Introduction to E-Commerce

in 15 Days

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Preface

This tutorial is intended as an introductory course in E-Commerce. Particularly for those students who do not want to go into programming in-depth. This tutorial is also beneficial for general readers who want to know about E-Commerce and security issues in E-Commerce.

I believe that review questions are an integral component in the understanding of a topic. Review questions are not only an evaluation tool, but teaching instrument that complements the coverage of material. Every lesson in this tutorial ends with review questions.

Some case studies regarding legal and ethical issues in E-Commerce are provided in the last few pages of the tutorial. These cases incorporate the use of the technology in business.

Two practice tests with solutions are posted at http://www.gteaching.com/ . Two evaluation tests are also provided, the first test on day 10 and second test on day 15. These evaluation tests are password protected. If you are an instructor, please send me an email at ihsan1@gmail.com to get a password and web link where you can find these tests.

Acknowledgment:

I am grateful to my friend and colleague Lorne Hillier, head of business at Central Huron Secondary School, Clinton, Ontario. Mr. Hillier has taught E-Commerce for many years and has provided valuable insight and suggestions. I would like to thank the authors of the following web sites.

http://www.washburn.edu/cas/cis/
http://www.medialawyer.com/firm.htm
http://www.edu.gov.on.ca/eng/curriculum/
http://wiki.media-culture.org.au/index.php/Main_Page

To The Student:

I wanted to take this opportunity to welcome you to your initial education of E-Commerce. Writing this tutorial has been a lot of fun for me and I sincerely hope that you get valuable information from it.

Tell all your friends about this tutorial. I hope to make it accessible to the widest possible audience and I need your help in achieving this objective.

You are welcome to e-mail me at ihsan1@gmail.com with your thoughts and comments while you are reading this tutorial or afterwards. I promise to get back to you speedily.

Ihsan Rehman
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Day 1 – Introduction to Information Technology

Information technology (IT) or Information and communication(s) technology (ICT) is a broad subject concerned with electronic technology.

Electronic Technology:

Electronic Technology word refers to a technology, in which process are done by mean of electrical signals. Some commonly use electronic technologies are: computers, cell phones and video games.

Information Technology:

Information Technology or IT deals with the use of electronic computers and computer software to convert, store, protect process, transmit, and retrieve information. For that reason, computer professionals are often called **IT specialists**, and the division of a company or university that deals with software technology is often called the **IT department**. Other names for the latter are information services (IS) or management information services (MIS), managed service providers (MSP).

Sharing Information:

Most common use of Information Technology is to share information between individuals or different companies. Information technology is also transforming the physical processing component of activities. Computer-controlled machine tools are faster, more accurate, and more flexible in manufacturing than the older, manually operated machines

Vast Source of Information:

The *Internet* and *Word Wide Web* is a vast source of information. Many people use the terms *Internet* and *World Wide Web* interchangeably, but in fact the two terms are not synonymous. The Internet and the Web are two separate but related things.

Internet:

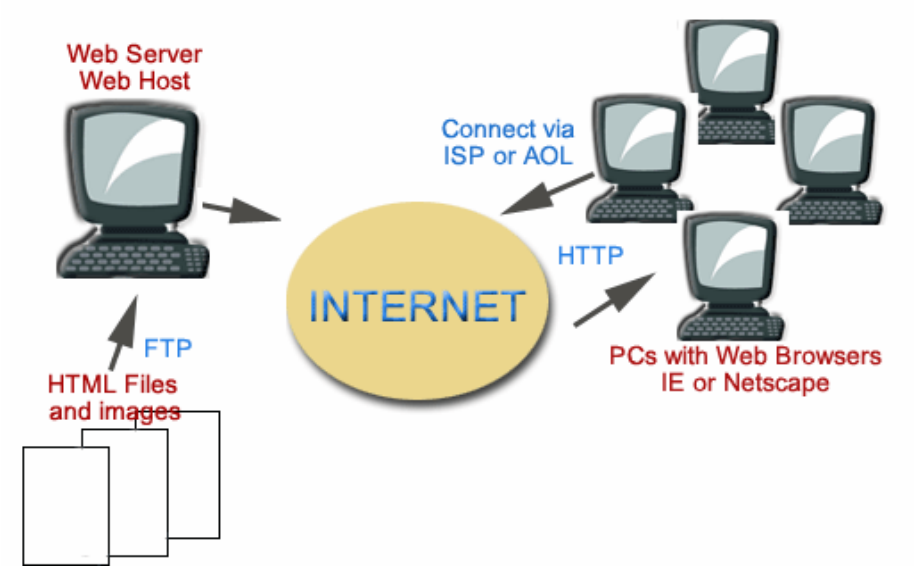
The Internet is a massive network of networks. It connects millions of computers together globally, forming a network in which any computer can communicate with any other computer as long as they are both connected to the Internet.

World Wide Web:

The World Wide Web, or simply *Web*, is a way of accessing information over the medium of the Internet. The Web also utilizes browsers, such as Internet Explorer or

Netscape, to access Web documents called Web pages that are linked to each other via hyperlinks. Web documents also contain graphics, sounds, text and video.

Internet and World Wide Web:



World Wide Web is not synonymous with the Internet.

Exploring the Web:

In order to explore the web you will need a special piece of software known as a web browser. The two most commonly used web browsers are Netscape Navigator and Internet Explorer. They both operate in a similar manner using menus and buttons to help you navigate around the web.

Services Providing by the Internet and Web:

A web page can have many hyperlinks to other web pages sitting on web servers all around the world. When you select an item on a web page by clicking on it with your mouse, a copy of that item will be retrieved by your browser. You don't actually see this movement, only the document or image appearing on your screen.

Internet and Web provides a lot of services, most commonly services are:

- Search Engines
- Directories
- Electronic Mail
- Chat
- E-Commerce
- Advertisements
- News Groups

Search Engines:

Search Engines are used to find the resources that you want. Behind the scenes search engines compile databases of web pages which allow users to search the internet for specific resources. Search engines use a keyword to search.

For example when a user types in a search request such as "IT Schools", the search engine already knows where all the pages including “IT Schools " are located. The search engines use "bots" or "spiders" which prowl the internet collecting pages, but depending on the search engine, the databases of pages may be more or less up-to-date.

Today most popular search engines are Google and yahoo.

Directories:

One of the easiest and safest methods of researching for relevant resources is by using Directories that have already been vetted by other organizations. Directories are collections of resources organized into categories. Sometimes the directory will focus on one subject area; others may collect and organize resources in a number of areas.

Best examples of a directory are Yahoo and the Open Directory Project at http://www.epowermark.com/glossary.htm

Electronic Mail:

Electronic mail, or Email, is the term used to describe the tool which allows one computer user to send a message to one or more other computer users over a computer network in an electronic form.

It's very similar to our traditional mail system with post boxes, post offices, envelopes and addresses. The difference is that instead of Canada Post delivering your messages around the globe for you, messages are sent electronically to other computer users via the Internet AND you don't have to walk to the letter box!

Chat:

Imagine a room full of people from all around the world talking to each other with everybody in the room being able to hear everyone else conversation and join in any one of them at any time. Then imagine this room always having people in it any time of day or night for you to drop in and have a conversation with. That's basically what chat is.

E-Commerce:

E-commerce (electronic commerce) is the buying and selling of goods and services on the Internet. ebay.com, amazons.com and asianbazar.com are the examples of E-Commerce.

Advertisements:

Internet and web are completely new means of advertising, a global virtual electronic market. Advertising on Internet is not restricted either by time or geographical region.

News Groups:

A place on the Internet for message exchanging about various subjects. There are currently more than 28,000 Newsgroups available. See yahoo and Google for newsgroups.

Careers in Information Technology:

In information technology there are a lot of areas in which some one can start her/his career. Some common areas are:

- Web Designing
- Programming
- Databases
- Office information systems
- Local area networks (LANs)
- Wide area networks (WANs)

E-Commerce:

E-Commerce is a business that base on Information Technology. Technology is used through out the business, including promotion, searching, selecting, negotiating, delivery and support.

In these notes you will learn many key factors involving to E-Commerce.

Review Questions:

1. Give the name of three electronic technologies.
   1. _____
   2. _____
   3. _____

2. The World Wide Web is larger than the Internet
   T F

3. The part of an email address on the left side of the @ is similar to a postal code.
   T F

4. Which of the following is an example of the computer providing feedback to the user?

   A. Editing changes become visible on the screen
   B. The cursor changes to indicate an operation is in progress
   C. A progress bar shows how much of the work is done
   D. All of the above

5. Google ranks the search responses to a query based upon:

   A. The number of links to the web sites
   B. The amount of money paid by the web sites
   C. The web sites with the most recent changes
   D. All of the above

6. Examples of Web Search Engines include:

   A. Yahoo
   B. Excite
   C. Alta Vista
   D. Lycos
   E. None of the above
   F All of the above

7. Microsoft Word …

   A. is available only on school computers
   B. comes bundled free with window
   D. is a free product
   E. None of the above
   F. All of the above

8. Give the address of three Web sites, which you like.

9. Give the address of three E-Commerce web sites and three non E-Commerce web sites.

E-Commerce web sites

1. _____
2. _____
3. _____

Non E-Commerce web sites

1. _____
2. _____
3. _____

10. What is the difference between Internet and World Wide Web

_____

_____

_____

_____

_____

_____

Day 2 - HyperText Markup Language

HTML:

HTML stands for **HyperText Markup Language**; it's not really a programming language like Java, Perl, C, or BASIC. It is a language of a web browser. We use HTML to display text and images in the web browser.

A web browser is a software application that enables a user to display and interact with text, images, and other information typically located on a web page at a website on the World Wide Web or a local area network.

Most commonly used web browsers are Internet Explorer, Mozilla Firefox.

Web Page:

A web page is a text file with extension html or htm containing HTML tags. For example mypage.html

HTML Tags:

HTML tags are used to mark-up HTML elements, HTML elements mean text, images and links etc. These tags are surrounded by the two characters < and >, normally come in pairs like and . The first tag in a pair is the start tag; the second tag is the end tag

Example:

<CENTER>welcome</CENTER>

<CENTER> is an HTML tag for centering welcome is the text that gets centered.
</CENTER> is an HTML tag to end centering

Note: HTML tags are not case sensitive.

Anatomy of a Web Page:

Writing an HTML file means composing the text you want to display, and then inserting any **tags** you want in the right places. Tags begin with a < character and end with a > character, and tell a browser to do something special, like show text in *italic* or bold, or in a larger font, or to show an image, or to make a link to another Web page. Although HTML has many tags you can use, you don't need to know them all to use HTML

HEAD and BODY:

Most HTML files begin with <HTML> tag and end with </HTML>. This tells the browser that you are using HTML language. The general format is:
<HTML>
<TITLE> title that appears at the left corner of the browser </TITLE>
<HEAD>
...head content
</HEAD>
<BODY>
...body content
</BODY>
</HTML>

Example:

```
<html>
<title> My Page</title>
<head></head>
<body>
<h1> This is my First Page </h1>
</body>
</html>
```

If you save this file as *first.html* and then open this file in a browser such as Internet Explorer, you will see the following the output.

