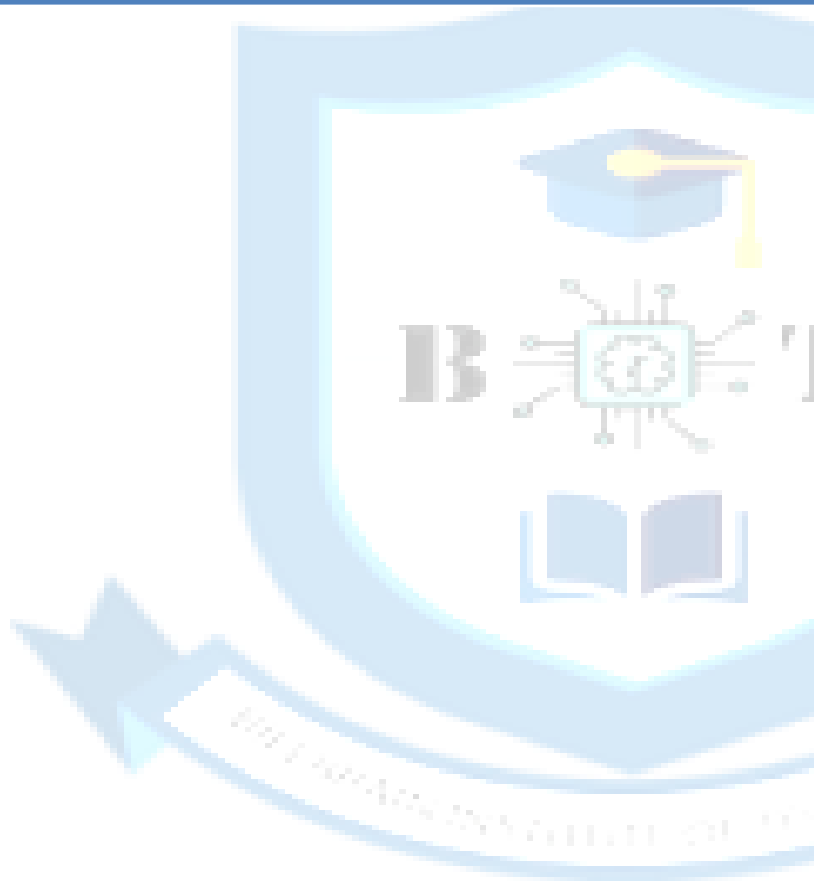


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The Internet and the World Wide Web



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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.

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

e.g <https://www.bit.ac.ug/login>

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?

Website is a collection of various pages written in HTML markup language. 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.

When you register a Web address, also known as a domain name, such as `www.bit.ac.ug` you have to specify the IP address of the Web server that will host the site.

What is Web Browser?

Web Browsers are software installed on your PC so as to access websites or internet. To access the Web you need a web browsers, such as Netscape Navigator, Microsoft Internet Explorer or Mozilla Firefox.

Currently you must be using any sort of Web browser while you are navigating through my site `www.bit.ac.ug`. On the Web, when you navigate through pages of information this is commonly known as *browsing or surfing*.

What is SMTP Server?

SMTP stands for **S**imple **M**ail **T**ransfer **P**rotocol Server. This server takes care of delivering emails from one server to another server. When you send an email to an email address, it is delivered to its recipient by a SMTP Server.

What is ISP?

ISP stands for **I**nternet **S**ervice **P**rovider. They are the companies who provide you service in terms of internet connection to connect to the internet.

You will buy space on a Web Server from any Internet Service Provider. This space will be used to host your Website.

Examples of ISPs include MTN, Airtel, Africel, etc

What is HTML?

HTML stands for **H**yper **T**ext **M**arkup **L**anguage. This is the language in which we write web pages for any Website.

This is a subset of Standard Generalized Mark-Up Language (SGML) for electronic publishing, the specific standard used for the World Wide Web.

What is Hyperlink?

A hyperlink or simply a link is a selectable element in an electronic document that serves as an access point to other electronic resources. Typically, you click the hyperlink to access the linked resource. Familiar hyperlinks include buttons, icons, image maps, and clickable text links. When a cursor is moved around the hyperlink it turns into a hand with a finger pointing up.

