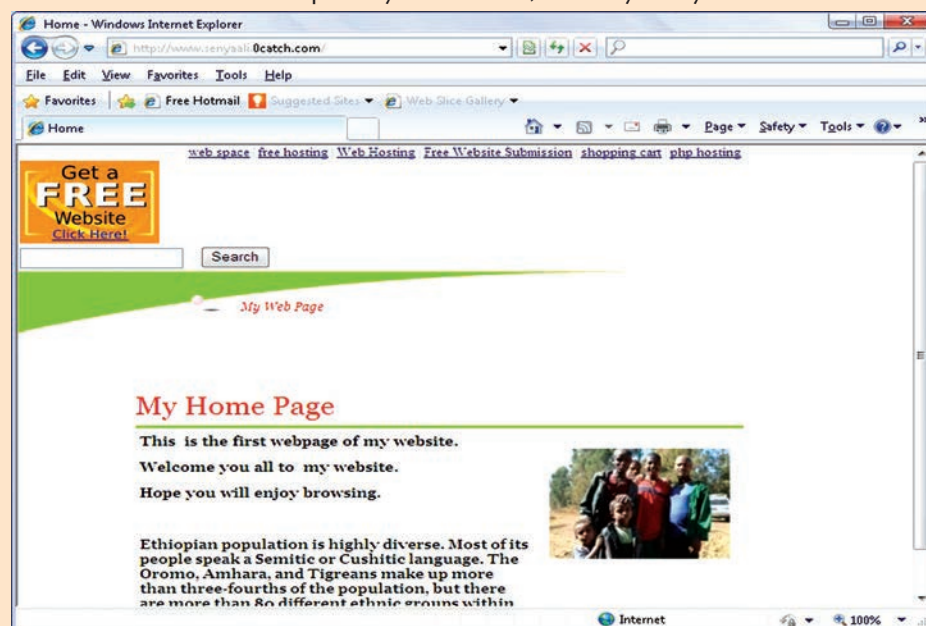

Fig. 3.8: A static website

Advantages of Static Website

 (*i*) Quick to develop

 (*ii*) Cheap to develop

 (*iii*) Cheap to host

Disadvantages of Static Website

 (*i*) Requires web development expertise to update site

 (*ii*) Content can get stagnant

Dynamic Website

A dynamic website provides flexibility so you can supplement and modify elements, stories, data, pictures, announcements and videos anytime without the aid of any webmaster. In simple words, a dynamic website provides the administrator the ease to manage the whole portal, without having to involve the developer, without having to pay each time and without having to get involved with any design or programming.

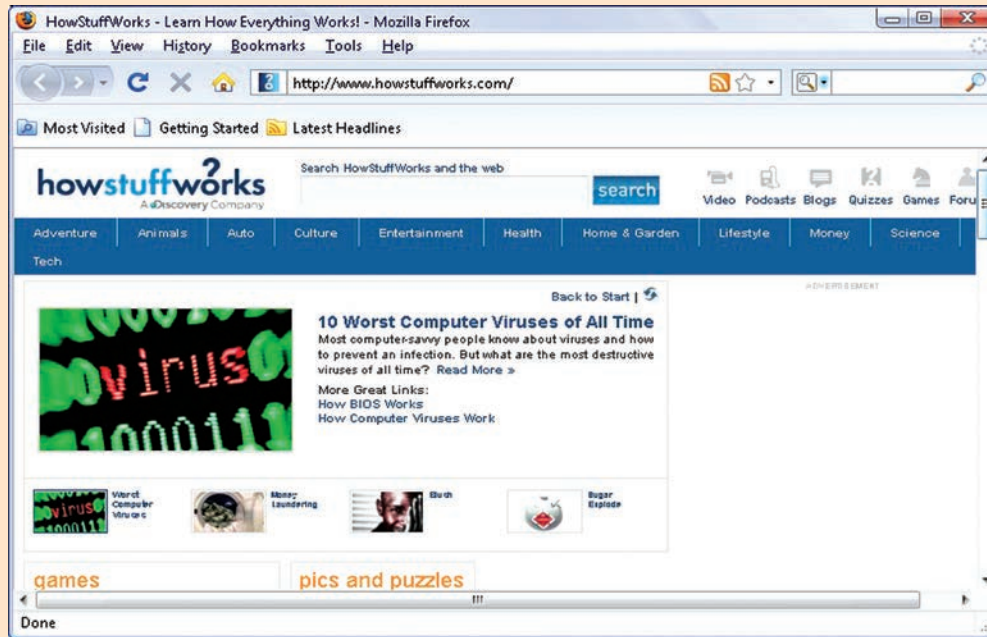Figure 3.9 shows a dynamic website *www.howstuffworks.com*.

