

KASNEB

CICT

Section 4

Web Design & E-Commerce

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TOPIC 1

INTRODUCTION TO WEB DEVELOPMENT

Web app development concepts

Web app development is the creation of **application programs** that reside on remote servers and are delivered to the user's device over the Internet.

Web programming refers to the writing, markup and coding involved in Web development, which includes Web content, Web client and server scripting and network security. The most common languages used for Web programming are XML, HTML, JavaScript, Perl 5 and PHP.

Web - Basic Concepts

What is Internet?

The Internet is essentially a global network of computing resources. You can think of the Internet as a physical collection of routers and circuits as a set of shared resources.

Some common definitions given in the past include –

- A network of networks based on the TCP/IP communications protocol.
- A community of people who use and develop those networks.
- A community of people who use and develop those networks.

Internet-Based Services

Some of the basic services available to Internet users are –

- **Email** – A fast, easy, and inexpensive way to communicate with other Internet users around the world.
- **Telnet** – Allows a user to log into a remote computer as though it were a local system.
- **FTP** – Allows a user to transfer virtually every kind of file that can be stored on a computer from one Internet-connected computer to another.
- **UseNet news** – A distributed bulletin board that offers a combination news and discussion service on thousands of topics.
- **World Wide Web (WWW)** – A hypertext interface to Internet information resources.

What is WWW?

WWW stands for **World Wide Web**. A technical definition of the World Wide Web is – All the resources and users on the Internet that are using the Hypertext Transfer Protocol (HTTP).

A broader definition comes from the organization that Web inventor Tim Berners-Lee helped found, the World Wide Web Consortium (W3C): The World Wide Web is the universe of network-accessible information, an embodiment of human knowledge.

In simple terms, The World Wide Web is a way of exchanging information between computers on the Internet, tying them together into a vast collection of interactive multimedia resources.

What is HTTP?

HTTP stands for **H**ypertext **T**ransfer **P**rotocol. This is the protocol being used to transfer hypertext documents that makes the World Wide Web possible.

A standard web address such as Yahoo.com is called a URL and here the prefix **http** indicates its protocol

What is URL?

URL stands for **U**niform **R**esource **L**ocator, and is used to specify addresses on the World Wide Web. A URL is the fundamental network identification for any resource connected to the web (e.g., hypertext pages, images, and sound files).

A URL will have the following format –

```
protocol://hostname/other_information
```

The protocol specifies how information is transferred from a link. The protocol used for web resources is HyperText Transfer Protocol (HTTP). Other protocols compatible with most web browsers include FTP, telnet, newsgroups, and Gopher.

The protocol is followed by a colon, two slashes, and then the domain name. The domain name is the computer on which the resource is located.

Links to particular files or subdirectories may be further specified after the domain name. The directory names are separated by single forward slashes.

What is Website?

You may be in a specific website as Tutorialspoint.com which is a collection of various pages written in HTML markup language. This is a location on the web where people can find tutorials on latest technologies. Similarly, there are millions of websites available on the web.

Each page available on the website is called a *web page* and first page of any website is called *home page* for that site.

What is Web Server?

Every Website sits on a computer known as a Web server. This server is always connected to the internet. Every Web server that is connected to the Internet is given a unique address made up of a series of four numbers between 0 and 256 separated by periods. For example, 68.178.157.132 or 68.122.35.127.

TOPIC 3

PICTURES, EFFECT, IMAGES AND COLOURING

Pictures and image working are best handle by design programs and fireworks to be specific is the popular for web images