What is DNS?

DNS stands for **Domain Name System**. When someone types in your domain name, www.example.com, your browser will ask the Domain Name System to find the IP that hosts your site. When you register your domain name, your IP address should be put in a DNS along with your domain name. Without doing it your domain name will not be functioning properly.

What is W3C?

W3C stands for **World Wide Web Consortium** which is an international consortium of companies involved with the Internet and the Web.

The W3C was founded in 1994 by Tim Berners-Lee, the original architect of the World Wide Web. The organization's purpose is to develop open standards so that the Web evolves in a single direction rather than being splintered among competing factions. The W3C is the chief standards body for HTTP and HTML.

Web - How the internet or web Works ?

On the simplest level, the Web physically consists of the following components

- **Your personal computer** – This is the PC at which you sit to see the web.
- **A Web browser** – A software installed on your PC which helps you to browse the Web.
- **An internet connection** – This is provided by an ISP and connects you to the internet to reach to any Website.
- **A Web server** – This is the computer on which a website is hosted.
- **Routers & Switches** – They are the combination of software and hardware who take your request and pass to appropriate Web server.

The Web is known as a *client-server system*. Your computer is the client and the remote computers that store electronic files are the servers.

How the Web Works

When you enter something like Google.com the request goes to one of many special computers on the Internet known as *Domain Name Servers (DNS)*. All these requests are routed through various routers and switches. The domain name servers keep tables of machine names and their IP addresses, so when

you type in Google.com it gets translated into a number, which identifies the computers that serve the Google Website to you.

When you want to view any page on the Web, you must initiate the activity by requesting a page using your browser. The browser asks a domain name server to translate the domain name you requested into an IP address. The browser then sends a request to that server for the page you want, using a standard called Hypertext Transfer Protocol or HTTP.

The server should constantly be connected to the Internet, ready to serve pages to visitors. When it receives a request, it looks for the requested document and returns it to the Web browser. When a request is made, the server usually logs the client's IP address, the document requested, and the date and time it was requested. This information varies server to server.

An average Web page actually requires the Web browser to request more than one file from the Web server and not just the HTML / XHTML page, but also any images, style sheets, and other resources used in the web page. Each of these files including the main page needs a URL to identify each item. Then each item is sent by the Web server to the Web browser and Web browser collects all this information and displays them in the form of Web page.

In Short

We have seen how a Web client - server interaction happens. We can summarize these steps as follows -

A user enters a URL into a browser (for example, Google.com. This request is passed to a domain name server.

The domain name server returns an IP address for the server that hosts the Website (for example, 68.178.157.132).

The browser requests the page from the Web server using the IP address specified by the domain name server.

The Web server returns the page to the IP address specified by the browser requesting the page. The page may also contain links to other files on the same server, such as images, which the browser will also request.

The browser collects all the information and displays to your computer in the form of Web page.

Web - Browser Types

Web Browsers are software installed on your PC. To access the Web, you need a web browser, such as Netscape Navigator, Microsoft Internet Explorer or Mozilla Firefox.

Currently you must be using any sort of Web browser while you are navigating through our site www.bit.ac.ug. On the Web, when you navigate through pages of information, this is commonly known as web browsing or web surfing.

There are four leading web browsers – Explorer, Firefox, Netscape, and Safari, but there are many others browsers available. You might be interested in knowing Complete Browser Statistics. Now we will see these browsers in bit more detail.

While developing a site, we should try to make it compatible to as many browsers as possible. Especially sites should be compatible to major browsers like Explorer, Firefox, Chrome, Netscape, Opera, and Safari.

Web - Server Types

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 255 separated by periods. For example, 68.178.157.132 or 68.122.35.127.

There are four leading web servers – Apache, IIS, lighttpd and Jagsaw. Now we will see these servers in bit more detail.



Apache HTTP Server

This is the most popular web server in the world developed by the Apache Software Foundation. Apache web server is an open source software and can be installed on almost all operating systems including Linux, Unix, Windows, FreeBSD, Mac OS X and more. About 60% of the web server machines run the Apache Web Server.

You can have Apache with tomcat module to have JSP and J2EE related support.