Fig. 3.9: A dynamic website

Advantages of Dynamic Website

(*i*) Much more functional website

(*ii*) Much easier to update

(*iii*) New content brings people back to the site and helps in the search engines

(*iv*) Can work as a system to allow staff or users to collaborate

Disadvantages of Dynamic Website

(*i*) Slower/more expensive to develop

(*ii*) Hosting costs a little more

> *note* Now-a-days a dynamic website *is the way to go* for a business as the competition in every sector of business is very high, the consumers are becoming more and more demanding, asking to be better informed and they insist in receiving a better and urgent service.

3.2 PLANNING A WEBSITE

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.jump h rt.com*)

(*ii*) RapidRabbit (URL: *rap d abb.it*)

(*iii*) WriteMaps (URL: *www.writemap .com*)

(*iv*) MindMeister (URL: *www.mind eister.com*)

A good website developer will be able to utilize the above mentioned online tools and other offline tools (for these visit the websites *www.balsamiq.com*, *www.g iffy om*, *www.a re.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.

> **note** 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.

Figure 3.10 shows that knowing the audience is the first key step in creating a well designed website.

Fig. 3.10: Knowing the audience of website

3.3 WEBSITE DESIGN CONSIDERATIONS

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. In addition it must be easy to navigate and also attractively designed to complement the content.

● Page Layout of the Website

A web designer must know the fundamentals of good layout, that is, how to make the webpages more effective and pleasing to the eye.

While designing the page layout, consider the following basic principles:

(*i*) Create a Visual Theme that is consistent.

(*ii*) Align elements on the page.

(*iii*) Use contrasting color and text weight effectively.

(*iv*) Group elements together so that the reader can more easily grasp the information you are presenting.

(*v*) Make intelligent use of images including images that display text.

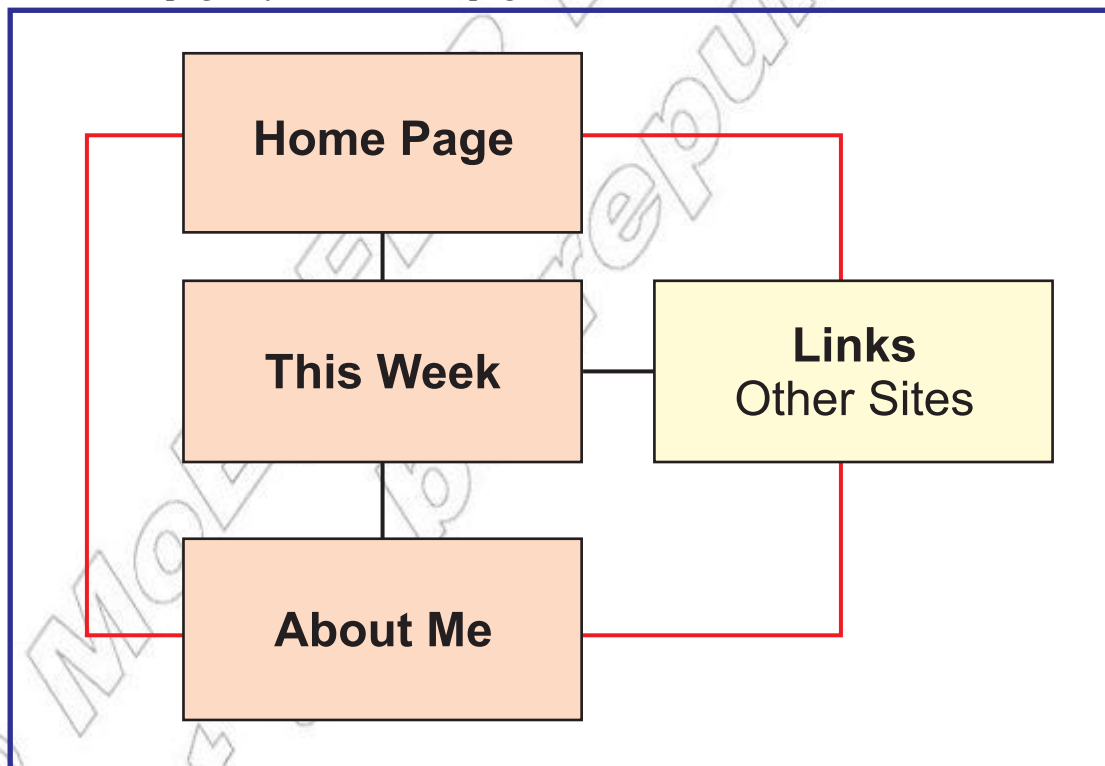Figure 3.11 shows a page layout for a webpage.

Fig. 3.11: Page layout for a webpage

● Create Content

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.