This is my First Page

Software that Create HTML Tags:

Nowadays most people use visual HTML editors that let you create web pages easily without the hassle of typing in every tag. Here is a brief list of popular HTML editors:

Microsoft FrontPage -- This comes with Microsoft Office. FrontPage provides many functions and is easy to use. The downside is that FrontPage automatically inserts many unnecessary tags which make the raw HTML code very hard to read.

Netscape Composer -- Composer comes free with the Netscape Communicator package.

Macromedia Dreamweaver -- Another powerful HTML editor, the one used to write the HTML code. Since it has so many features, it may be difficult to pick up in the beginning. But once you learn how to use it, it's much better than FrontPage. The downside is that the software is expensive.

Cascading Style Sheets:

Cascading Style Sheets (CSS) is a simple mechanism for adding style (e.g. fonts, colours, spacing) to Web documents.

There are various ways of linking these style rules to your HTML document, but the simplest method for starting out is to use HTML's STYLE element. This element is placed in the document HEAD, and it contains the style rules for the page.

Example:
Go to the page http://www.meacademy.ca/ and view its source.

Is It Important to Learn HTML?

You can create web pages using these editors without knowing anything about HTML. But, many times, you need to enter HTML codes into the document by hand to control the details. Particularly, when you are using scripting languages. These programs let you alternate between the visual side and the raw code side, which is very convenient.

Copying HTML Code:

You can learn quickly how to do something in HTML by using the View option
Reasons against Copying other HTML Code:

1. Copyright issues
2. Poorly written
3. Bugs
4. Have not learned the basics
5. Inconsistent styles

Some commonly used HTML Tags:

Headings

Headings are defined with the <h1> to <h6> tags. <h1> defines the largest heading. <h6> defines the smallest heading.

```
<h1>This is a heading</h1>
<h2>This is a heading</h2>
<h3>This is a heading</h3>
<h4>This is a heading</h4>
<h5>This is a heading</h5>
<h6>This is a heading</h6>
```

HTML automatically adds an extra blank line before and after a heading.

Paragraphs

Paragraphs are defined with the <p> tag.

```
<p>This is a paragraph</p>
<p>This is another paragraph</p>
```

HTML automatically adds an extra blank line before and after a paragraph.

Line Breaks

The
 tag is used when you want to end a line, but don't want to start a new paragraph. The
 tag forces a line break wherever you place it.

```
<p>This <br> is a para<br>graph with line breaks</p>
```

The
 tag is an empty tag. It has no closing tag.

Comments in HTML

The comment tag is used to insert a comment in the HTML source code. A comment will be ignored by the browser. You can use comments to explain your code, which can help you when you edit the source code at a later date.

```
<!-- This is a comment -->
```

Note that you need an exclamation point after the opening bracket, but not before the closing bracket.

See an HTML tag chart at http://www.meacademy.ca/htmlTags.htm

Review Questions:

1. What does HTML stand for?

2. Choose the correct HTML tag for the largest heading
   <h1>
   <heading>
   <h6>
   <head>

3. What is the correct HTML tag for inserting a line break?

4. What is the correct HTML for adding a background color?
   <body bgcolor="yellow">
   <body color="yellow">
   background>yellow</background>

5. Choose the correct HTML tag to make a text bold
   <bold>
   <bld>
   <b>
   <bb>

6. What is correct HTML tag to make a text italic

7. What is the correct HTML for making a hyperlink?

   W3Schools.com
   W3Schools
   <a>http://www.w3schools.com
   W3Schools.com

8. Which of these tags are all <table> tags?
   <table><head><tfoot>
   <table><tr><tt>
   <thead><body><tr>
   <table><tr><td>

9. Write the name of three Editors that produce HTML code.

10. Did you create any web page before.

HTML – Lab

To complete this lab you must use the HTML tags as discussed during the lesson. The purpose of the lab is to give you an introduction to HTML coding. Use text editor like Notepad. Any use of software that generates web pages or html will result in a mark of 0

Create an html page that includes the following [2 marks]:

- Page Title
- Different size headings
- At least two table
- Different font sizes, faces, colors
- Background color different than the default color
- At least one images
- At least 1 list (ordered or unordered)
- At least one links. By clicking, it takes you to the any E Commerce web site

Day 3 – Introduction to E-Commerce

E-Commerce:

E-Commerce is the short name for "Electronic Commerce". Electronic commerce is doing business online. More generally, E-Commerce encompasses any method of business transaction that involves the transmission of information across the Internet and the World Wide Web.

Advantages of E-Commerce:

- It is fast
- Reasonably reliable
- Inexpensive
- Global Marketplace
- 24 Hour Access

Disadvantages of E-Commerce:

- Unable to Examine Products Personally
- Online Purchasing Security
- Hardware and Software Problems
- Training and Maintenance
- Security

Four main areas in which companies conduct business online today:

1. Direct marketing
2. Selling and service
3. Online banking and billing
4. Secure distribution of information

Some Common E-Commerce Market Models:

- **Business to Business (B2B)**

1. Business to Business or B2B refers to E-Commerce activities between businesses.
2. In E-Commerce B2B, transactions are usually carried out through Electronic Data Interchange or EDI. EDI is an automated format of exchanging information between businesses over private networks.
3. EDI is composed of standards that enable businesses' computers to conduct transactions with each other, without human intervention.
4. For example, manufacturers and wholesalers are B2B companies.

- **Business to Customer (B2C)**

1. Business to Customer or B2C refers to E-Commerce activities that are focused on consumers rather than on businesses.
2. For instance, a book retailer would be a B2C company such as **Amazon.com**

- **Customer to Business (C2B)**

1. Customer to Business or C2B refers to E-Commerce activities, which use reverse pricing models where the customer determines the price of the product or services.
2. For example, teleworkers and **online auctions** are C2B processes.

- **Customer to Customer (C2C)**

1. Customer to Customer or C2C refers to E-Commerce activities, which uses an auction style model.
2. Customers are also the business and C2C enables customers to directly deal with each other. An example of this is peer auction giant, **E Bay**.

Traditional Commerce to Electronic Commerce:

- Commerce is based on the specialization of skills. Instead of performing all services and producing all goods independently
- People rely on each other for the goods and services they need
- Example: My mother trades eggs to one of her neighbors in exchange for repairs to fences on her farm

History of Commerce:

1 Exchange of services

⇩

2 Printing Press

⇩

3 Steam Engine

⇩

4 Telephone

⇩

5 Electronic Funds Transfer

⇩

6 Electronic Data Interchange

⇩

7 Internet

History of E-Commerce:

There have been several key steps in the history of e-commerce. The first step came from the development of the Electronic Data Interchange (EDI). EDI is a set of standards developed in the 1960's to exchange business information and do electronic transactions. At first there were several different EDI formats that business could use, so companies still might not be able to interact with each other. However, in 1984 the ASC X 12 standards became stable and reliable in transferring large amounts of transactions. The next major step occurred in 1992 when the Mosaic web-browser was made available; it was the first 'point and click' browser. The Mosaic browser was quickly adapted into a downloadable browser, Netscape, which allowed easier access to electronic commerce. The development of DSL was another key moment in the development to of E-Commerce. DSL allowed quicker access and a persistent connection to the Internet.

Christmas of 1998 was another major step in the development of E-Commerce. AOL had sales of 1.2 billion over the 10 week holiday season from online sales. The development of Red Hat Linux was also another major step in electronic commerce growth. Linux gave users another choice in a platform other then Windows that was reliable and open-source. Microsoft faced with this competition needed to invest more in many things including electronic commerce.

It is predicted that that revenues, up until 2006, will grow 40% to 50% yearly. Expectations of higher prices as well as larger profits for E-Commerce business are also present. Also, we will see a larger presence by experienced traditional companies, such as Wal-Mart, on the Internet. It is believed companies in general will take this mixed strategy of having stores online and offline in order to be successful. It can be seen that there will be a large growth in Business-to-Consumer (B2C) E-Commerce. However, even though B2C electronic commerce may be the most recognizable there are different varieties.

Today the largest electronic commerce is Business-to-Business (B2B). Businesses involved in B2B sell their goods to other businesses. In 2001, this form of E-Commerce had around $700 billion in transactions. Other varieties growing today include Consumer-to-Consumer (C2C) where consumers sell to each other, for example through auction site.

For more detail about WWW History, E-Commerce and Internet, please visit the prof W.Tim web site. The URL of this web site is
http://www.witiger.com/ecommerce/internethistory.htm

Review Questions

1. What is difference between commerce and electronic commerce?

2. Identify three Electronic Commerce issues.

3. Give the address of three Electronic Commerce web sites.

4. List and explain three business models for E-Commerce.

5. What kind of web site do you want to make for your final project?

Lab:

Design the layout of your E-Commerce web site on paper and explain it briefly. Why did you choose this layout?

Day 4 – Building E-Commerce Storefront

A web site is a storefront of your E-Commerce business. It is vital to success in E-Commerce business. Take some time to plan.

Plan Your Site Carefully:

First, identify clear marketing goals for your site, such as generating leads, building a database of potential customers' names and e-mail addresses.

Then, figure out what your potential customers need to know before buying your products and services. This might include:

- An overview of your company, its products and services, and their applications.
- Complete product or service descriptions, including features, key benefits, pricing, product specifications, and other information, for each product or service
- Testimonials, or success stories so customers can see how similar individuals or organizations have worked with you
- A FAQ section that anticipates and answers customers' common issues

Plan the structure of your site, focusing on making it easy for customers to learn what they need to know, make a purchase decision, and then buy quickly.

Create a site map that outlines every page on your site starting with the home page and mapping how customers get from one page to the next. Use tools that quantitatively measure site activity (e.g. web log analysis) - where customers are clicking, how often, and whether they purchase - then compare the results with your goals.

Example: http://www.asianbazar.com/

Choose the Right Site-Building Tools:

With a solid plan in hand, you're ready to start constructing your site. Many E-Commerce businesses turn to professional Web design studios to create their Web sites. But if your budget is limited, there are self-service Web site building tools that make it fast and easy for you to create your own polished, professional-looking site - with no in-depth HTML knowledge necessary.

E-Commerce Site Design Tips:

Following are some basic guidelines that will help you to make your web site not only attractive, but also easy for customers to use - and that means easy to buy from you.

1. Carefully Research Your Own Favorite E-Commerce Sites.

Creatively adapt the most compelling marketing and design techniques to enhance your site's effectiveness.

2. Your Web Site is a Front Door of Your Business.

It's essential that it makes a good first impression on visitors. Make sure it clearly presents the following basic elements that customers are always likely to look for:

- Your company name and logo should be attractive. Take full advantage of the opportunity to showcase your brand identity.
- Contact information. Don't make it difficult for visitors to find your phone number, E-mail address, mailing address, and fax number.
- A link to an "About the Company" page for customers to quickly learn who you are and what your business offers.
- A site menu listing the basic subsections of your site. Keep this menu in the same place on every page throughout your site to make it easy to navigate.
- A "What's New" section for news, announcements, and product promotions. Frequently updating this area will encourage customers to return often.
- Your privacy statement, clearly describing your business's policy for protecting customer's personal information.

3. Make it Easy for Customers to Navigate Your Site.

As you build your site, try to minimize the number of clicks it takes the customer to go from your home page to actually being able to make a purchase. Four to six clicks is a useful rule of thumb. Make sure links make sense, so customers know what to click to find what they're looking for.