You can have detailed information about this server at <http://httpd.apache.org>



Internet Information Services

The Internet Information Server (IIS) is a high performance Web Server from Microsoft. This web server runs on Windows NT/2000 and 2003 platforms (and may be on upcoming new Windows version also). IIS comes bundled with Windows NT/2000 and 2003; Because IIS is tightly integrated with the operating system so it is relatively easy to administer it.

You can have detailed information about this server at [Microsoft IIS](#)



lighttpd

The **lighttpd**, pronounced *lighty* is also a free web server that is distributed with the FreeBSD operating system. This open source web server is fast, secure and consumes much less CPU power. Lighttpd can also run on Windows, Mac OS X, Linux and Solaris operating systems.

You can have detailed information about this server at [lighttpd](#)



Sun Java System Web Server

This web server from Sun Microsystems is suited for medium and large websites. Though the server is free it is not open source. It however, runs on Windows, Linux and Unix platforms. The Sun Java System web server supports various languages, scripts and technologies required for Web 2.0 such as JSP, Java Servlets, PHP, Perl, Python, Ruby on Rails, ASP and Coldfusion etc.

You can have detailed information about this server at [Sun Java System Web Server](#)



Jigsaw Server

Jigsaw (W3C's Server) comes from the World Wide Web Consortium. It is open source and free and can run on various platforms like Linux, Unix, Windows, Mac OS X Free BSD etc. Jigsaw has been written in Java and can run CGI scripts and PHP programs.

You can have detailed information about this server at [Jigsaw Server](#)

Web - Site Advantages

If you are constructing a Website, then we hope you are aware of its advantages as well. Here, in this chapter, we have listed out a few major advantages of keeping a website.

Business is Open 24x7

This means that once you put your business onsite, then your business is open 7 days a week and 365 days a year. Even if you are in different locations of the world then you will be able to serve your customers on 24x7 hours basis.

Increased Customer Base

Because anyone in the world can see your website so you will gain customers from other states and countries while you are putting in the same amount of effort and money.

Tremendous Cost Saving

This is one of the biggest advantages of having a business online. You do not need to keep a big man power and lot of resources to maintain a business on site. There are many other cost saving opportunities while keeping business online. Think of how many cards you mail out to let customers know about your sale. All of that can be eliminated by putting the sale information on your website and inviting your customers to visit it.

Advertising Opportunities

Apart from saving your advertising cost, you have additional opportunities to run advertisements from other companies and start making money. If you ever advertised in a local newspaper, you know the costs. You are being charged per line, per inch, and per color. On the Web, there is no limit to how much you can put. So whenever there is a new product or service, then you can advertise it in a better way.

Creates a Brand Image

Internet is a great medium through which you can create any image of yourself which you want. It is all in your hands. For example, you can design a professional website, add helpful content, and your company will immediately take a step up in the image it represents. No matter how small your business is, with the right tools and a great desire you can make it look like a corporation on the Web.

Customer Satisfaction

If you have a really good site online, then you can give your customers a lot of satisfaction in terms of customer care. You can keep online help, FAQ, and other important information which is useful for your customers. You can create online forums for open discussion and you can conduct customer survey to take customer feedback etc.

Showcase Your Work

Whether you are a real estate agent, construction business owner or a beauty salon specialist – you can put your work on display when you have a website. Anytime a potential client wants to see your past work and projects, simply refer him or her to your site. No need to scan and mail pictures, or bring your client to a finished building project.

Web - Skills Required

If you are planning to maintain a Website, then you would require a specific set of skills. This skillset can be endless because today, there are numerous technologies available and many are coming everyday. So you have to plan and affirm on any one of the available technologies and go ahead for your project.

This is not required that you should have knowledge of all the listed skills. If you want to develop a simple Website, then you would need just first four skills listed here. Rest of the skills are required if you want to go for a bigger and more interactive Website.

- **Computer Operations** – All you need to know is how to operate a computer – Windows, Linux or Macintosh. This depends on which Web Server you want to host your website. So you should have basic knowledge of that system only. You should be well acquainted of basic operations like creating file, deleting file, updating file, directory creation, file permission etc.
- **Remote Access** – Most of the times your Web Server will be accessed from remote site only. You should be well aware how to connect a computer from remote site. So at least you should have basic knowledge of *telnet* utility to connect to a remote machine. There are many service providers who will provide you control panel to manage your Website.
- **File Uploading & Downloading** – As I told you most of the times your Web Server will be on remote site. So you would need to upload and

download all the files related to your Website. So at least you should have basic knowledge of *FTP* utility to connect to a remote machine and download or upload your files. Almost service providers give you facility to upload your files on your Web server.