• Fonts (Adding Design Elements)

Text is one of the most important parts of a webpage. The way in which you display the text on your webpage will have a great impact on its success. It can make your page look very professional or very unprofessional.

When placing text within your webpage, always be consistent with your fonts *i.e.*, do not use different fonts throughout your pages. The standard fonts used on the **Internet** are **Arial** and **Verdana** as they are the easiest to read on a computer screen. The standard text size is 2. Headlines, which require a larger *font size*, are a bit different. A popular headline font used is **Georgia**, as it displays nicely in a slightly larger font size.

Busy backgrounds make the text difficult to read and draw the attention away from the text. In addition, always be consistent with your background theme on each page of your site.

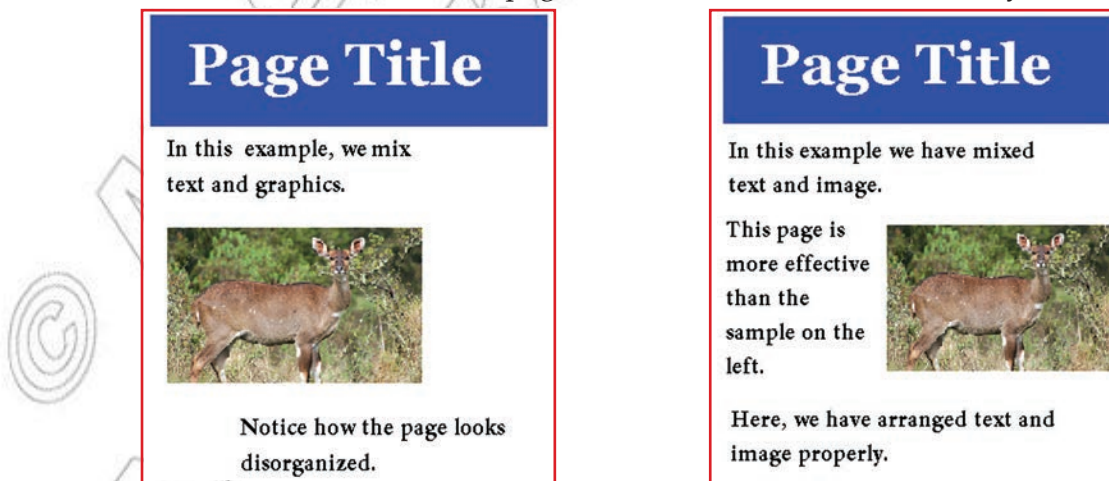Figure 3.12 shows the contents of a webpage under consideration in two ways.

Fig. 3.12: Different ways of arranging contents on a webpage

3.4 WEBSITE DEVELOPMENT

For developing a website, you require web design software. *Web Page Maker* is an easy-to-use web creator that helps you make your own webpages with no experience or HTML knowledge. Just drag and drop images, text, music and video… into a layout. During the edit process, you can easily move the objects with your mouse to anywhere on the page. *Web Page Maker* has some high quality features.

To start Web Page Maker,

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

The *Web Page Maker window* opens. Now, you can easily develop your website in the Work window, using the Toolbar and Site panel.

Adding Text

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*. Type the desired text and click *OK*.

The typed text in the *Text Editor* will appear in your webpage. Similarly you can add text at other places of the webpage 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. 3.13.
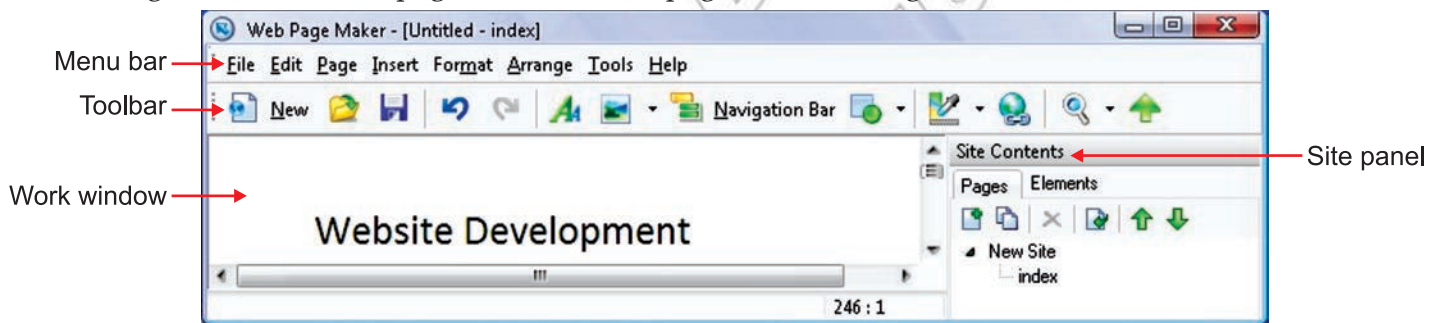

Fig. 3.13: Adding text on a webpage

Adding Image

For adding image click *Insert → Image → From files…*

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. 3.14).