How to edit images in Macromedia Fireworks

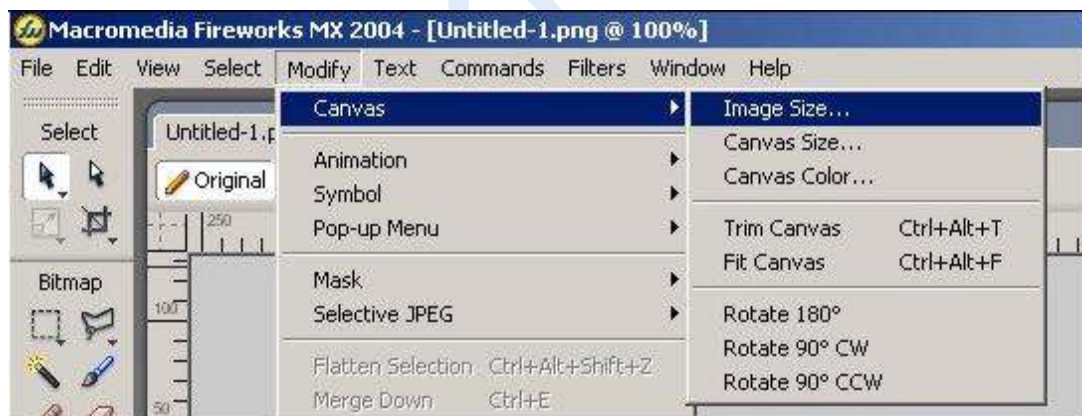
Image

Image Size and Canvas Size

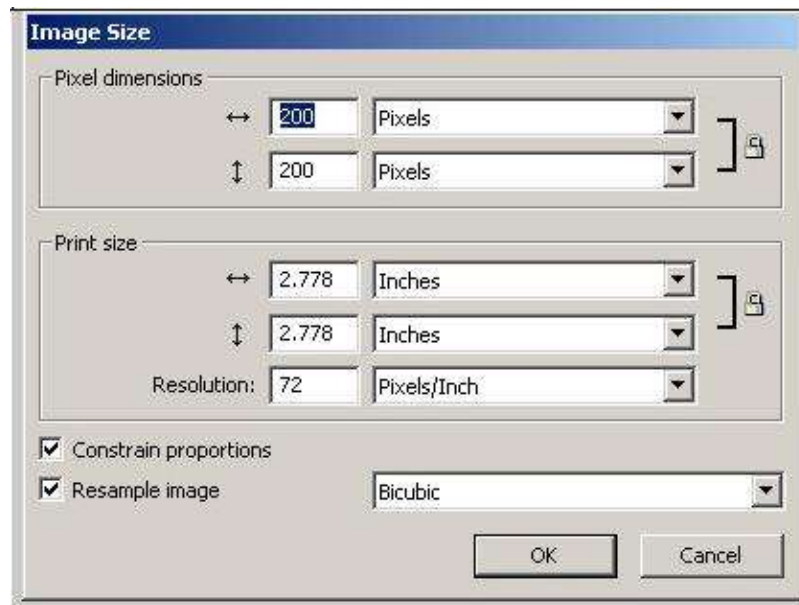
These are two different things. If you adjust the image size it will change the size of your image. If you adjust the Canvas Size it will change the size of the canvas or background that your image is on.

To adjust the image size:

- Go to **Modify – Canvas – Image Size**
- You should see...



- Adjust to the size you want to use the finished image at.



To adjust the Canvas Size:

To adjust the **Canvas Size**, do as above but select **Canvas Size** instead of Image Size.

Cropping

Sometime there is part of an image that you don't want included or perhaps you just want to change the shape of your image.

- Open your image in Macromedia Fireworks
- Select the Crop Tool



- Click and drag over the area you want. You can adjust this by moving the black square handles that appear (see below).