- **HTML / XHTML Knowledge** – These are the markup languages which you will use to build your website. So you should have good understanding on these languages. You can refer our tutorial to learn HTML / XHTML
- **CSS Knowledge** – Cascading Style Sheet knowledge is required to achieve many results which are not possible through HTML or XHTML.
- **PHP Script** – Now-a-days many sites are being developed using PHP language. This script helps you to create an interactive Website. You can refer our tutorial to learn PHP Script
- **PERL Script** – PERL is another language which is being highly used to develop interactive Web Applications. So if you are planning to use PERL to develop your Website, then you can refer our tutorial to learn PERL Script
- **Java or VB Scripts** – These scripts are required to perform user level validations and to add more interactivity in your Website. So a web developer is desired to have knowledge of any of the client side scripts.
- **AJAX Technology** – This is the latest technology in the web. Google and Yahoo are using this technology to give a better browsing experience to their site visitors. You can refer our tutorial to learn AJAX Technology
- **ASP or JSP** – These are another technologies to be used to develop interactive Websites.
- **Flash Knowledge** – You can plan to use Macromedia Flash to build your Website. This is a bit time consuming to learn this technology but once you learnt then you can develop very beautiful and attractive websites using Flash.
- **HTTP Protocol** – As you grow you are desired to have more knowledge about Web. So I would suggest you to go through the web backbone i.e. HTTP protocol as well. You can refer our tutorial to learn HTTP Protocol

Web - Tools Required

As a basic necessity, you need a good internet connection from a reliable service provider which provides decent connectivity and speed. Evaluate

vendors based on their services and support before selecting. Here due diligence plays a major part.

The following tools and infrastructure will help you in developing a Website –

- **Computer Machine** – If you do not have computer available and you received this tutorial printed on a paper then I would say that first of all you would need a computer machine running either Windows or Linux or UNIX or Macintosh system or any other operating system.
- **Internet Connection** – If you are not connected to the internet and you received this tutorial printed on a paper then I would say that this is second and another most important tool would need to connect to the Internet and to your Web Server where you will host your website. For this purpose you can buy either a dial up connection or broadband connection of high speed connectivity based on your requirement and budget.
- **A Web Server** – Apart from basic Internet connectivity you will need one Web Server to keep all the files related to your Website. So you would need to buy space on a Web Server. There are millions of ISPs who are in business of selling web space at competitive prices. We will give more detail on this in Web Hosting Concepts chapter.
- **A Text Editor** – This is another most important tool which you will need to develop your Website. If you are using Windows then you can use *notepad* as a text editor, or if you are using Linux/Unix then *vi* editor is one of my favorite editors. You will need this editor to write your HTML, PHP or ASP pages or for any other editing purpose. For practice purpose, you can use our Online HTML Editor
- **A Web Browser** – You will need this tool to see the result of your HTML file. So you should have either Internet Explorer or Firefox etc. installed on your computer.
- **Web Authoring Tools** – If you don't want to use a simple Text Editor to edit your HTML files then there are many commercial Web Authoring Tools available. These tools are also called HTML editors. Microsoft's FrontPage and Macromedia Dreamweaver are both a *visual HTML* (WYSIWYG) and HTML source code editor. These editors help you to develop your HTML pages very rapidly.

- **Secure telnet client** – If you are connecting to your Web server directly then you can use a tool called PuTTY. This is what I'm using while connecting to my web server.
- **Secure FTP client** – If you are connecting to your Web server directly using FTP client to upload or download your web files then you can use a tool called PSFTP. FTP stands for File Transfer Protocol. Simply put, after you design your website, you need to send it to the Web and your FTP program will do just that for you. This is what I'm using while connecting to my web server.

Web - Domain Names

A domain name is the part of your Internet address that comes after "www". For example, in Www.bit.ac.ug the domain name is www.bit.ac.ug.