Fig. 3.14: Adding image on a webpage

Creating Hyperlinks

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 ![icon] button on the toolbar.

It will open the *Hyperlink* dialog box. Setup the *Link Type* and other options. Click *OK*. Similarly set the hyperlinks of the desired websites for the other text boxes (see Fig. 3.15).
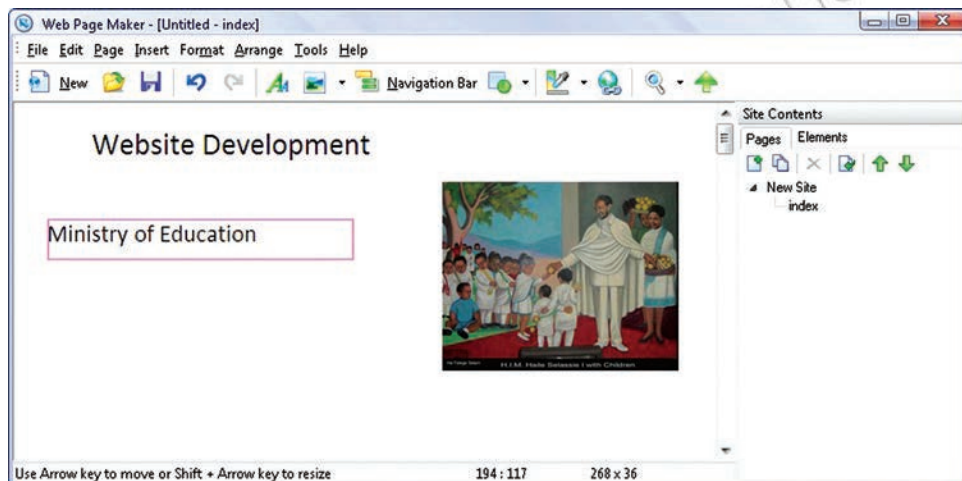

Fig. 3.15: Creating hyperlinks on a webpage

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. Click *OK*. The table will be inserted in the selected webpage (see Fig. 3.16).
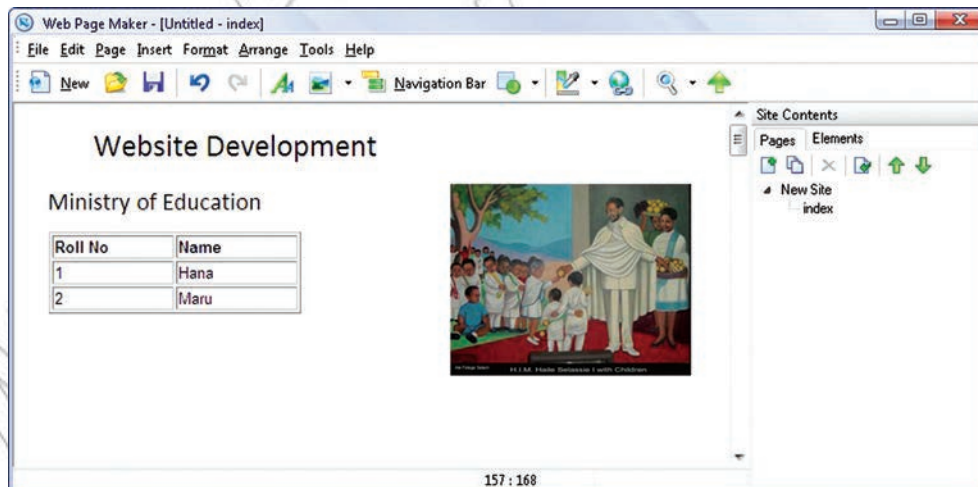