4. Keep Things Simple.

Don't fill up your site with graphics, animations, and other visual bells and whistles. Stick to the same basic color palette and fonts your company uses in other communications, like your logo, brochures. Ensure that images and graphics serve to enhance, not distract from, your marketing goals.
Make sure the text is easy to read - black letters on a white background may not be terribly original, but they are easier on the eyes than orange type on a purple background.

5. Keep downloads times short.

Test pages to make sure they're not too heavy with graphics that will slow load times - and minimize the size of your images when possible.
Remember: many e-commerce customers' shop from home using slower connections. Most users click away to another site or log off if a page takes more than eight seconds to load, costing e-commerce businesses billions in lost potential revenue.

Common Mistakes in Web Site Design:

- Lack of a development plan
- Overly ambitious in functionality, e.g. multiple languages & currencies
- Too much "cool" and not customer-oriented
- Too demanding/restrictive on user's resource
  - High-speed connection
  - Complicated navigation
- Too many pop-ups
- Crowded interface hidden or small links

Web Sites with Good Interface:

http://www.asianbazar.com/

http://www.meacademy.ca/

http://www.uwo.ca/chem/

http://www.gteaching.com/

Review Questions

1. List any two web site-building tools.

2. What is difference between a static web site and dynamic web site?

3. Is it possible to make a static E-Commerce web site? What are advantages and disadvantages of static E-Commerce web site?

4. In the lesson, we learned that design of a web site should be simple. What is the reason for this?

5. What are three common mistakes in web site design?

Lab

Start working on your E-Commerce final project.

Day 5 – Incorporating Graphics in the Web Site

Today we will learn how to dress up your web pages with graphics. It is not concerned so much with the creation of graphic images; we will learn the acquisition, modification, and incorporation of the graphic images.

Acquiring Graphics from the Web Itself:

We can get images from the web, there are a lot of web sites that provide free images. Here are a few web sites.

http://www.barrysclipart.com/
http://images.google.ca/

Save the image and then modify according to your page requirements.

Acquiring Graphics from Scanners and Digital Cameras:

Two increasingly popular ways of acquiring images to display on the Web are through

1. Scanners
2. Digital cameras.

Both have come down greatly in price while increasing in quality. Prices range from under $100 to about $1000. Scanners have been around for while, and many graphics packages have scanner acquisition controls built in, whereas affordable cameras are much more recent and typically provide their own software.

In all cases, however, images from cameras or scanners are stored in either "jpg" or “gif” formats, and so they can be imported into almost any graphics program.

Graphics File Formats and Graphic File Conversion:

The most popular Web graphic file types are GIF and JPEG, for static images, and animated GIF. Another graphic format, PNG has been widely discussed but is just now becoming significant. It is supported in many Microsoft products, such as Image Composer, Microsoft Word, and Internet Explorer.

Joint Photographic Experts Group (JPEG)
Graphics Interchange Format (GIF)
Portable Network Graphics (PNG)

Efficient Graphics:

Loading web images can take a long time and is especially slow over a modem. It is best to reduce the loading time as much as possible.

Important techniques include:

- Make your images as small as they can be and still be effective. All other things being equal, an image that occupies 5 square inches loads twice as fast as one that occupies 10 square inches

- Reduce the number of colours to the minimum without compromising the image. Many "logo" or cartoon type images contain very few colours anyhow. Reducing the number of colours dramatically cuts the size of GIF files. PhotoShop has excellent tools for reducing colors and displaying the results (in particular, if you click on MODE > INDEXED COLOUR in PhotoShop, you can save your image in 2 thru 8 bit colour and save it as a GIF file).

- Understand the differences between JPEG and GIF images: if an image consists of solid colors, as in a logo or cartoon, you should save it as a GIF file -- the resulting file may be compacted by a factor of 20-30; on the other hand, if an image is a photograph, then you should save it as a JPEG file as it will be much more compact than the equivalent GIF file. Also, any image that contains text or fine lines should be saved in GIF format, as JPEG format badly smears text or fine lines.

- Use thumbnail images to preview large images. After all, a picture is worth 10,000 words (the original Chinese quote) so a thumbnail must rate at least 1000. The best way is to make your thumbnail a clickable image with the size of the full scale image printed next to it. For example,
  http://asianbazar.jsn-server2.com/servlet/Index?name=lstuff1.jsp

Colours and Backgrounds:

We can control the colours of the background, text, links, etc by using graphics and HTML codes.

Examples:

http://www.uwo.ca/chem/
http://www.asianbazar.com/

Transparencies:

Transparent backgrounds are very effective, especially if the graphic is moving over the page. Many systems let you create such backgrounds.

Creating and Modifying Graphics Using Software:

There are many computer graphics software packages that help you create and/or modify graphics for presentation on the Web. For example, scanners, digital cameras and some programs such as Adobe PhotoShop, MS paint that provides professional level image manipulations.

While all of these programs have their own set of commands, terminology, and operations, they generally operate in a similar manner and provide similar capabilities.

These typically include manipulations on single images that let you:

- Shrink, expand, rotate, flip, crop, zoom in, zoom out, and distort (skew or warp) the image
- Apply a large number of colour and pattern effects, such as: Bas Relief, blur, tile, noise, drop shadows, emboss, fisheye, flocking, grayscale, halftone, negatives, stained glass, vortex, wave, and many more color, distortion, and patterning effects
- Control the opacity (transparency), create transparent backgrounds, cutout regions based on rectangular, circular, or polygonal areas or on areas that are defined by a range of colours.
- Heighten or dim colours, or modify colours
- Overlay text or paint areas with control over the size, colour, pattern, and intensity of the paintbrush

For multiple images you can usually:

- Group multiple images together
- Align images with respect to each other or to the composition space
- Flip and rotate groups of images as a unit
- Trace old shapes to create a new shape
- Apply all of the colour and pattern effects above that apply to a single image
- Wholey or partially snip out one graphic from another that overlays it; transfer colour from one image to another where they overlap; glue the full or partial image of one graphic to another
- Transfer various properties (colour, texture, saturation, etc) from one image to another where (the non-transparent areas) overlap.
- Change the order of images by moving them forward or back

Review Questions

1. Search for a web site that produces a text in the form of graphics. Write the address of this web site.

2. Write two advantage and disadvantages of acquiring Graphics from Digital Cameras.

3. What is the difference between JPEG graphics and GIF graphics?

4. Down load an image of your own choice from the web and write the following text on this image.
   "My First Text on the Graphic"

5. How can we change the background of an image?

Lab:

Work on your E-Commerce final project.

Day 6 – Introduction to JavaScript

What is JavaScript?

JavaScript is a scripting language that runs in the browser. With JavaScript we can easily create interactive web-pages.

JavaScript is not Java!

Many people believe that JavaScript is Java because of the similar names. This is not true though. JavaScript is a scripting language that runs in the browser only. Java is computer programming language.

Embedding JavaScript into a HTML-page:

Of course you need a basic understanding of HTML before embedding a JavaScript into your page. If you are weak in HTML, go to the day 2 lesson and just review the HTML.

First JavaScript:

```
<html>
<body>
<br>
This is a normal HTML document.
<br>
  <script language="JavaScript">
    document.write("This is JavaScript!")
  </script>
<br>
Back in HTML again.
</body>
</html>
```

At the first glance this looks like a normal HTML-file. The only new thing is the part:

```
<script language="JavaScript">
    document.write("This is JavaScript!")
</script>
```

This is JavaScript. In order to see this script working, save this code as a normal HTML file and load it into browser such as Internet Explorer.

Prompting User Information:

This example shows, how we can prompt the user for information by using JacaScript.

```
<html>
<body>

<SCRIPT type="text/javascript">
var user_name = prompt ("Write your name in the box
below","Write it here");
document.write("Hello " + user_name + ". Welcome to my
page!");

</SCRIPT>
</body>
</html>
```

Conditional Statements:

```
<html>
<body>

<SCRIPT type="text/javascript">
var user_name = prompt ("Write your name in the box
below","Write it here");
if(user_name=="ihsan")
{
window.location="http://www.asianbazar.com/"
}
else
{
document.write("Hello " + user_name + ". Welcome to my
page!");
}

</SCRIPT>
</body>
</html>
```

Functions:

Functions are a way for bundling several commands together.

Example:

Let's write a script which outputs a certain text three times

```
<html>
<script language="JavaScript">

document.write("Welcome to my homepage!<br>");
document.write("This is JavaScript!<br>");

document.write("Welcome to my homepage!<br>");
document.write("This is JavaScript!<br>");

document.write("Welcome to my homepage!<br>");
document.write("This is JavaScript!<br>");

</script>
</html>
```

Look at the source code. We wrote the code three times, we can do this by writing the code only one time in a function and then calling function three times.

```
<html>
<script language="JavaScript">

function myFunction() {
  document.write("Welcome to my homepage!<br>");
  document.write("This is JavaScript!<br>");
}

myFunction();
myFunction();
myFunction();

</script>
</html>
```

Function for Flipping an Image:

```
<SCRIPT LANGUAGE="JavaScript">

Image1= new Image(75,50)
Image1.src = "image1.jpg"
Image2 = new Image(75,50)
Image2.src = " image2.jpg"
function SwapOut() {
document.imageflip.src = Image2.src; return true;
}
function SwapBack() {
document.imageflip.src = Image1.src; return true;
}

</SCRIPT>
```

Call the Above Function:

```
<html>
<body>
<head>

<SCRIPT LANGUAGE="JavaScript">

Image1= new Image(75,50)
Image1.src = "image1.jpg"
Image2 = new Image(75,50)
Image2.src = "image2.jpg"
function SwapOut() {
document.imageflip.src = Image2.src; return true;
}
function SwapBack() {
document.imageflip.src = Image1.src; return true;
}

</SCRIPT>
</head>
<A HREF="index.html" onMouseOver="SwapOut()"
onMouseOut="SwapBack()">
<IMG NAME="imageflip" SRC="image1.jpg" WIDTH=75 HEIGHT=50
BORDER=0></A>
</body>
</html>
```

When we use JavaScript

- Complimentary form pre-processing (should not be relied upon!)
- To get data about the user's screen or browser.
- Online games.
- Customizing the display (without reloading the page)

Events:

Events and event handlers are very important for JavaScript programming. Events are mostly caused by user actions. If the user clicks on a button a *Click*-event occurs. If the mousepointer moves across a link a *MouseOver*-event occurs. There are several different events.

On click Event:

```
<form>
<input type="button" value="Click me" onClick="alert('Yo')">
</form>
```

Window‘s History Events:

Window’s history events are used to go previous or next pages.

```
<input type=button value='Return !!'
onclick='window.history.go(-1) '>
```

Window‘s Location Events:

```
<input type=button value='click here'
onclick='window.location="www.asianbazar.com"'>
```

Onmouseout Event:
When the user moves the mouse over an object, one onmouseover event occurs.
Following example uses the **onmouseout** event to apply a new style.

```
<BODY>
<P onmouseout="this.style.color='black';"
   onmouseover="this.style.color='red';">
Move the mouse pointer over this text, and then move it
elsewhere
in the document. Move the mouse pointer over this text, and
then
move it elsewhere in the document.
</BODY>
```

Review Questions

1. Make a folder “My_JavaScripts” on your computer.

2. Copy the Conditional Statements JavaScript code given in “hand out sheet” in *notepad* editor. Save this file as “CondScript.html” in “My_JavaScripts” folder that you created in question 1. See its output by opening this file in a browser.