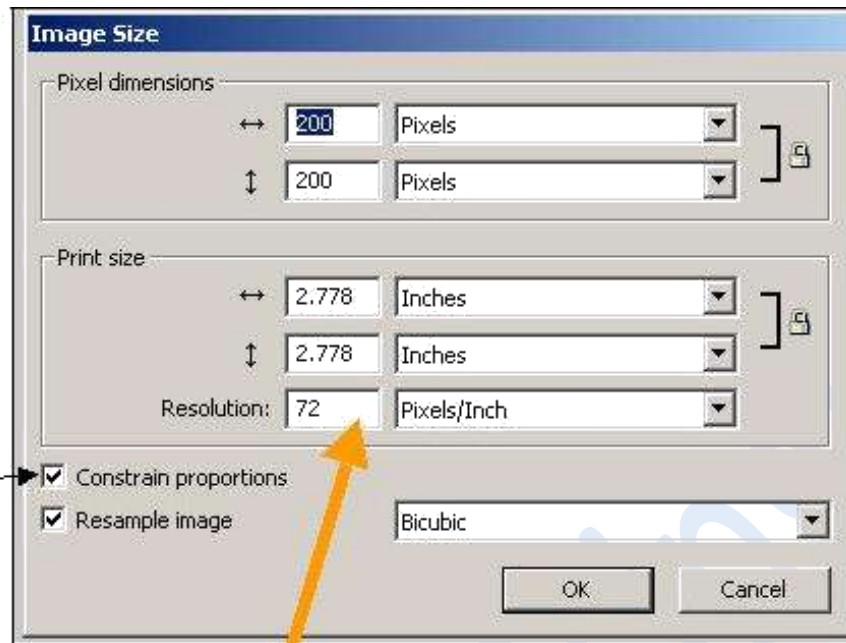


- When you are happy with your selection, **Double Click inside the area you have selected** to crop it.
- Go to **File – Save As – Call it ‘Cropped image of’**
- Using **Save As** means you can keep the original picture as well in case you want to use it again.

Resolution

To change the resolution of an image:

- Got to **Modify – Canvas – Image Size**



- Adjust the resolution here.
- If the Constrain proportions box is checked and you make the resolution smaller, the image dimensions will get smaller as well.

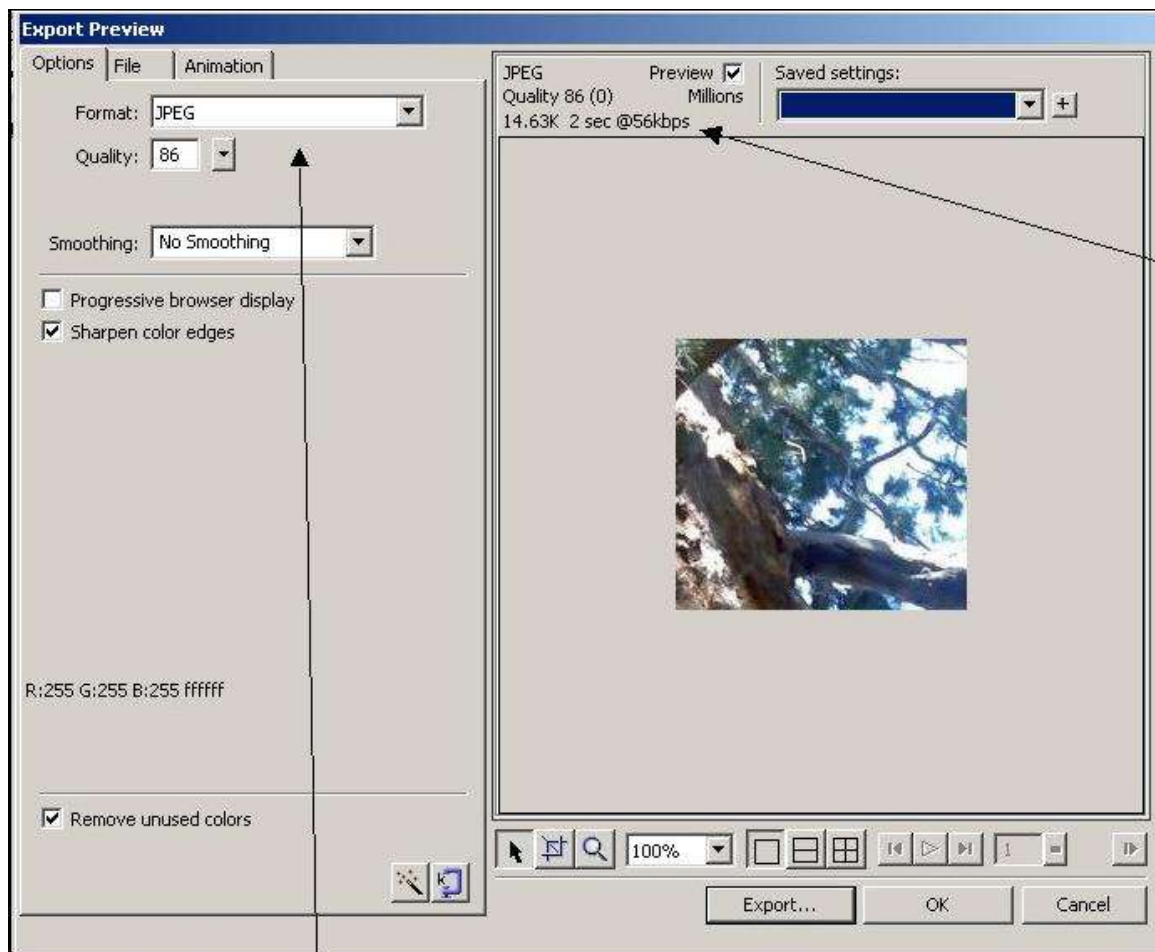
4. Exporting

To export or change the file format:

- Open the image you want to use.
- Got to **File – Export Preview**



- You should see...