Fig. 3.16: Inserting table on a webpage

Inserting Frames

A frame is used to post information from one webpage to another. To insert frames click *Insert → iFrame….* It opens the *iFrame* dialog box. Enter the Web URL of the website. Click *OK*. It will insert a iFrame in the webpage (see Fig. 3.17).
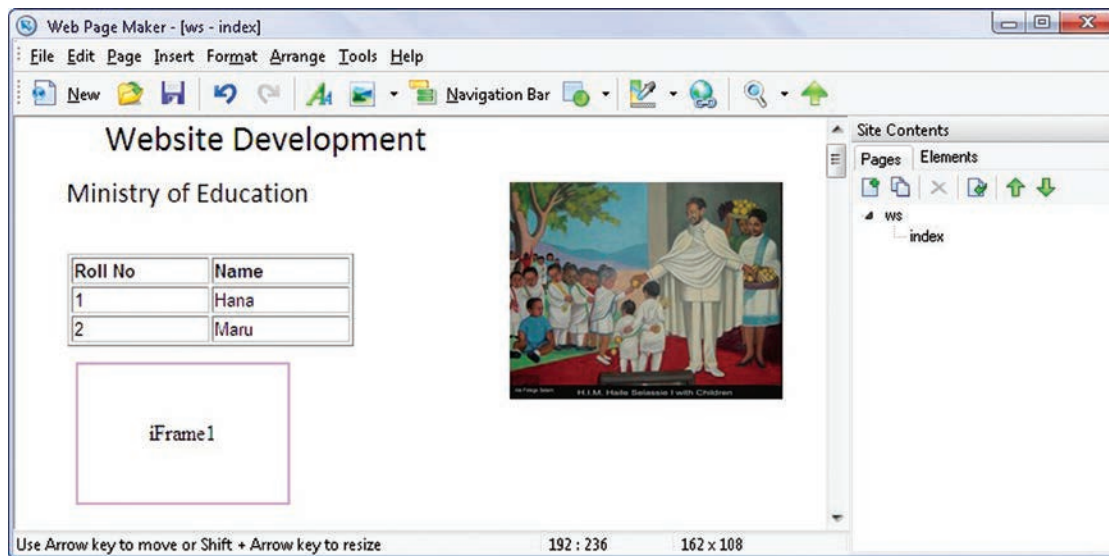
Fig. 3.17: Inserting Frame

By clicking on *iFrame*, we can see the contents of another webpage linked through the hyperlink.

● Adding Web Effects

To add web effect to your webpage right click on the work area and click on *Properties….*
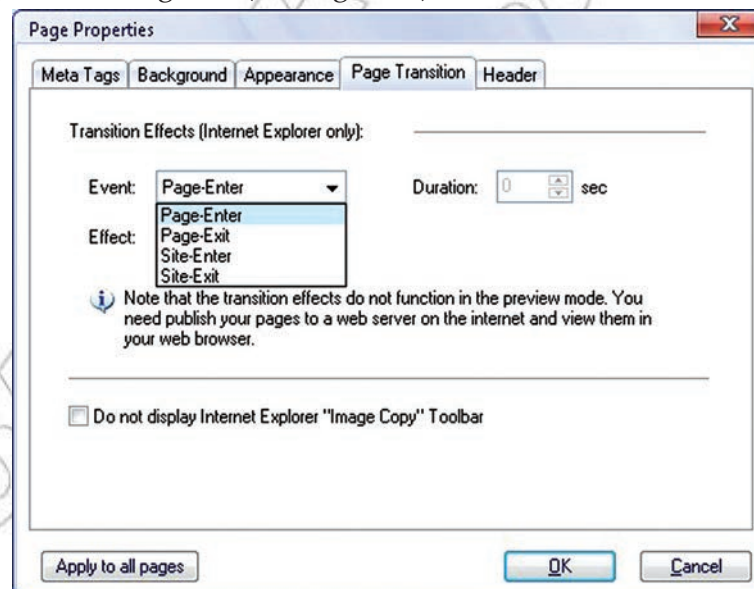It will open the *Page Properties* dialog box (see Fig. 3.18).

Fig. 3.18: Page Properties dialog box

Click *Page Transition* tab and add the desired effect to your webpage. Click OK. The effect will be applied in your webpage.

● Inserting Animations

To insert animation click *Insert → Marquee*. It will insert an animation text box on the webpage. 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. 3.19).
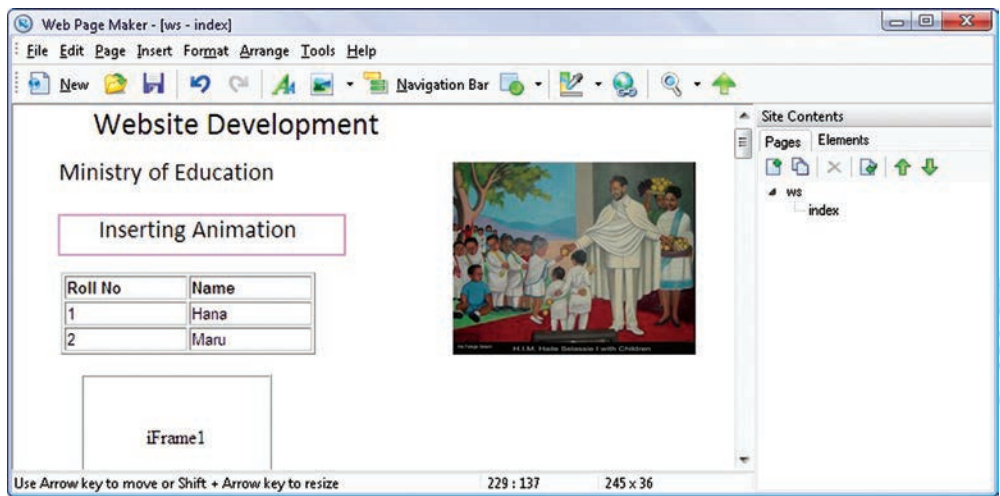
Fig. 3.19: Inserting animations in a webpage