A domain name becomes your Business Address so care should be taken to select a domain name. Your domain name should be easy to remember and easy to type.

How to Get a Domain Name?

When you plan to put a site online, this is one of the important steps to buy a domain name. This is always not necessary that whatever domain name you are looking that is available so in that case you will have to opt for any other good domain name.

When you buy a domain name it is registered and when domain names are registered they are added to a large domain name register, and information about your site – including your Internet IP address is stored on a DNS server and your contact information etc. is registered with your registrar.

You can buy domain name from any domain registrar like GoDaddy

Domain Extension Types

There are many types of domain extensions you can choose for your domain name. This depends on your business nature.

For example, if you are going to register a domain name for education purpose then you can choose **.edu** extension.

Below is a reference of the correct usage of certain extensions. But there is no hard and fast rule to go for any extension. Most commonly used is **.com**

- **.com** – Stands for company/commercial, but it can be used for any website.

- **.net** – Stands for network and is usually used for a network of sites.
- **.org** – Stands for organization and is supposed to be for non-profit bodies.
- **.us, .in** – They are based on your country names so that you can go for country specific domain extensions
- **.biz** – A newer extension on the Internet and can be used to indicate that this site is purely related to business.
- **.info** – Stands for information. This domain name extension can be very useful, and as a new comer it's doing well.
- **.tv** – Stands for Television and are more appropriate for TV channel sites.

Newer domain extensions such as .biz .info and .us etc. have more name choices available as many of the popular domains have yet to be taken and most of the them are available at very nominal prices.

Choosing a Domain Name

The domain name will be your business address. Hence, it is imperative that you choose the domain name with utmost care.

Many people think it is important to have keywords in a domain. Keywords in the domain name are usually important, but it usually can be done while keeping the domain name short, memorable, and free of hyphens.

Using keywords in your domain name gives you a strong competitive advantage over your competitors. Having your keywords in your domain name can increase click through rates on search engine listings and paid ads as well as make it easier to using your keywords in get keyword rich descriptive inbound links.

Avoid buying long and confusing domain names. May people separate the words in their domain names using dashes or hyphen. In the past the domain name itself was a significant ranking factor but now with advanced search engines, it is not a significant factor anymore.

Keep two to three words in your domain name – it will be more memorable. Some of the most memorable websites do a great job of branding by creating their own words. Examples include eBay, Yahoo!, Expedia, Slashdot, Fark, Wikipedia, Google...

You should be able to say it over the telephone once and the other person should know how to spell it and they should know what you sell. If you can do that AND work keywords in there, good for you. If you can't, skip the keywords.

What are Sub-Domains

You can divide your domain into many sub domains based on your requirement. If you are doing multiple business using the same domain, then it would be useful to have sub-domains for every business. Following are examples of some sub-domains –

You must have seen *google.com* as a main domain but google has created many subdomains based on their business. Some of them are as follows –

- *adwords.google.com* – This sub domain is being used for Google Adwords.
- *groups.google.com* – This sub domain is being used for Google Groups.
- *images.google.com* – This sub domain is being used for Google Images.

This way, you can present your different business sections in a very good segregated way. It is not a big thing to create a sub-domains. If you already have registered a domain, then your registrar will provide you a way to create sub-domains. You may need to talk to your registrar for more detail.

Web - Site Construction

Now you are ready for a website construction. Before proceeding further, you have to take many factors into consideration. I cannot list out each and everything but I have described the major factors in this tutorial which will help you to have a better website –

What to Put on Your Website?

What you would have on your website totally depends on your business and the nature of your website. Here is a list of pages that you might want to create for your website.

- Attractive Home Page: Always required for every website.
- List of Product and Services along with complete detail.
- Complete Pricing Information.
- About your company and nature of business including your achievements.

- About your staff and if possible their experience.
- Your complete contact information.
- Frequently Asked Questions.
- Success Stories and Feedback from Customers.

Finally, make your site useful and interesting for your customers. Your site visitors are your customers and they should find each and everything they are looking for. Customer satisfaction should be your prime concern.

How to Design Your Website?

You should not simply start developing your website, otherwise you will end up with a bogus website. First, you should put a complete plan and your design on a paper or in an electronic document.