- Use the **Format Box** to select the **File Format** you want
- You can make other adjustments to the quality of the image by adjusting the Quality box and the smoothing box, all of which will have an effect on the overall file size, which is shown above the image.
- When you are happy with the settings click on **Export** and save the image.

5. Cloning

This tool is really handy for editing out unwanted items from a picture:

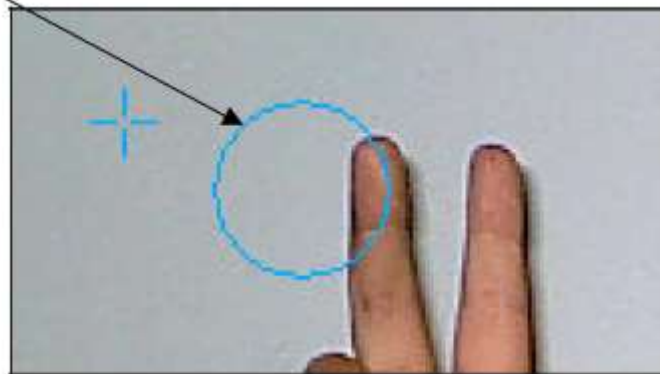
- Open the image you want to edit
- Select the Cloning Tool



- Select an area of the picture that you want to clone or copy from.
- In this example I want to get rid of the hand behind the head so I have selected the plain white colour in the background here...



- When you select an area it then shows you the brush size you are about to use.



- This can be changed here...



- Use the tool like an airbrush cover up the section you don't want.
- If you want to change the area you are getting the sample from use the **ALT Key** on the keyboard and left click the mouse on the area you want to sample or select the clone tool again.



- Go to file **Save As** and save your edited image.
- Using **Save As** means you can keep the original picture as well in case you want to use it again.

Adding Text/type on image

To add text to an image:

- **Open** the image that you want to add text to.
- Select the **Text Tool** and click on the image
- Type out the text you want
- You can make changes to the colour, size, font, effects etc in the properties box at the bottom of the screen



- Remember to **select the text** to get the **Properties Box**

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TOPIC 5

WEB SCRIPTING

In computer programming, a script is a program or sequence of instructions that is interpreted or carried out by another program rather than by the computer processor (as a compiled program is).

Scripting language

A high-level programming language that is interpreted by another program at runtime rather than compiled by the computer's processor as other programming languages (such as C and C++) are. Scripting languages, which can be embedded within HTML, commonly are used to add functionality to a Web page, such as different menu styles or graphic displays or to serve dynamic advertisements. These types of languages are client-side scripting languages, affecting the data that the end user sees in a browser window. Other scripting languages are server-side scripting languages that manipulate the data, usually in a database, on the server.

Scripting languages came about largely because of the development of the Internet as a communications tool. JavaScript, ASP, JSP, PHP, Perl, Tcl and Python are examples of scripting languages.

Server-side vs Client-side Programming

Server-side Programming

Server-side programming, is the general name for the kinds of programs which are run on the **Server**.

Uses

- Process user input.
- Display pages.
- Structure web applications.
- Interact with permanent storage (SQL, files).

Example Languages

- PHP
- ASP.Net in C#, C++, or Visual Basic.
- Nearly any language (C++, C#, Java). These were not designed specifically for the task, but are now often used for application-level web services.

Client-side programming

Much like the server-side, Client-side programming is the name for all of the programs which are run on the **Client**.

Uses

- Make interactive webpages.
- Make stuff happen dynamically on the web page.

- Interact with temporary storage, and local storage (Cookies, localStorage).
- Send requests to the server, and retrieve data from it.
- Provide a remote service for client-side applications, such as software registration, content delivery, or remote multi-player gaming.

Example languages

- JavaScript (primarily)
- HTML*
- CSS*
- Any language running on a client device that interacts with a remote service is a client-side language.

Incorporating script into html

To get a feel for PHP, first start with simple PHP scripts. Since "Hello, World!" is an essential example, first we will create a friendly little "Hello, World!" script.