● Using Scripts

A script is a program or sequence of instructions that is interpreted or carried out by another program rather than by the computer processor. For example, *JavaScript* is a script language. 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 webpage and click OK. The selected java script will be inserted on the webpage (see Fig. 3.20).
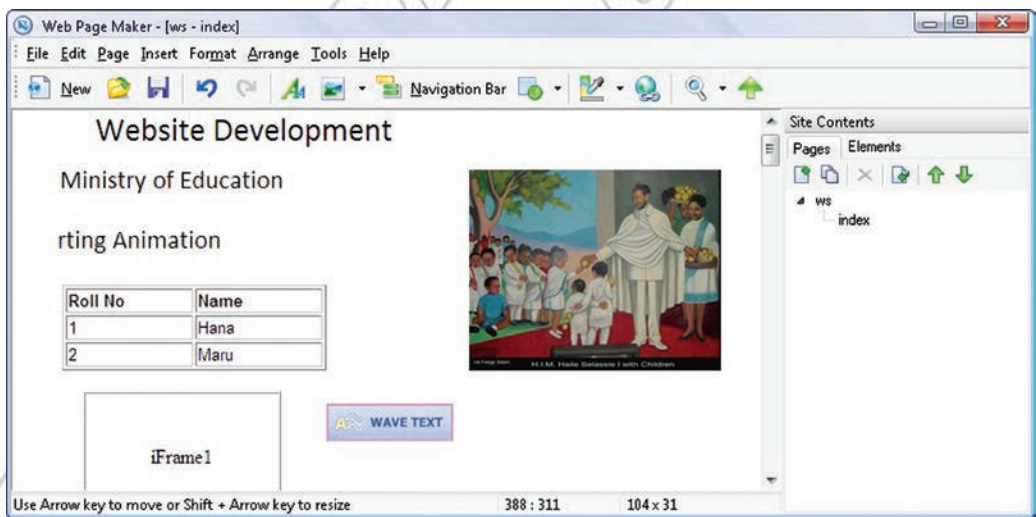

Fig. 3.20: Webpage after using scripts

● Using Java Applets

Java is a programming language that can be used to create both standalone programs (*.exe* files) and programs that run in webpages (*.class* files). The web based programs are called *Applets*.

Inserting applets into your webpages involves specifying the following information:

 (*i*) Name of the applet class file.

(*ii*) Size of the applet.

(*iii*) Path to the folder containing the applet (if that folder is not the folder that contains the index.html file).

(*iv*) Any parameters the applet needs.

(*v*) XHTML code for browsers that do not support Java.

1. If you get applets from other designers, the applets should come with documentation that gives the XHTML code to be used to insert the applets in webpages. Remember that you may use different folders and will have to modify the paths to the folders accordingly. When downloading the class files, do a shift-click on the download links so you will download the .*class* files and not the .*exe* files. If you download .zip files, you will have to unzip them.

2. Not all browsers can handle Java, and not all people who have Java-capable browsers surf with Java enabled. Thus, before you use Java in your website, you need to be satisfied that your intended audience will be able to see your applets.

To insert Java Applets,

Click *Insert → Html code* or *Script code*.

The *Html Editor* dialog box opens (see Fig. 3.21).

Now use the <applet> tag of HTML to specify the path and class file of the java applet to be inserted in the webpage.
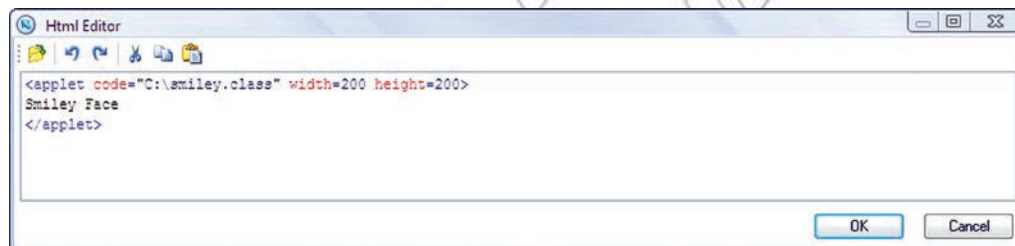