In this section, we have listed out a few points which can help you to design a better website –

- Consider what technology you are going to use to develop your website. Adopt one which gives you better flexibility and rapid development opportunities and then design it accordingly.
- Design a generic framework so that in future you can enhance and modify your website by putting minimal effort.
- Design a site to keep required performance in mind. If you are designing database driven website then lot of effort has to put to design good database schemas.
- Keep your design as simple as possible so that any new developer should become familiar with your design as soon as possible.
- Identify repeatable components of your website and then keep them separate and try to use them wherever possible.
- Identify the nature and qualification of your site visitors and give importance to look and feel accordingly.
- Think from the perspective of a site visitor. If you were a visitor, then how would you like to see this website? If the same site belongs to somebody else, then would you like to spend some time on such site?
- You should create a search engine friendly website.

Once again....your presentation should be unique and attractive, otherwise there are a lot of websites available on the Internet and it will be difficult for you to retain a site visitor for more than a minute.

How to Make a Website Interactive?

Many statistics show that if you are able to retain your site visitors for a long time, then they do bigger shopping and visit the site again and again.

So make sure you have done something for your site visitors to do on your website. Offering a lot of quality information can serve as a great magnet for visitors.

Here is a list of some interactive tools that you can add to your website without any programming skills or incurring any costs –

- Poll
- Forum
- Guest book
- Chat room
- Greeting cards
- Tell-a-friend about this site
- Feedback form
- Live customer service
- Daily joke or daily cartoon
- Daily news headlines
- Site Search Engine
- Mailing List
- Automated Frequently Asked Questions
- The list can go on and on, depending on what will attract your type of visitors.

How to Code Your Website?

Finally, when you start coding for your website, you should be well aware of the following tips for a better website –

- Your site should meet all the quality requirements defined by W3C. Today we are using XHTML to develop any website. XHTML is just a cleaner version of HTML.
- You should keep validating your source code using W3C Validator.

- Do use appropriate comments but avoid using too many comments inside HTML files.
- Keep your style sheets and JAVA or VB scripts into separate files and then include them where ever is required.
- Do not use too much graphics in your web pages.
- Try to keep your web pages static instead of generating them dynamically.
- Make sure there is no broken link on any web page.
- Test your developed web page in major browsers like Internet Explorer, Firefox, Mozilla, Netscape, etc.
- Test your all the scripts for all the possible scenarios. Do not host any page without complete testing.

How to Create a Search Engine Friendly Website?

It is very important to make your website search friendly, otherwise you will be away from a large chunk of your customer base which comes from search engines like google and yahoo.

This subject is so important that we have put a complete tutorial on Search Engine Optimization and I will strongly recommend you to go through this tutorial before you start developing your website.

Securing Your Source Code Frequently

While developing your website, it is very important to keep a backup of your complete source code. Many times, you might accidentally delete a file. If you have a backup, then you can restore previous files and start doing your work.

It is a good practice to take backup on an hourly basis or at least on a daily basis. Keep this backup on a different machine or media.

Web - Hosting Concepts

Web hosting deals with putting the contents of your website on a Web server. Hosting your website on your own server could be an option. But this will become very much expensive unless you are hosting a site like yahoo.com or google.com. So this tutorial does not cover how to set up your own hosting server.

Buying a server space or renting a complete server from an Internet Service Provider (ISP) is the most widely used option. This section guides you to choose a hosting type and makes you aware of other related concepts.

Hosting Platforms

You can go for any of the following two most widely used hosting platforms –

- **Windows Hosting Servers** – If you are a Windows lover then you will find many hosting servers running different flavors of Windows and you can buy space from these servers. Normally Windows hosting servers are more expensive because of lot of software licensing costs are involved with these servers.
- **Linux Hosting Servers** – If you want to go for Linux then opportunities are unlimited and they will have to pay less than what you will pay for Windows Hosting Server. There are many ISP who provides Hosting Servers with different flavors of Unix.

Hosting Types

There are many options available and you can select any hosting type based on your requirement and budget. Following are most widely used hosting types –

Free Hosting

Yes, this is true there are many service providers who will give you free space on their web server with a condition that you will allow them to run their advertisement at your web pages. So if you are OK with this option, then you have nothing to pay for a space. There are some websites like geocities.com, lycos.com, myspace.com, etc. that give you space to build your web pages.