3. Repeat the question 2 with “Flipping Images JavaScript code”. Of course now you will save the code with a different file name.

4. Think and explain briefly, your plan about Embedding JavaScripts in your final projects.

Day 7 – Networking Fundamentals

A network is a collection of devices (nodes) connected by media links

Categories of Networks:

Personal area networks (PANs)

Typically these networks are small in size, belong to a single person and are limited to his / her environment within a small area *like* his room, body or garden etc. For example card less phones.

Local area networks (LANs)

The term 'local area' in the world of networking usually refers to a geographically contiguous area in which the inter-computer distance is lesser than or equal to one kilometer. It is owned by a single organization, and it is locally installed (i.e. in a single contiguous geographic location like an office, a laboratory, a building or a campus.

Metropolitan area networks (MANs)

A computer network that is not usually owned by a single organization and that is spread over a metropolitan city area is called a Metropolitan Area Network.

Wide area network (WANs)

A computer network that is not usually owned by a single organization and that is spread over an area larger than that of any city of operation. A WAN may be spread over several cities / towns, provinces, a country or even a continent.

Internet

An Internet is a network of computer networks. It may consist of several PANs, LANs, MANs or WANs.

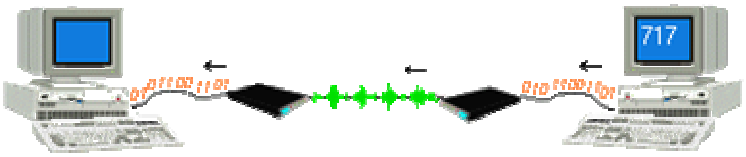
Concepts of Data Communications:

In years past, we relied on the postal service, telephone, radio, books, or newspapers to send or receive information. The computer has opened a variety of ways to communicate more quickly and effectively. Computer systems transmit data using networks. These data communications systems have been evolving since the mid-1960s.

In the most basic illustration of sending and receiving information, we will see three elements.

Modems:

Modem is short for modulation/demodulation. It performs the function of converting digital signals into analog signals and vice versa.



Communication Types:

Synchronous: sender and receiver are active at the same time
e.g., telephone call, instant messaging

Asynchronous: sending and receiving occur at different times
e.g., email

Broadcast communication: single sender and many receivers
e.g., radio

Point-to-point communication*:* single sender and single receiver
e.g., chat

Search Engine:

It is software (program) that retrieve-requested information from a database of indexed web pages. A search engine is an important element of a E-Commerce web site.

FTP (file transfer protocol)

It is software that allows a user to log onto a remote computer and retrieve a file. Usually we use FTP to upload our files on the server, if server is another computer.

Telnet

It is software that permits users to log onto distant computer sites and use their facilities remotely. We can use the programs of the other computers using telnet.

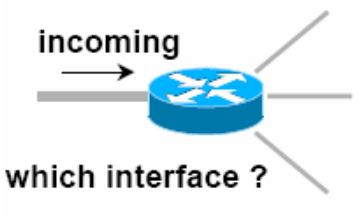
IP Addressing:

IP, short for Internet Protocol, is an address for a node or host connection on a network. For example, 140.179.220.200 is an IP address.

Every IP address consists of two parts, one identifying the network and one identifying the node. Check you IP address at http://www.whatismyipaddress.com/

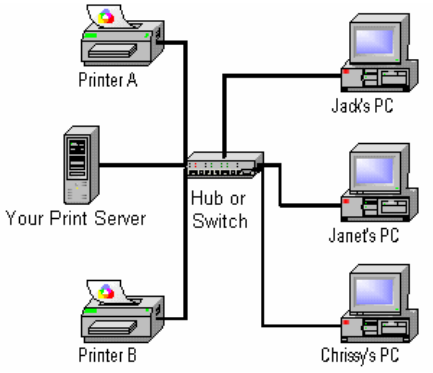
IP Routing:

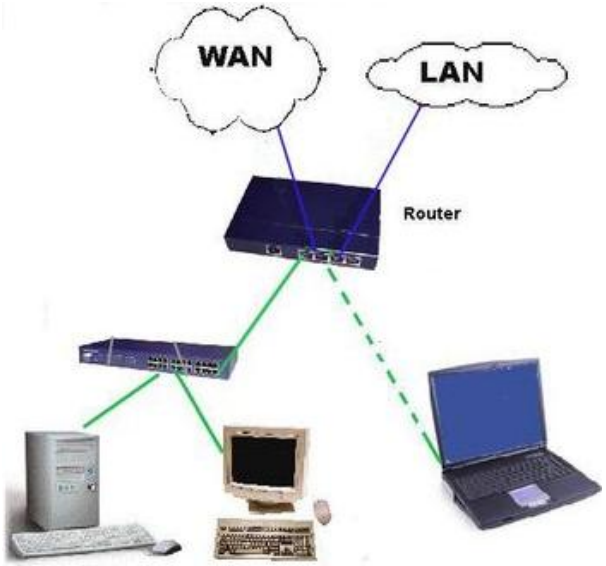
IP router searches for matching host and network address in the routing table and decides which interface to send a packet out.



Switch or Hub:

A network switch is a small hardware device that joins multiple computers together within one local area network (LAN).





Review Questions

1. What type of network is used in this computer lab?

a. LAN
b. WAN
c. PAN
d. Internet

2. The path that data travels between two computers, is called _____

3. Why do we use a modem?

4. How does a computer recognize other computers on the network?

5. What software / program do we use to move a copy of a file from one computer to another?

6. A device that does not forward network addresses is called _____.
   a. switch
   b. modem
   c. router
   d. hub

Lab

Work on your E-Commerce final project.

Day 8 – The Client/Server Model

Server:

A server is a computer that delivers information and software to other computers linked by a network. Actually a server is a host computer on a network that holds information (e.g., Web sites) and responds to requests for information from it.

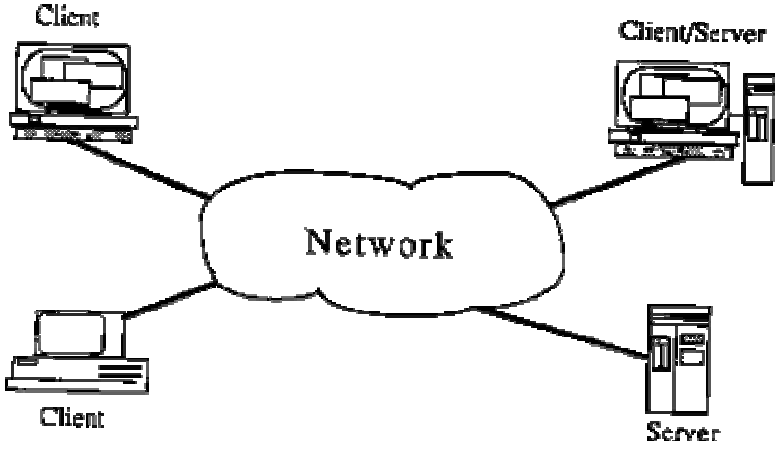
Client:

A client is any program that makes a request to a server. For example, a web browser is a client.

Web Browser:

Web Browser is software that allows a user to access and view HTML documents. Examples of Web browsers include Internet Explorer, Netscape and Mozilla.

The client and server run on different computers. A client makes a request and the net work protocol (a network program) being used makes a connection to the server. The server then process requests from clients and sends the results back to the clients.



WWW - The World Wide Web:

The WWW is an example of the Client-Server model. In this case the client is the user's browser, and requests are sent to different types of servers all around the world. This is possible through the use of 2 basic protocols (i.e. standards) HTTP and HTML

- HTTP - Hypertext Transfer Protocol
- HTML - Hypertext Markup Language

HTTP is used to transfer Web documents and HTML is used to describe the structure and format of these documents.

URL - Uniform Resource Locator:

URLs are special addresses on the web. They follow a format like this:

protocol://www/domain name

http://www.gteaching.com/
ftp://edu.uwo.ca/

Static Web Pages:

These pages only contains html codes, do not interact with the user. The majority of the web pages on the internet today are static HTML pages.

http://asianbazar.jsn-server2.com/servlet/bring?name=weather

Dynamic Web Pages:

The user interacts with these pages. These web pages are created using technologies like CGI, ASP, Cold Fusion, JSP, PHP etc.

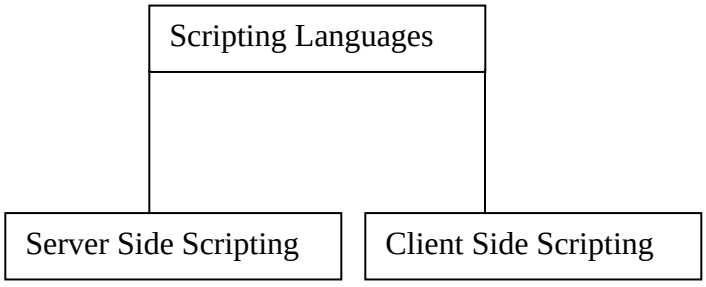
http://www.gteaching.com/

Data Base:

A large amount of data stored in a well-organized manner. A database management system is a program that allows access to the information. Data base and data base management systems are important components of E-Commerce systems.

Scripting Languages:

These are computer languages designed for ease of writing. There are many scripting languages. On the Internet side there are two kinds scripting languages.



Scripting languages can not write complex programs.

Example (Scripting Language):

http://www.meacademy.ca/

Example (Non Scripting Language):

http://www.gteaching.com/

JavaScripts:

We write JavaScript code in HTML documents, using a special tag. JavaScript code execute in web browser.

Example:

http://www.uwo.ca/chem/

Review Questions

1. Give three examples of Client/Server Applications.

2. Which of the following statement/**s** about client-side scripts is *incorrect*?

```
1. Client-side scripts are executed by the browser.
2. Client-side scripts are executed by the Web server.
3. JavaScript can be used to write client-side scripts.
4. The source code for client-side scripts is open to public
   users.
```

3. Which of the following statements about server-side scripts is *incorrect*?

```
1. Server-side scripts are executed by the browser.
2. Server-side scripts are executed by the Web server.
3. Java can be used to write server-side scripts.
4. PHP can be used to write server-side scripts.
```

4. Write two advantage and two disadvantages of Static Web Pages**.**

5. A client program calls a web browser to allow users to request and receive resources from server. What is server program? Give an example of server program.

6. Consider a Uniform Resource Locators (URLs)
   http://www.uwo.ca/chem/people/facultygroups.htm

   What are the followings?

   a. http:

   b. www

   c. uwo.ca

   d. /chem/people/

   e. facultygroups.htm

Lab

Work on your E-Commerce final project

Day 9 – HTML Forms

Creating HTML Forms:

We use HTML Forms to get information from a user. HTML forms provide a mechanism for including many input boxes, buttons and checkboxes that the user can use to provide input information.

The FORM Tag:

All form elements must be placed between a <FORM> and </FORM>. There can be multiple forms within a single HTML page. The FORM tag has required attributes ACTION and METHOD.

Method Attribute:

The METHOD attribute of a form tag specifies the HTTP request method that should be used when the contents of the form are submitted as part of an HTTP request. Typically the request method is either GET or POST.

ACTION Attribute:

The ACTION attribute specifies where the contents of the form should be sent. This is typically a URL, although sometimes people use a mailto: URL so that when the user submits the form, it is sent to them as an email message to the specified email address.