Fig. 3.21: Html Editor dialog box

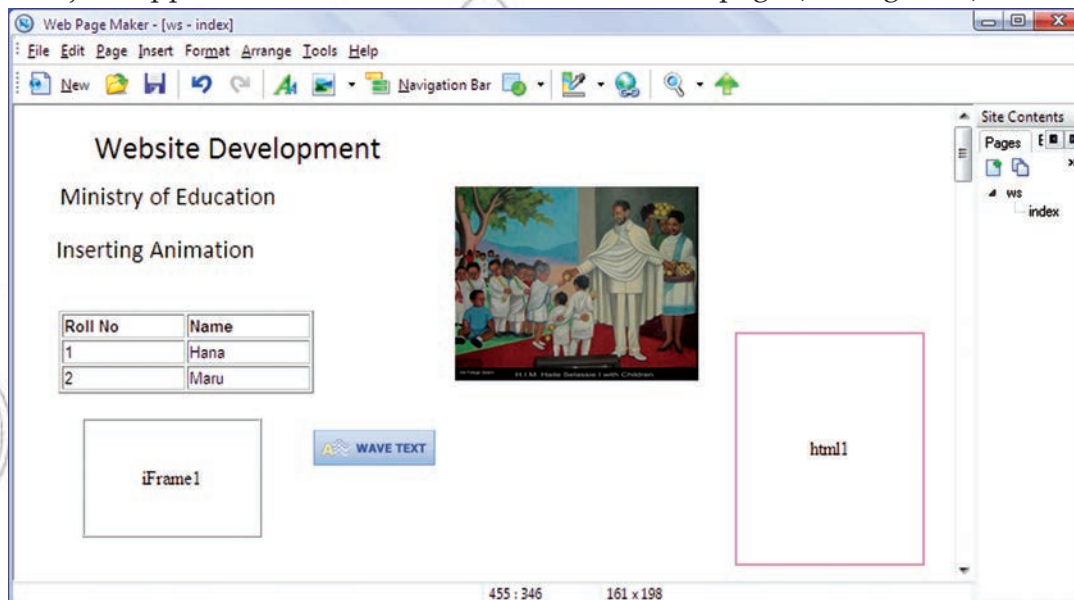Click *OK*. The java applet will be inserted in the selected webpage (see Fig. 3.22)

Fig. 3.22: Webpage after using java applet

Exporting design to HTML

To export the website to HTML,

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

Now, go to the selected folder, *i.e.*, C:\New Folder (see Fig. 3.23) and open the *index.html* file in your Web browser.
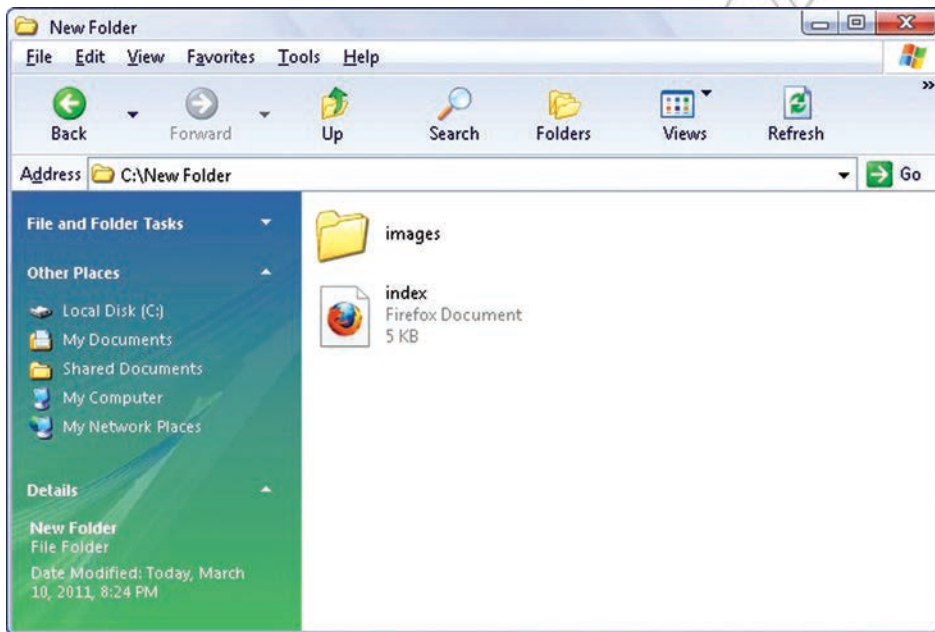