As mentioned earlier, PHP is embedded in HTML. That means that in amongst your normal HTML (or XHTML if you're cutting-edge) you'll have PHP statements like this:

```
<html>
<head>
<title>Hello World</title>
<body>
<?php echo "Hello, World!";?>
</body>
</html>
```

As mentioned earlier, PHP is embedded in HTML. That means that in amongst your normal HTML (or XHTML if you're cutting-edge) you'll have PHP statements like this: <html>

```
<head>
<title>Hello World</title>
<body>
<?php echo "Hello, World!";?>
</body>
</html>
```

It will produce following result:

```
Hello, World!
```

If you examine the HTML output of the above example, you'll notice that the PHP code is not present in the file sent from the server to your Web browser. All of the PHP present in the Web page is processed and stripped from the page; the only thing returned to the client from the Web server is pure HTML output.

All PHP code must be included inside one of the three special markup tags that are recognised by the PHP Parser.

```
<?php PHP code goes here ?>
<? PHP code goes here ?>
<script language="php"> PHP code goes here </script>
```


Most common tag is the `<?php...?>` and we will also use same tag in our tutorial. From the next chapter we will start with PHP Environment Setup on your machine and then we will dig out almost all concepts related to PHP to make you comfortable with the PHP language.

PHP functions

A function is a segment of code grouped into a single entity. The great thing about functions is that you can re-use them. By doing so, you eliminate the need to re-type the same code over and over again. Once you implement a function, you can use its code by calling that function.

Creating functions

To create a function, use the **function** keyword, followed by the function name, followed by parenthesis, followed by an opening brace and a closing brace. The lines of code which make up the function will go in between the braces.

Syntax:

```
function function_name(){ code for function goes here; }
```

Example:

```
<?php function printMessage(){ print "Hello, this is a function."; } ?>
```

In the above example, a function named `printMessage` is created that will print the text "Hello, this is a function."

THIS IS A SAMPLE

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TOPIC 7

INTRODUCTION TO E-BUSINESS

The term "**Electronic commerce**" (or *e-Commerce*) refers to the use of an electronic medium to carry out commercial transactions.

Most of the time, it refers to the sale of products via Internet, but the term *eCommerce* also covers purchasing mechanisms via Internet (for B-To-B)

Understanding the concepts

Electronic commerce is a much broader term encompassing not only EDI but also other forms of communication, such as E-mail and Electronic bulletin boards. EDI was primarily developed for high volume exchange of commercial documents in standardized electronic format over an electronic public network between the automated business processes of trading partners. E-mail, on the other hand, is the exchange of less structured correspondence in electronic format.

History of Internet

Internet stands for Interconnected Networks. It is viewed as a prototype of the I-way and, is the closest we have been able to reach the standards of the ideal I-way proposed for e-commerce. Presently a group of worldwide information highways, Internet was started in 1965 as an experimental network with funding from the Advanced Research Project Agency (ARPA) of the US Department of Defense. Since then this network has grown from a handful of universities and research institutes, to several thousand connections in over hundred countries. With more and more organizations trying to get access to Internet to see what was all about this 'information revolution', the purpose

of Internet evolved through different stages. Several discipline specific networks were established during 1980-1985, such as CSNET and MILNET. CSNET catered to the communication and information requirements of computer science researchers all over the world. MILNET took over the defense and military traffic from ARPANET. The National Science Foundation (NSF) took over the academic and research network from ARPANET and created NSFNET in 1987, which was later christened as the Internet. The period 1985-1990 witnessed major developments in the field of scientific research and Internet connectivity became an essential tool for this progress. After the success of Internet mail, IBM and MCI took over the management of NSFNET. The US government prohibited commercial use of NSFNET, so, a commercial backbone was also run parallel to the NSFNET. This comprised of several private ISPs.

Types of Ecommerce

E-commerce is not merely selling a T-shirt over the World Wide Web. It is much more than that and includes

communication activities among trading organisations and within them. The prevailing E-commerce activities have been divided into 3 major categories:

- i) Business to Consumer E-commerce
- ii) Business to Business E-commerce
- iii) Business to Employee E-commerce

Features of e-commerce

E-Commerce provides following features

Non-Cash Payment: E -Commerce enables use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website and other modes of electronics payment.