Some FORM tag examples:

1. http://www.meacademy.ca/d1rform.htm
2. <FORM method=*GET* ACTION=" *some url*">
3. <form action="http://asianbazar.jsn-server2.com/servlet/AcademyForms">
4. <form action="http://asianbazar.jsn-server2.com/servlet/AcademyForms" onsubmit="return Form_Validator(this)">

In 4; the JavaScript function "Form_Validator (this)" is used to validate the form.

Recall from Client - Server model lesson "GET" and "POST" are two HTTP methods.

Form Elements:

Between the <FORM> and </FORM> tags you define the text and fields that make up the form. You can include HTML tags inside a form to format the text however you want, and there are a number of new tags that are used to define *Form Elements.*

There are a variety of types of form fields:

- Text fields
  - Input Text Field
  - Password Field
  - Text Area
- Radio Buttons
- Checkboxes
- Buttons
  - User Defined
  - Submit Button
  - Reset Button (clear)
- Hidden Fields

Input Text Field:

Input text fields allow the user to type in a string value as input. The INPUT tag also has a required attribute named NAME that establishes the name of the text field being created. This name is important, since it will be sent to the program along with the value the user provides. Within a single form, every input must have a unique name.

Example:

```
<FORM METHOD=POST " www.somewhere.com">
Your Name: <INPUT TYPE=TEXT NAME="Name"><BR>

Your Age: <INPUT TYPE=TEXT NAME="Age"><BR>

</FORM>
```

Browser will show the following output of this code.

Submission Buttons:

Another type of input field is the SUBMIT type, this tells the browser to draw a button. When the user clicks on the button the browser knows to submit the contents of the form to the URL specified as the ACTION in the form tag.

Reset Buttons:

An input of type RESET tells the browser to create a button that the user can press to clear all form fields (set to the default values). You can specify the text to appear in the button with the VALUE attribute.

Example:

```
<FORM METHOD=POST ACTION=www.foo.com>
Your Name: <INPUT TYPE=TEXT NAME=Name><BR>

Your Age: <INPUT TYPE=TEXT NAME=Age><BR>

<INPUT TYPE=SUBMIT VALUE=Submit>
<INPUT TYPE=RESET VALUE="Clear Form">
</FORM>
```

Checkbox Inputs:

Inputs of type CHECKBOX present user with an item that can be selected or deselected. Each checkbox has a name and a value and can be initially selected/deselected. To set the checkbox to be initially *checked* assign the value 1 to the VALUE attribute.

Example:

```
<FORM METHOD=POST ACTION=cgi-bin/foo>

Select all the cookies you want to order:<BR>

<INPUT TYPE=CHECKBOX NAME=Oreo Value=1>
   Oreo<BR>
<INPUT TYPE=CHECKBOX NAME=Oatmeal >
   Oatmeal<BR>

<INPUT TYPE=CHECKBOX CHECKED NAME=ChocChip Value=1>
  Chocolate Chip<BR>

<INPUT TYPE=SUBMIT VALUE=Submit>
</FORM>
```

Radio Button Inputs:

Radio Button inputs are like checkboxes, except that the user must select only one item from group of choices. The way the browser knows which radio buttons are part of a group of choices is by looking at the NAME attribute. All radio button inputs that form a group must have the same NAME, and each should have a different value for the VALUE attribute

Example:

```
<FORM>
<INPUT TYPE=RADIO NAME=drink VALUE=1>
  <span style="font-size:small"> Small</SPAN><BR>

<INPUT TYPE=RADIO NAME=drink VALUE=2>
  <span style="font-size:medium"> Medium</SPAN><BR>

<INPUT TYPE=RADIO NAME=drink VALUE=3>
  <span style="font-size:large"> Large</SPAN><BR>

<INPUT TYPE=SUBMIT VALUE=Submit>
</FORM>
```

Text Area:

You can create a multi line text field with the TEXTAREA tag - you don't use the INPUT tag to create this kind of text area. The TEXTAREA tag requires the NAME attribute and supports the attributes ROWS and COLS (to define the size of the box drawn on the screen). Unlike the INPUT tag - the TEXTAREA tag has an end tag, so you need to include a </TEXTAREA tag.

Everything included between the <TEXTAREA and </TEXTAREA> tags is the initial value of the multi line text box. The user can delete, edit or add to this initial text.

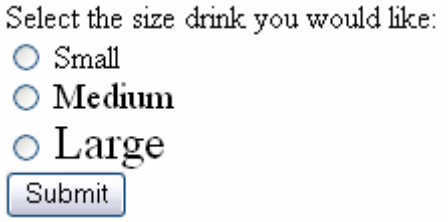
Example:

```
<FORM METHOD=POST ACTION=" ">

Please enter your address in the space provided:<BR>

<TEXTAREA NAME=address COLS=40 ROWS=5>
Your address goes here
</TEXTAREA><BR>

<INPUT TYPE=SUBMIT VALUE=Submit>
</FORM>
```

Review Questions [2 marks]

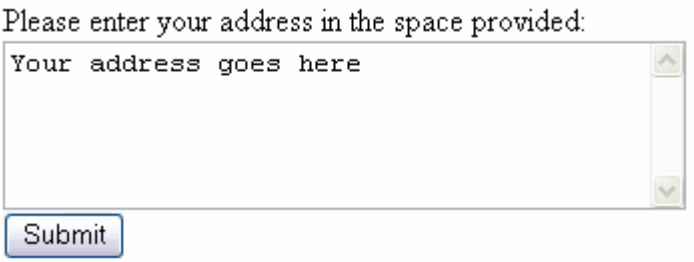
1. Write a HTML FORM code that produces the following output on the screen.

2. Write a HTML FORM code that produces the following output on the screen.



3. Write a HTML FORM code that produces the following output on the screen.

4. Write a HTML FORM code that produces the following output on the screen.



5. Work on your E-Commerce final project.

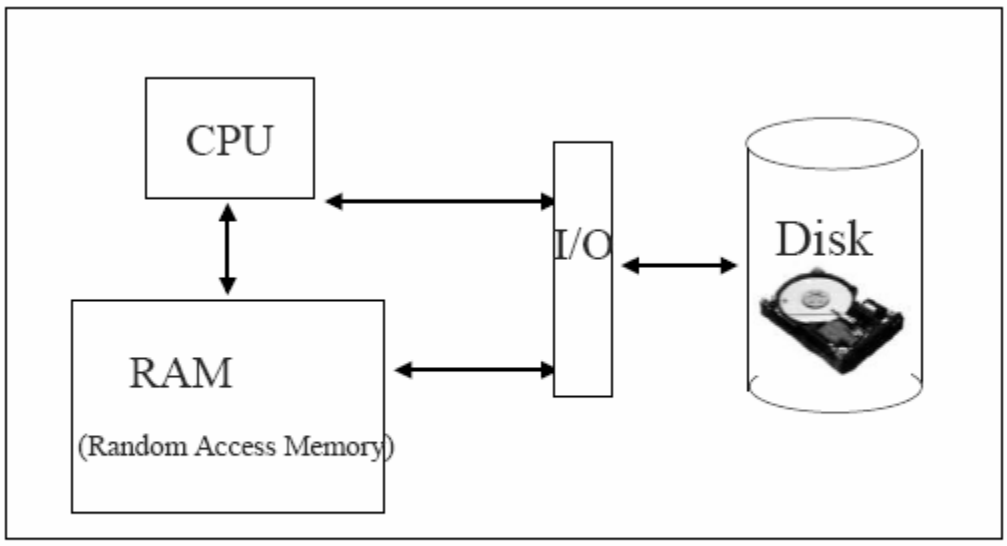
Day 10 - Introduction to File and Database Systems

What is Data?

In computer terminology, data means information stored on the computer system. A computer is a machine which processes the data.

Data stores on the hard derive of a computer in files and CPU process the data and send results to the standards output of the computer.

Basic Structure of Computer:



Disk: high capacity with low speed
RAM: low capacity with high speed

File:

A file is a collection of data (related information) defined by its creator. There are two kinds of file

1. Physical file: a file actually exists in a storage devise (a collection of bites, as seen by the operating system.)
2. Logical file: a file viewed by users and programs (a collection of records.)

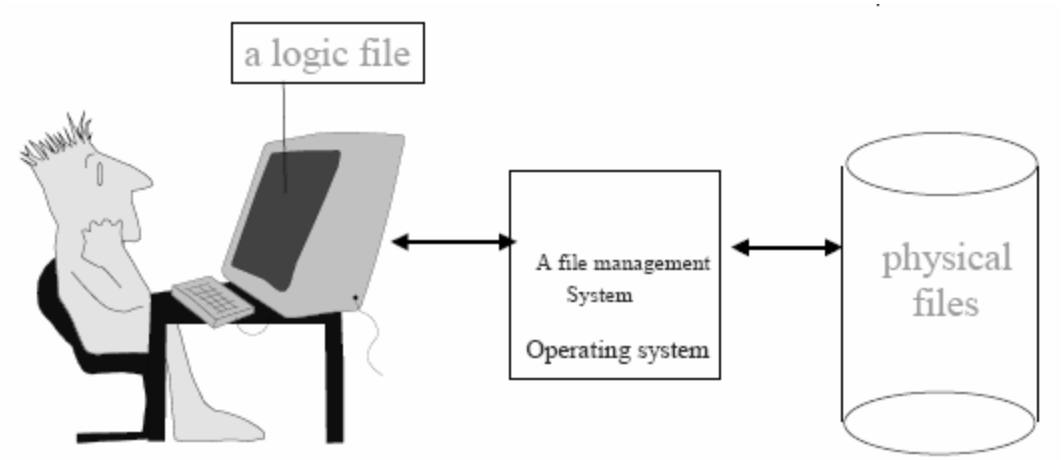
Computer Programs:

A computer program written in any language like Java or C sets up mapping between logical files and physical files via operating system.

Operating system itself is a program that used to communicate between user and components of a computer. Windows Me, Windows XP, Linux, and MacOS are common operating systems.

A file processing system within an operation system:

Here is a high level diagram how a computer process the files.



What is Database?

A database is a large collection of data or an integrated collection of data that can be access electronically using different programs.

Database Management System (DBMS)

A database management system (DBMS) is a computer program designed to manage a database. A DBMS provides users a convenient and efficient environment to access a database.

On PCs, Microsoft Access is a popular example of a single- or small-group user DBMS. Microsoft's SQL Server is an example of a DBMS that serves database requests from multiple users (client). Other popular DBMSs (these are all RDBMSs, by the way) are IBM's DB2, Oracle's line of database management products.

The most typical DBMS is a relational database management system (RDBMS). A standard user and program interface is the Structured Query Language (SQL). A newer kind of DBMS is the object-oriented database management system (ODBMS).

Relational Database:

A relational database is a collection of data items organized as a set tables from which data can be accessed or deleted in many different ways without having to reorganize the database tables. The relational database was invented by E. F. Codd at IBM in 1970.