Shared Hosting

With shared hosting, your website is hosted on a powerful server along with other websites. On a shared host, you will have your own user ID and password to login to the shared host and you will be allowed to work in your work area. You would not be able to touch any file or directory belonging to other host partner. Even you would not know how many sites are hosted on your shared host. This type of hosting is very cost effective and good for small websites where your space and speed are not very important. Here traffic on one site will affect the speed of all other hosted sites.

Virtual Dedicated Hosting

This type of hosting is better for medium size business. With virtual dedicated hosting, you will have a dedicated bandwidth and dedicated RAM for your site. You will be given a root ID and password to maintain your Web server. You will be the complete owner of your virtual dedicated server and will be able to install or de-install any software. This type of hosting is created on a single server, but it is managed in such a way that every user will have dedicated speed and bandwidth. This is bit more expensive but really good one for medium size business.

Dedicated Hosting

This type of hosting is very similar to virtual dedicated hosting, but here, a complete machine will be allotted for you. They are more expensive than virtual dedicated hosting and should be considered when you have a very high traffic requirement.

Collocated Hosting

It is very difficult to set dedicated resources such as high-security against fire and vandalism, regulated backup power, dedicated Internet connections and more. Collocation is the option which allows you to put your machine in a service provider's premises to avail all the available facilities. This is also a very expensive option and should be opted when you have very high traffic requirement.

Hosting Components

When you buy a Web server space, then you should be clear about the follows. You should do a price comparison between different service providers based on the following components –

Disc Space

A small or medium website will require between 10 and 100MB of disk space. If you plan to keep a lot of audio and video on your website, then you need plan to buy more space. Before buying server space, you should check the options available to expand your disc space if you need it in future.

Monthly Traffic

A small or medium website will need between 1GB and 10GB of data transfer on a monthly basis. If you plan to keep a lot of audio and video on your website, then you need a plan with more data transfer capacity. Check different options based on your requirements. What are the other options

available in case you cross the given data transfer limit. Your site should not be stopped in case you exceed given limit.

Processing Speed

If you are buying space on a shared machine, then you cannot guess how much speed will be given to you. In that case, only way is to see other hosted sites with the same service provider to know about their hosting quality. But if you are buying virtual dedicated server or dedicated server, then you should consider how much RAM is being allocated to you. Your pricing will depend on the given processing power to you.

Connection Speed

Nowadays, most service providers allow very fast connection speed. So choose a service provider who is giving better connection speed in terms of bits per second. You can have a connection speed ranging from 64Kb per second to 2.488Gb per second.

Email Accounts

Make sure you are going to get sufficient number of e-mail accounts. There are many other options available which come along with your e-mail account. Like, will you get IMAP, POP and E-mail Forwarding options available along with your e-mail facilities.

Emailing Support

Apart from having email accounts, it is also very important that your web server should have a facility to send emails from back-end. In case your site visitors want to contact to you using a form, then you will be able to use that emailing facility to send emails to your designated account. In simple terms, you should make sure that the SMTP Server is setup and working on your Web server.

Latest Technologies

You should make sure that your web server is equipped with all the latest technologies. It should have the latest version support for PHP, PERL, ASP and JAVA, etc.

Databases

There are many databases available MySQL, Oracle, SQL Server, etc. You should choose your server based on your database requirement. If you are buying space on a shared server, then you need to verify how much space will be allocated for your database. Many ISPs do not give more than a limited

space for databases. If your site needs a lot of database size, then you should go for a virtual dedicated server.

Server Uptime

It is important that you buy a web server from a reliable and reputed ISP. You should make sure your ISP is giving you 99.99% server uptime. If the server is down, then there are many service providers who give you compensation in case your site goes down more than a limited number of times.

Backup & FTP

Make sure your Service Provider is giving you more ways of taking regular backup of your website. If your site is changing everyday, then it becomes very important that you should take regular backup of your website. Many service providers do it on your behalf by charging a small cost for this service.

Control Panel

Just make sure what type of facilities you will get to maintain your hosting account. Check if your service provider is providing you an easy-to-use Control Panel or some other similar tool. Using a Control Panel, you should be able to maintain basic operations related to your website such as logging your service request, your reboot request, or any other problem.