24x7 Service availability: E-commerce automates business of enterprises and services provided by them to customers are available anytime, anywhere. Here 24x7 refers to 24 hours of each seven days of a week.

Advertising / Marketing: E-commerce increases the reach of advertising of products and services of businesses. It helps in better marketing management of products / services.

Improved Sales: Using E-Commerce, orders for the products can be generated anytime, anywhere without any human intervention. By this way, dependencies to buy a product reduce at large and sales increases.

Support: E-Commerce provides various ways to provide pre sales and post sales assistance to provide better services to customers.

Inventory Management: Using E-Commerce, inventory management of products becomes automated. Reports get generated instantly when required. Product inventory management becomes very efficient and easy to maintain.

Communication improvement: E -Commerce provides ways for faster, efficient, reliable

communication with customers and partners.

E-Commerce Advantages and Disadvantage

E-Commerce advantages can be broadly classified in three major categories:

- ✓ Advantages to Organizations
- ✓ Advantages to Consumers
- ✓ Advantages to Society

Advantages to Organizations

- 1) Using E-Commerce, organization can expand their market to national and international markets with minimum capital investment. An organization can easily locate more customers, best suppliers and suitable business partners across the globe.
- 2) E-Commerce helps organization to reduce the cost to create process, distribute, retrieve and manage the paper based information by digitizing the information.
- 3) E-commerce improves the brand image of the company.
- 4) E-commerce helps organization to provide better customer services.
- 5) E-Commerce helps to simplify the business processes and make them faster and efficient.
- 6) E-Commerce reduces paper work a lot.
- 7) E-Commerce increased the productivity of the organization. It supports "pull" type supply management. In "pull" type supply management, a business process starts when a request comes from a customer and it uses just-in-time manufacturing way.
- 8) 24x7 support. Customer can do transactions for the product or enquiry about any product/services provided by a company anytime, anywhere from any location. Here 24x7 refers to 24 hours of each seven days of a week.
- 9) E-Commerce application provides user more options and quicker delivery of products.
- 10) E-Commerce application provides user more options to compare and select the cheaper and better option.
- 11) A customer can put review comments about a product and can see what others are buying or see the review comments of other customers before making a final buy.
- 12) E-Commerce provides option of virtual auctions.
- 13) Readily available information. A customer can see the relevant detailed information within seconds rather than waiting for days or weeks.
- 14) E-Commerce increases competition among the organizations and as result organizations provides substantial discounts to customers.

Advantages to Society

- 1) Customers need not to travel to shop a product thus less traffic on road and low air pollution.
- 2) E-Commerce helps reducing cost of products so less affluent people can also afford the products.
- 3) E-Commerce has enabled access to services and products to rural areas as well which are otherwise not available to them.
- 4) E-Commerce helps government to deliver public services like health care, education, social services at reduced cost and in improved way.

E-Commerce Disadvantages

E-Commerce disadvantages can be broadly classified in two major categories:

- ✓ Technical disadvantages
- ✓ Non-Technical disadvantages

Technical Disadvantages

- 1) There can be lack of system security, reliability or standards owing to poor implementation of e-Commerce.
- 2) Software development industry is still evolving and keeps changing rapidly.
- 3) In many countries, network bandwidth might cause an issue as there is insufficient telecommunication bandwidth available.
- 4) Special types of web server or other software might be required by the vendor setting the e-commerce environment apart from network servers.
- 5) Sometimes, it becomes difficult to integrate E-Commerce software or website with the existing application or databases.
- 6) There could be software/hardware compatibility issue as some E-Commerce software may be incompatible with some operating system or any other component.

Non-Technical Disadvantages

- 1) Initial cost: The cost of creating / building E-Commerce application in -house may be very high. There could be delay in launching the E-Commerce application due to mistakes, lack of experience.
- 2) User resistance: User may not trust the site being unknown faceless seller. Such mistrust makes it difficult to make user switch from physical stores to online/virtual stores.
- 3) Security/ Privacy: Difficult to ensure security or privacy on online transactions.
- 4) Lack of touch or feel of products during online shopping.
- 5) E-Commerce applications are still evolving and changing rapidly.

Internet access is still not cheaper and is inconvenient to use for many potential customers like one living in remote villages.

TOPIC 10

ELECTRONIC TRANSACTION LAW

The exponential growth of the Internet and online activity raise a number of new regulatory issues and legal questions.