In relational database each table (which is sometimes called a *relation*) contains one or more data categories in columns. Each row contains a unique instance of data for the

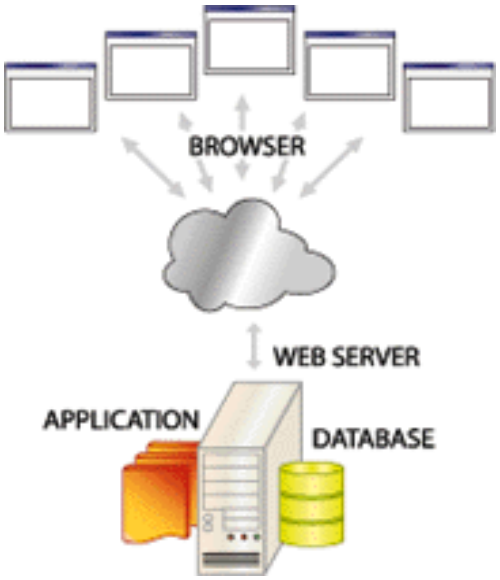
categories defined by the columns. For example, a typical business order entry database would include a table that described a customer with columns for name, address, phone number, and so forth. Another table would describe an order: product, customer, date, sales price, and so forth. A user of the database could obtain a *view* of the database that fitted the user's needs. For example, a branch office manager might like a view or report on all customers that had bought products after a certain date. A financial services manager in the same company could, from the same tables, obtain a report on accounts that needed to be paid.

Name	Address	Phone Number	Email
Scott Ali	302 Sarnai Rd	(519) 323 3456	
Barkat	42 batt cres	(416) 456 8356	
Brian Rajpoot	Apt 13 – Maple Ave	(905) 836 19236	

Databases are at the heart of modern commercial application development. Their use extends beyond this to many applications and environments where large amounts of data must be stored for efficient update and retrieval. The purpose of this course is to provide an introduction to the design and use of database systems, as well as an appreciation of the key issues in building such systems in heterogeneous and Web environments.

Database Server:

A database server is a computer program that provides database services to other computer programs or computers, as defined by the *client-server model*. Database management systems frequently provide database server functionality, and some DBMS's (e.g., MySQL) rely exclusively on the client-server model for database access.



Database Server

How Web Server & Database Work:

Here's an example of how web server and database server work. Let someone making a purchase on-line:

1. When the user is ready to buy the items he selected on the Web site, he goes to a "Checkout Web page containing a form that asks for his name, address, etc. The page containing the form is usually a "static page - it looks the same for everybody.

2. After the user fills out the form and clicks the "submitbutton, the Web server directs the data to a web server. The web server may examine the data to make sure the user provided all the information necessary to process the order.

3. The web server then sends the user's data to a database.

4. After the database receives the information, it creates an Order Number for the user, and sends it back to the web server.

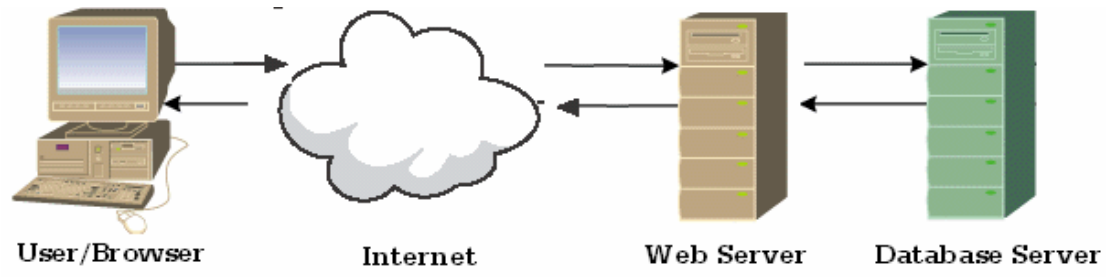
5. The web server then creates a web page containing the user's Order Number and thanking him for the order.

6. The web server hands the web page off to the browser, which then sends it to the user.

Web Applications:

Web applications sometimes called a webapp are programs that are accessed with a web browser over a network. Web application programs are used to implement webmail, online retail sales, online auctions, discussion boards, weblogs, and many other functions. Programmers use the following languages to write web applications.

- CGI
- Java Applets (client side)
- Java Servlet and JSP
- PHP
- ASP
- Java Scripts (client side)



Review Questions:

1. What is the difference between a file and a folder?

2. What is the job of the operating system in terms of file processing?

3. A logical file is a channel (like a telephone line) that connects the program to a physical file.

   True False

Day 11 – Registering a Company, Domain Name & Hosting

Registering a Company:

In Canada, once you've chosen a business. You need to register your business by going through the process of registering your business with the appropriate provincial authority.

In Canada every province has its own policies for registering a business. In Ontario "Ontario Business Connects (OBC)" provides the services to register the businesses. The web site of OBC is http://www.cbs.gov.on.ca/obc/english/4TJTBS.htm

IP Address:

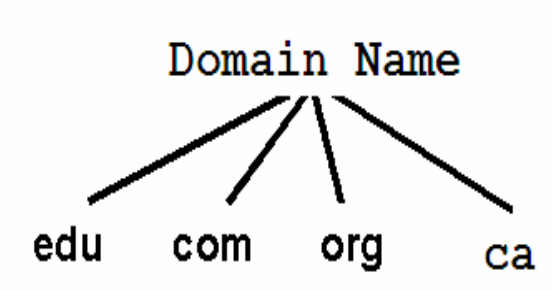
In day 5, we learned about IP address. Remember, IP address is an address for a node or host connection on a network. For example, 140.179.220.200 is an IP address. Or in other words computers on the network recognize each other by IP address.

Humans typically don't deal with IP addresses; we usually give a client the "host name" that makes them easy to remember (easier than IP addresses).

Domain Name:

A domain name is the text name corresponding to the numeric IP address of a computer on the Internet

The naming hierarchy is based on the concept of naming "domains", each domain covers some subset of the entire set of names. At the top level there are domains corresponding to educational institutions (.edu), commercial entities (.com), public organizations (.org), government entities (.gov), etc. There are also top level domains for countries.



Search for a Domain Name:

A domain name is a unique name that is a domain name must be different than all other domain names. Many web sites help us to search a domain name. For example

http://sbs.smallbusiness.yahoo.com/
http://www.doteasy.com/

Web Hosting:

The World Wide Web is a massive collection of web sites, all hosted on computers (called web servers) all over the world. The web server (computer) where your web site's html files, graphics, etc. reside is known as the web host

You can make your own computer a web server. Then you need to install web server software, such as Apache web server on your computer and high speed internet.

Buying a Web Hosting:

A lot of companies are giving you space on their server to load your web site. Here is the name of some companies.

http://sbs.smallbusiness.yahoo.com/

http://www.doteasy.com/

Free Web Hosting:

There are some companies that provide free hosting, but they put their advertisement on your pages. For example,

http://geocities.yahoo.com/

Review Questions

1. Suppose you want to start a business. What kind of business, would you want to start?

2. Choose a domain name for your business.

3. Use any web site that provides domain name searching. Search for your domain name, if it is available then **Congratulation**! If not try another name unless you found a reasonable name. Write that domain name below.

4. Write the name of five companies that provide web hosting.
   Hint: use Google to search for these companies

5. Compare the prices and disk storage of the above companies.

Company Name	Price	Disk Storage
http://www.doteasy.com/	1000 MB	7.95/month

Lab – Day 7

1. Load at least one file of your project on http://geocities.yahoo.com/
   Hints: If you do not know how to load ask me

2. Work on your E-Commerce final project.

Day 12 – Security in E-Commerce

Many security issues in E-Commerce are the same as general security issues, some of them are specific for the kind of software used by E-Commerce. However there are a large number of potential risks that an E-Commerce faces.

As we have learned in previous lessons, Word Wide Web is a heart of E-Commerce and Word Wide Web is composed of three components.

- Clients
- Servers
- Communication paths (Networks)

The purpose of web security is to meet the security expectations of users and providers. To that end, Web security is concerned with

- Client-side security
- Server-side security
- Secure transmission of information

Client-side security:

Client-side security is concerned with the techniques and practices that protect a user's privacy and the integrity of the user's computing system. The purpose of client-security is to prevent malicious destruction of a user's computer systems (e.g. by a virus that might format a user's fixed disk drive) and to prevent unauthorized use of a user's private information, such as use of a user's credit card number for fraudulent purposes.

Server-side security:

Server-side security is concerned with the techniques and practices that protect the Web server software. The purpose of server-side security is to prevent modification of a Web site's contents, prevent use of the server's hardware, software, or databases for malicious purposes and to ensure reasonable access to a Web site's services.

Secure transmission of information:

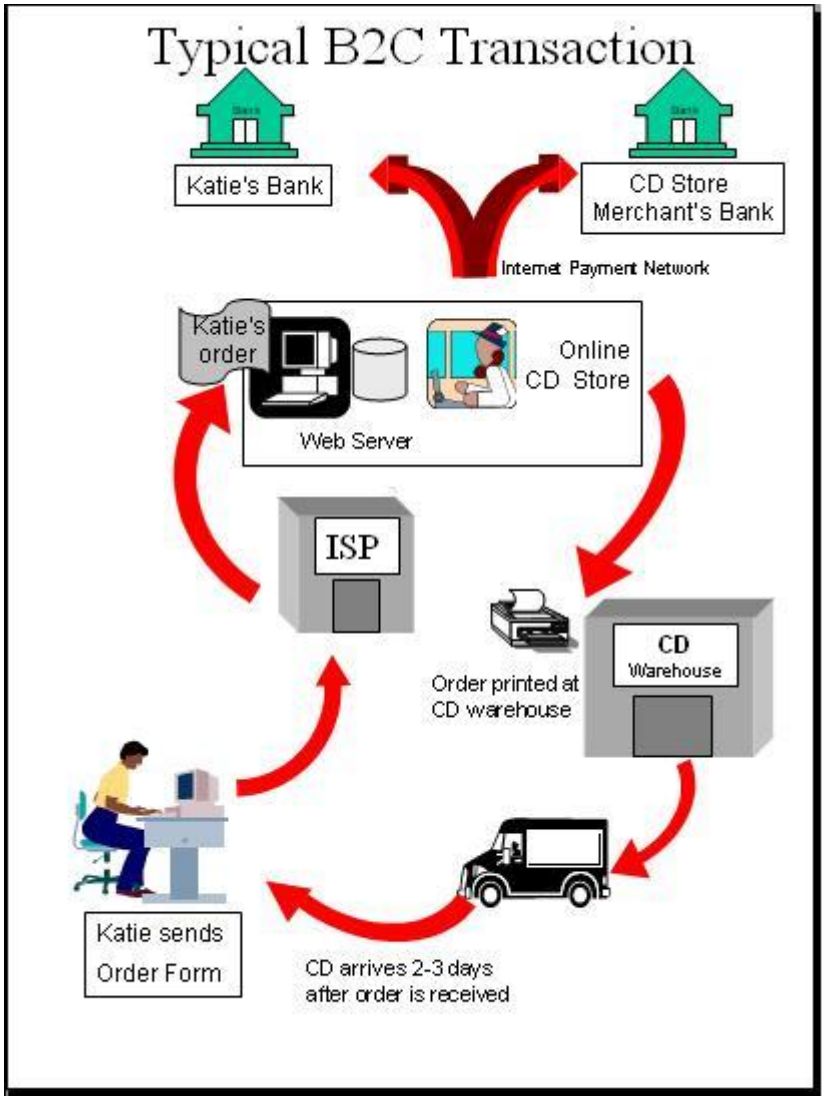
Secure transmission is concerned with the techniques and practices that will guarantee protection of the message that is being transmitted through the network. The purpose of these security measures is to maintain the confidentiality and integrity of user and server information as it is exchanged through the network.