Fig. 3.23: Selecting index.html file for browsing
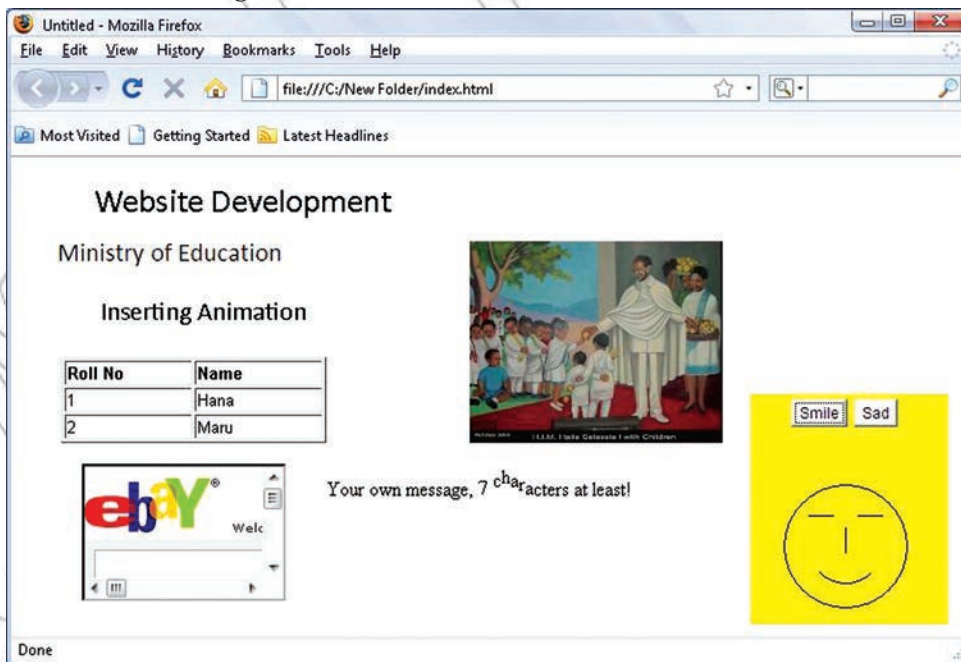
Your webpage will look like Fig. 3.24.

Fig. 3.24: Webpage shown in the web browser

KEY CONCEPTS

➢ 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.

REVIEW QUESTIONS

Fill in the Blanks

1. A computer with a domain name is called a ....
2. The purposes of a website influences ...., ..., ... and ....
3. For developing a website, you require .... design software.
4. A .... connects the webpage with other pages of website or to pages on other websites.

State Whether True or False

1. A static website is one of the most common and simplest to set up.
2. A website cannot be designed for business, sharing information or personal interest.
3. A web designer must know the fundamentals of good layout, that is, how to make the webpages more effective and pleasing to the eye.
4. Java is a programming language that can be used to create programs that run in web pages (.class files).

Multiple Choice Questions

1. A/an .... is a document on the World Wide Web that can include text, pictures, sound and video.
   (*a*) Modem
   (*b*) Webpage
   (*c*) Uniform Service Locator
   (*d*) Internet Service Provider
2. Which of the following is/are type(s) of websites?
   (*a*) Static
   (*b*) Dynamic
   (*c*) Both (*a*) and (*b*)
   (*d*) None of these
3. Which of the following is/are common purpose(s) of a website?
   (*a*) Online store and Brand Awareness
   (*b*) Online services
   (*c*) Advertizing
   (*d*) All of these
4. Which of the following is/are application(s) of websites?
   (*a*) Educational
   (*b*) Commercial
   (*c*) Governmental
   (*d*) All of these

Match the Following

Column A	Column B
1. Home Page	(*a*) Web design software
2. Hyperlink	(*b*) Person who plans website development
3. Website designer	(*c*) The first page you see at a website
4. Web Page Maker	(*d*) Connects webpages

Answer the Following

1. Define website. Explain the different types of websites. List some well-established websites.
2. How will you identify the type of website to be developed?
3. Describe website planning.
4. Explain how to design a webpage. How will you insert hyperlinks, images, buttons and animations to a webpage?
5. How will you develop content for a website with uniform formatting?

Suggested Activities

1. Identify the following:
   (*i*) Knowing the audiences
   (*ii*) Selecting technology to use
   (*iii*) Design of the web architecture
   (*iv*) Web content development
   (*v*) Hosting the website to a web server.
2. Discuss about the points to consider in planning a website.
3. Explain the steps involved in website design with practical examples.
4. Discuss the ways of adding different effects to a website.
5. Write a report discussing what must be considered when designing a website. Develop your draft design into a website. The site should have at least three pages, and should include the following design elements:
   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.
6. Demonstrate skill using a Java script and Java applets in your website.

Field Trip

Organize a field trip to some nearby educational institutions, organizations, and Ethiopian Telecommunication Corporation (ETC) stations to find out and report on:

Exploiting the Internet.