The power of the Web to reach the world carries with it a variety of legal issues, often related to intellectual property concerns, copyright, trademark, privacy, etc., particularly in the context of doing business on the Internet. Authorities seeking to apply their laws in traditional ways or to expand legal control over international links face many challenges due to the global nature of the Internet. This paper provides an overview of some of the legal issues and related problems in e-commerce.

E-Business and Legal Issues The technological basis of e-commerce is basically Web client/server middleware, or what is called three-tier architectures. The client tier is the Web browser involving some type of form processing. The middle tier is the Web server, often with transaction processing. The Web server in turn links to the third tier, a database processing the order information. Some of the issues are strictly Internet-related, such as domain names and trademarks, linking and framing, clickware (and shrinkware), and metatag use. Others are traditional issues applied to the Internet, such as copyright, contracts, consumer protection, privacy, taxation, regulated industries and jurisdiction.

E-commerce site development, its advertising, electronic transaction, money transactions and such involve many legal issues, which need to be taken into account step by step. Before developing an e-commerce site a registered domain and a registered trademark should be established. There must be some copyright protection on the site. The business must ensure that it displays the terms and condition/policies within its site. Security involving the privacy of a user's data is always one of the main concerns while doing business online. Defining rules and regulations for the advertisement of the site by placing banners on other known sites is

another. It is of great value when dealing with such complex issues to consult an attorney who specializes in the issues of cyberspace.

E-Transaction Regulatory act,\Kenya 2016

Introduction of terms

Automated transaction means an electronic transaction conducted or performed, in whole or in part, by means of a data message in which the conduct or data messages of one or both parties is not reviewed by a natural person in the ordinary course of the natural person's business or employment;

Commercial communication means a communication, in any form, designed to promote, directly or indirectly, the goods, services or image of any person pursuing a commercial, industrial or craft activity or exercising a regulated profession,

Consisting only of information allowing direct access to the activity of that person including a geographic address, a domain name or an electronic mail address; or

- a) Relating to the goods, services or image of that person provided that the communication has been prepared independently of that person making it.

E-commerce means the buying and selling of goods and services over an electronic network.

Electronic communication means any communication that the parties make by means of data messages

E-Government refers to the use by government of information and communications technologies to deliver its services and relate with citizens, businesses and other arms of government.

Electronic transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, governments, and other public or private organizations, conducted over electronic networks. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on or off-line.

Service Provider any person in Kenya who offers on a commercial basis, the sale, hire or exchange of goods or services through an electronic transaction.

Objectives of the Regulations

The objective of these Regulations is to enable and facilitate electronic-communications, electronic-transactions and electronic-commerce and for that purpose to —

- (a) promote legal certainty and confidence in respect of electronic-communications, electronic-transactions and electronic-commerce;
- (b) promote e-government services and electronic-communications, electronic-transactions and electronic-commerce with public and private bodies, institutions and citizens;
- (c) ensure that electronic-communications, electronic-transactions and electronic-commerce conform to the highest international standards;
- (d) encourage investment and innovation in respect electronic-communications, electronic-transactions and electronic-commerce in the Republic;
- (e) ensure compliance with accepted International technical standards in the provision and development of electronic-communications, electronic-transactions and electronic-commerce;
- (f) ensure that the national interest of the Republic is not compromised through the use of electronic-communications, electronic-transactions and electronic-commerce.

e-commerce/e-marketing approach

These Regulations shall apply to any service provider. Such service providers shall require an authorization from the Authority.

1. Obligations of Service Providers

- (1) A service provider shall provide to the consumers on the website or electronic communication where goods or services are offered, the following-
 - a) the full name and legal status of the person;
 - b) the physical address and telephone number of the person;
 - c) the web site address and e-mail address of the person;
 - d) membership of any self-regulatory or accreditation bodies to which the person belongs or subscribes and the contact details of that body;
 - e) any code of conduct to which the person subscribes and how the consumer might access that code of conduct electronically;
 - f) in the case of a legal person, the registration number; names of the directors and place of registration;
 - g) the physical address where the person may be served with documents;
 - h) a description of the main characteristics of the goods and services offered by the person sufficient to enable a consumer to make an informed decision on the proposed electronic transaction;
 - i) the full price of the goods or services, including transport costs, taxes and any other fees or costs;
 - j) the manner of payment;

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