With respect to E-Commerce, Web security has as its main focus Web Sever security and secure transmission.

The reason for this focus is the nature of E-Commerce. E-commerce can be simply defined as the exchange of goods and services for money. This exchange is transacted electronically, generally via the Web. Buyers (client processes) seek out reliable providers (server processes) of the goods and services they require.

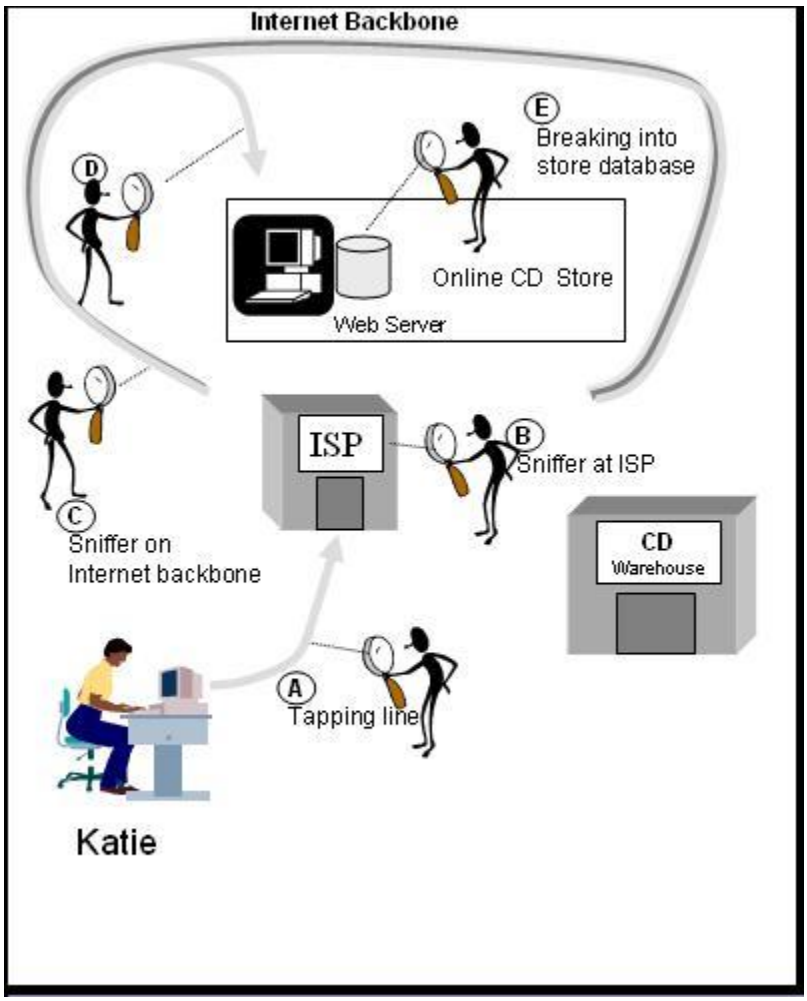
Web security is critical in conducting E-Commerce transactions. Let's starts with an example of B2C transaction to view the whole picture.

A Picture of B2C Transaction:



Picture on the next page illustrate the possible web security threats in B2C

Web Security Threats in B2C:



Security threats A to D can be handled by providing secure transmission - cryptographic methods

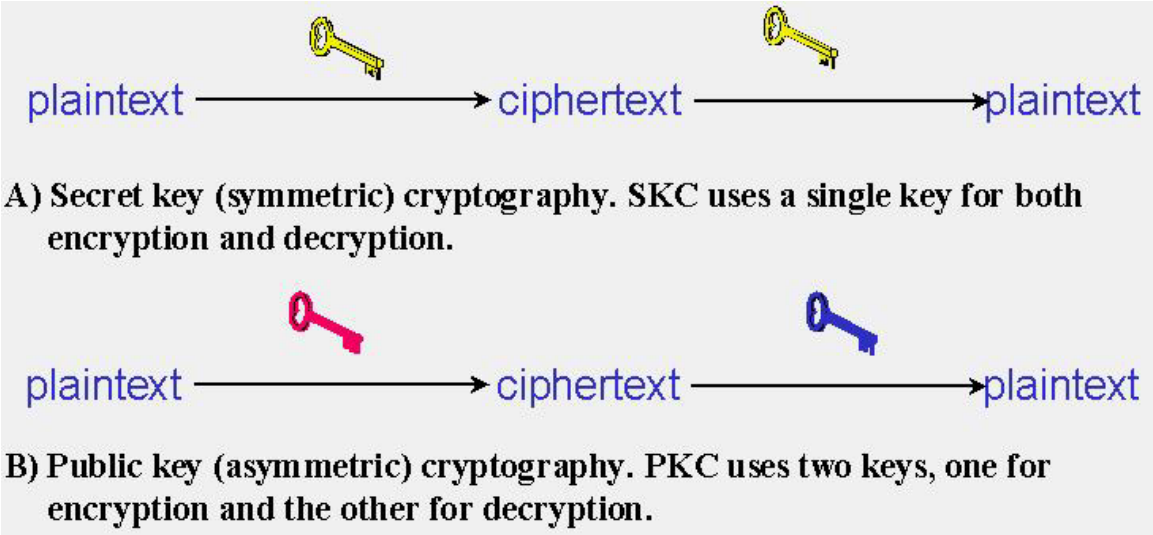
Cryptographic Methods:

Cryptography is the science of writing in secret code. There are a lot of commonly used cryptographic methods and algorithms for encryption and decryption of a text. In this notes we will discuss the only two cryptographic methods.

1. Secret Key Cryptography (SKC):
2. Public Key Cryptography (PKC):

Secret Key Cryptography (SKC):

With secret key cryptography, a single key is used for both encryption and decryption. As shown in Figure in next page.



A) Secret key (symmetric) cryptography. SKC uses a single key for both encryption and decryption.

B) Public key (asymmetric) cryptography. PKC uses two keys, one for encryption and the other for decryption.

The sender uses the key (or some set of rules) to encrypt the plaintext and sends the ciphertext to the receiver. The receiver applies the same key (or rule set) to decrypt the message and recover the plaintext. Because a single key is used for both functions, secret key cryptography is also called *symmetric encryption*.

With this form of cryptography, it is obvious that the key must be known to both the sender and the receiver; that, in fact, is the secret. The biggest difficulty with this approach, of course, is the distribution of the key.

Public Key Cryptography (PKC):

Public-key cryptography has been said to be the most significant new development in cryptography. One key is used to encrypt the plaintext and the other key is used to decrypt the ciphertext. The important point here is that it **does not matter which key is applied first**, but that both keys are required for the process to work. Because a pair of keys is required, this approach is also called *asymmetric cryptography*.

Security threat E is an example of server side security and can be managed by access control methods. There are a lot of access control methods. For example: associating an access list with each file and associating a password with files or directories.

Review Questions

1. With respect to E-Commerce, Web security has as its main focus on

    a. The client
    b. Web server security
    c. Secure transmission
    d. b and c

2. Both the server and the user have an expectation that their communications will?

    a. be modified by a third party
    b. be transmitted only through a wireless network
    c. not be modified by a third party
    d. b and c

3. ---------- can be simply defined as the exchange of goods and services for money, transacted electronically.

4. ----------is/are a possible security threat in conducting e-commerce transactions.

    a. Line tapping
    b. Breaking into databases
    c. Illegal access of a HTML file on the server
    d. all of the above

5. ---------- is a service provided by cryptography

6. The purpose of cryptography is

    a) to secure stored information
    b) to secure transmitted information
    c) to confuse the client
    d) a and b

7. We do not need cryptography on wireless network

    True False

Day 13 - Payments on Internet

General overview:

Most of online purchases are paid for by a credit card. Merchants like credit card payments because an instant authorization guarantees that the card is valid (as opposed to a check which may bounce). Customers like paying by credit cards because they can easily cancel a transaction in case when they don't receive products or services according to the agreement in the transaction.

Credit card information submitted by the customer is sent to the bank which has issued the credit card to verify. If the transaction is approved, the merchant notifies the customer that the order has been placed. The actual transfer of money from the credit card bank to the merchant may happen in a few hours, or even in a few days.

Merchants who accept credit card payments pay fee (between 1 and 7 percent of the card charge) for each card charge. In addition, in some cases merchants pay authorization fee for each credit card authorization attempt, as well as other fees related to credit card processing.

In case when a customer is not satisfied with the product or a service, or for other reasons, merchants may issue a refund or a charge-back to the customer's account.

Technical issues:

There are several technical issues involved in online credit card payments; below we discuss some of them.

Quick Check at Client Side:

Since the business may be charged for each credit card authorization, it is convenient to check that the credit card number at the client side before sending it to the issuing bank to authorize. There is an easy algorithm to verify a credit card number: the last digit of the credit card number is computed from the other digits using a simple procedure. The details are given at the web site http://www.csharphelp.com/archives/archive275.html
We can easily implement this procedure (algorithm) using JavaScript.

Authenticating the Customer:

Since the card is not physically present during the transaction. The customer is usually asked to provide additional information, such as their address and phone number, and the card's billing address, if different from the customer's address. However, this information can be easily mistyped. While in a telephone transaction an operator can use their judgment to approve or reject a transaction based on how much of the information has matched and how confident the customer sounds, in an online transaction the level of "tolerance" in clerical errors and mistakes must be set automatically.

CVV2 Code:

Another way of verifying a card number is to ask the customer to provide the CVV2 code. This code does not appear on the magnetic strip or on a carbon paper when the print of the card is taken.

CVV2 is a 3-digit code; located on the back of credit card, inside the signature area. Typically the signature panel will have a series of numbers, but only the last three digits make up the CVV2 code.

However, online customers may be reluctant to provide this information because of fear of merchant's fraud.

Assure your customers that their privacy is very important for our business. Use the following techniques to protect the privacy of the customers and protecting their card numbers in transmission

Secure Online Transmission:

Since information transmitted in an online transaction is sufficient for approval of a credit card charge, it is essential that this information is protected and secure. The most common way of doing it is to encrypt data in transmission. This is done via SSL.

However, many online businesses do not use SSL when transmitting credit card numbers and other customer information, or do not make SSL the default for such transmissions. While it is theoretically possible to obtain credit card information sent in plain text (in an e-mail message or via an online form), so far there hasn't been a known case when a credit card number was stolen this way.

It is the merchant's responsibility to protect customer's information from fraud. An E-Commerce web site may suffer large losses, including those caused by the loss of customer's trust; it fails to protect confidential customer information.

Protecting from Merchant Fraud:

The other side of protecting a merchant from a customer's fraud is protection of a customer against a merchant's fraud. If the merchant knows enough of the customer's credit card information to be able to authorize a transaction, then the merchant (including many of the merchant's employees) know enough to be able to use the credit card themselves! In the majority of cases the highest priority of the merchant is to protect the reputation of the business and their own, and a fraud is not in the merchant's interests. However, there may be exceptions, such as a desperate owner whose business is about to go broke, a disgruntled employee, or an online cheat which uses a fake online business as a cover-up for collecting credit card information.

New Business and customer's trust:

If a merchant runs a new business which has not yet established customer's trust, they might want to provide a way for the user submit their credit card number directly to a trusted agency which authorizes a transaction. This is done by redirecting the user to a web page of the agency for authorization. An example of such product is VeriSign, their web site address is http://www.verisign.com/

The customer enters information on the agency's page, and the agency sends the response back to the merchant with the authorization information. This way the merchant doesn't know the customer's credit card number.

However one has to check carefully the software that implements this feature, because poorly written code for redirection may expose the merchant's ID or allow the customer to change the amount of the transaction in the request

Electronic Payment Systems:

Electronic payment systems are non-credit-card online payment systems. The goal of their development is to create analogs of checks and cash on the Internet, i.e. to implement all or some of the following features**:**

1. Protecting customers from merchant's fraud by keeping credit card numbers unknown to merchants.
2. Allowing people without credit cards to engage in online transactions.
3. Protecting confidentiality of customers.
4. In some cases providing anonymity of customers ("electronic cash").

The problems in implementing electronic payment systems, especially anonymous electronic money, are:

1. Preventing double-spending: copying the "money" and spending it several times. This is especially hard to do with anonymous money.
2. Making sure that neither the customer nor the merchant can make an unauthorized transaction.
3. Preserving customer's confidentiality without allowing customer's fraud.

While electronic payment systems have not gained a very wide popularity, except for **PayPal** system used on online auctions, such as eBay. Electronic payment systems may be more convenient for international online business due to differences in credit card customer protection laws in different countries. Below we look at examples of some online payment systems.

Virtual PIN:

Virtual PIN, started in 1994 by a company called First Virtual Holding, was a system for making credit card payments over the Internet without exposing the credit card number to the merchant. It required no special software for a customer to make a purchase.

To enroll, a customer gives their credit card information and their e-mail address to the First Virtual (this was done by phone). After the credit card information has been verified, the customer receives their PIN by e-mail.

The procedure for purchasing an item using Virtual PIN is as follows:

- The customer gives the merchant their Virtual PIN.
- The merchant sends the Virtual PIN and the amount of transaction to First Virtual.
- First Virtual sends an e-mail to the customer asking to confirm the purchase.
- The customer answered "Yes", "No", or "Fraud".

- If the answer is "Yes", the merchant is informed that the charge has been accepted If "No", the charge is declined. If the answer is "Fraud", the charge is investigated.

Smart cards:

Smart cards are cards that look like credit cards, but store information on a microprocessor chip instead of magnetic strips. A microchip can hold significantly more information than a magnetic strip. Because of this capacity, a single smart card can be used for many different purposes.

Unlike magnetic strip cards which can be read by any magnetic reader, and are therefore at risk to loss or theft, a smart card can be password-protected to guarantee that it's only used by the owner.

Smart cards run encryption and can be programmed to generate a pair of public/private keys. The public key is made publicly readable, but the private key is stored on the card without anyone being able to copy it. Therefore, to use the private key, the user must physically possess the card.

PayPal:

PayPal is an electronic payment system which can transfer money between its accounts. In order to use PayPal, one has to obtain a PayPal account, which is associated either with the customer's credit card or with their regular bank account. The validity of a credit card is checked by the usual ways. The validity of a checking account is checked as follows: the customer gives PayPal their account number, PayPal makes two small-amount (less than $1) deposits to the account. If the customer is able to tell PayPal the value of these deposits, then the customer is assumed to be a legal user of the account.

PayPal provides easy interface to send money to anyone by giving the person's e-mail account. In order for the person to retrieve the money, they must have a PayPal account. To avoid fraud, PayPal sends an e-mail message to both the initiator and the recipient of the transaction.

PayPal is used to settle online auctions, such as eBay auctions. The ease of use and the fact that no credit card is required to use it makes PayPal increasingly popular.

There are a lot of other methods used for Electronic Payment Systems such as CyberCash/CyberCoin and DigiCash (or E-cash), but most popular are Smart Card and PayPal methods. Detail can be found at the following web site

http://ntrg.cs.tcd.ie/mepeirce/Project/oninternet.html

Day 14 – E-Commerce and Law

Legal and Ethical Issues:

When using the Internet and E-Commerce, it is important to remember that there are many legal and ethical issues to consider. Laws are strict, legal rules, governing the acts of all citizens within their jurisdictions. Someone who breaks the law has done something illegal and can be held liable for punishment by the legal system.

On the other hand, ethics is a branch of philosophy that deals with what is considered to be right and wrong. However, what is unethical is not necessarily illegal unless it overlaps with activities that are also illegal. Society will agree on what is considered right and wrong.

In a world of E-Commerce, companies using Web sites to conduct business, need to apply the same ethical standards that other businesses follow. These include; a damaged reputation and long-term loss of trust that can result in loss of business. Legal and ethical issues play a major role in the world of E-Commerce and need to be taken seriously to prevent any problems from occurring.

Privacy:

Privacy means collection, storage and distribution of information about individuals. Internet users in many countries rate privacy as their first or second top concerns.

Internet Privacy - At Home and At Work:

Everything that one does on the Web can be monitored automatically. Why monitor? When we discuss privacy at home your personal information and web habits can be useful for marketing purposes. While at work, knowing an employee’s web behavior can be useful in determining an employee’s productivity.

How Corporations Conduct Web Surveillance:

Employees of medium to large size corporations will be using Internet access devices attached to a corporate network. This arrangement implies the employee must access the Internet through a proxy server managed by the organization. This arrangement makes it a simple matter both to restrict and to monitor an employee’s use of the web. A number of software tools will limit access to specified web resources and can collected data on a user’s "click steam". These tools are installed and managed on a proxy server.

Smaller size organizations where employee access is not managed through a proxy sever an employee’s web use can be monitored by viewing the local data files associated with the user’s web browser. For example, in Netscape Navigator the cache file, history file, contents of the location bar and cookies file; or the inbox, sent, trash, and drafts file of Netscape Messenger.

Intellectual Property (IP):

Intellectual Property (IP) refers to the creations of the human mind that are protected by province and federal law. There are three main types of IP, which are:

- Copyrights
- Trade Secrets
- Trademarks

Copyrights:

Copyright protects "original works of authorship fixed in any physical form." In most countries of the world the Copyright is automatically created once the author or creator finishes the work. For example, once an artist finishes a painting and the paints dries, once a writer completes the last sentence of the book, or once a programmer finishes writing the last code segments and saves the file, all the creators automatically own the copyright on their works. It is strongly recommended to use ©, the symbol of copyright, if you seek copyright protection of your work even though it is not required.

Trade Secrets:

A Trade Secret is "any confidential information that is valuable to a firm because it provides a competitive advantage." Typical examples of trade secrets are recipes, formulas, and methods of implementation of a particular task. The owner of a trade secret is protected by Law.

Trademarks:

Another form of Intellectual Property is a Trademark. IP law defines a Trademark as a "way to identify the source of goods and/or services." A trademark can be a name, a symbol, a color, a shape, a device or any combination of those.

Legal Issues Related to Intellectual Property:

Every country has its own rules and regulations related to intellectual property. In Canada, if some one is working for an organization, unless there is a written contract to the contrary, the author of a work is the default owner of the copyright to the work. An organization needs to be careful to get signed contracts with the employees it hires, especially part-time and free-lance programmers.

The owner of a trade secret can protect the secret using physical safeguards and contractual restrictions against unauthorized disclosure.

Incorporating a company with a given name does not automatically give the company a trademark on the name. The company has to apply for the trademark separately. Trademarks can't be proper names or words in common usage.

Review Questions

1. It is Ok to forward or post an email message that you have received if:

    a) The message is typed in all capitals.
    b) It does not contain any copyright materials
    c) The author of the message hasn't marked as confidential
    d) The author of the message has given you permission to forward or post it.

2. Typing in all capitals in electronic communication means:

    a) Nothing specials – typing in all caps is normal
    b) You are shouting
    c) It's Ok to forward this message to others
    d) This message is very important

3. The chat abbreviation "brb" stands for ----------.

4. Knowledge and understanding of legal and ethical issues is important because

    a) It explains the some of the technical limitations of online communications.
    b) It will help you to create a positive impression on those you meet in cyberspace.
    c) It helps you to run E-Business in proper way.
    d) all of the above

5. ---------- and unfair competition laws allow you to protect words, names, short phrases, symbols, and other devices that identify, and distinguish goods and services

6. When a copyright expires, the work falls into the public domain, and anyone is free to use it without permission

    True False

7. What is the difference between a domain name, a trademark and a logo?

Day 15 - Internet Marketing

Marketing:

Marketing is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to satisfy customers.

Internet Marketing:

Internet marketing refers to the strategies that are used to market a product or service online, marketing strategies that include search engine optimization and search engine submission, web site design strategies, online promotions, reciprocal linking, and email marketing.

Internet Marketing can attract more people to your website, increase customers for your business, and enhance branding of your company and products.

Top Ten Strategies for Internet Marketing:

1. Start with a web promotion plan and an effective web design and development strategy.

2. Get ranked at the top in major search engines, and practice good Search Optimization Techniques.

3. Learn to use Email Marketing Effectively.

4. Dominate your marketing place with affiliate, reseller, and associate programs.

5. Request an analysis from an Internet marketing coach or Internet marketing consultant.

6. Build a responsive opt-in email list.

7. Publish articles or get listed in news stories.

8. Write and publish online press releases.

9. Facilitate and run contests and giveaways via your web site.

10. Use email auto responders and handle your e-mail efficiently and effectively.

Search Engine Optimization:

Search Engine Optimization, also known as SEO, is the art and science of making web pages attractive to the search engines.

The better optimized the page is, the higher a ranking it will achieve in search engine result listings. This is especially critical because most people who use search engines only look at the first page or two of the search results, so for a page to get high traffic from a search engine, it has to be listed in those first two pages.

There are many factors involve in Search Engine Optimization, some of these are:

- Pick a Good Domain Name
- Pick a Good Web Hosting Company
- Figure Out Your Key Word Phrases
- Set up your Meta Tags
- Set up your <Title> Tag
- Set up your Meta Keyword Tag
- Set up your Meta Description Tag
- Put Key Words in Headings
- Use Key Words in Your Text
- Put Key Words in Alt Tags
- Put Key Words in Anchor Tags
- Register by Hand with the Search Engines and Directories

For more detail, please visit the web site http://www.wordsinarow.com/seo.html

Review Question:

1. 81% of users find new websites by using...
   A. Banner advertising
   B. Search engines (Google, Yahoo, MSN, etc.)
   C. Links in email
   D. None of these

2. What do search engines value the most when ranking your web site?
   A. "User-friendly" pages with correct "meta tags"
   B. Good navigation and attractive graphics
   C. What other web sites links to yours
   D. What other web sites your site links to

3. What is Search Engine Optimization?
   A. Paying the search engines to rank high
   B. Having the right "meta tags" and keywords on your page
   C. A mixture of the right links and the right text
   D. All of the above

4. List the five strategies that you think are best for Internet Marketing

   1) _____

   2) _____

   3) _____

   4) _____

   5) _____

5. What is the difference between mail marketing and E-mail marketing

Final Exam

- **Sample Test**

  A sample test can be found at the web site http://www.gteaching.com/
  Click on quizzes.

- **Final Exam**

  Online exam is available at http://www.meacademy.ca/login.htm. For password and user name, please send an Email at ihsan1@gmail.com