Customer Support

Before finalizing a deal with your service provider, you should make sure they provide you the required support. You can get this information using Internet forums or from your friends. There are many service providers who give you 24x7 support for any technical or non-technical problem.

Web - Ecommerce Hosting

Ecommerce is a way of doing business through Internet. You are doing ecommerce, especially when you are selling your products or services through Internet. If you are planning to put a website which will have transactions such as buying or selling items or services, then it means you are going to setup an ecommerce website. If this is the case, then I don't think this guide will help you up to a level where you should be able to setup an ecommerce site because there are many more things which should be considered while setting up an ecommerce website.

Still you can start from here – E-commerce hosting is a bit expensive, but they are not as expensive that you cannot start an ecommerce website. Nowadays,

it is very easy to set up an ecommerce site. All that one needs to do is to get in touch with any good service provider and start gathering basic information.

There are many service providers who help you set up your virtual store and charge you unexpectedly very low. Google has also started google account service in which you can sell your products.

While finalizing your ecommerce hosting setup, you should be very clear on how to handle the following –

- Customer Registrations
- Customer Transactions
- Product Catalogs
- Customer Orders
- Order Security
- Server Security
- Server Maintenance
- Server Backup
- Server downtime
- Inventory Control
- Shipment Methods
- Payment Methods
- Foreign currency
- Credit Cards
- Taxes issues

You should take this list and discuss it with your service provider as well to understand how they will support you to handle all these items.

Web - Site Backup

Your server's hard drive crashed. Your site is hacked and the hacker deleted all your files. Your web host disappeared with your money and your data. Even worse, there was an earth quake and your ISP building is gone down and everything is lost.

Touch Wood!!! Nobody should face such a situation. But if you are not prepared for these situations, your hard work might be lost forever. That is why it is of the utmost importance that you keep regular backups of your data.

Now there are many questions –

- How frequently backup should be taken?
- Where this backup should be preserved?
- What type of backup should be taken?
- Who should take these backup?
- Now let us answer these questions one by one –

How Frequently Backup Should be Taken?

If your site is not changing over a period of time, then it is advisable to take backups only once and keep it on your hard disc or data disc or DVD wherever you like. In case you need to restore it, just do it and see if your website is up and running.

But if you are in the habit of making frequent modifications on your site, then it is necessary that you take regular backup. Websites like amazon.com have very tight backup schedules and very expensive backup infrastructure.

It depends on your business and you have to see how much data loss you can bear. If you think it is not affordable to lose even a single day's data, then I would recommend to schedule daily backup and similarly, you can decide if weekly or monthly backup are OK for you or not.

Where the Backup Should be Preserved?

Most of the times, backups are taken from one machine and saved on another machine or media. If possible, you should arrange a different backup server where you can FTP your complete data to be backup up. If this is not too much then you can keep it in data CD or DVD etc.

If possible, keep multiple copies of backup but with a managed way to avoid any confusion. You should have a proper version control over different backups. There are many service providers who provide you different backup servers with a very nominal cost and it is recommended that you spend that amount on backup services.

What Type of Backup Should be Taken?

There are two types of backup – **incremental** and **full**. It depends on what type of backup tools you are using. There are many backup tools – for example, Oracle provides its own utilities to take different types of backup.

- **Incremental Backup** – The backup's controller compares the existing backup with the data that you wish to backup. If there is an exact

match between the two, then no additional files will be backed up. However, if you have added or edited any file, these files will be updated in the backup, thus the name incremental.

- **Full Backup** – Here all files are written to the backup, even if they already exist in the most current backup.

Who Should Take These Backup?

The simplest case is that you can login to your web server on a monthly or weekly basis and copy all the website related files on different computer or media. It works only in case you have limited amount of data on your site.

If you have a huge database and numerous files, then it is difficult to manage such backups on an everyday and weekly basis. In such cases, you may need to have automated scripts to take backup and keep them at another machine or media.

You can write your shell script or perl script and browse through different directories and collect all the files and zip them automatically, assign them a unique backup number and then ftp those files on a designated backup server or media like tap drive.

Conclusion

It is up to you to decide how you want to take your backup. If you are a website owner, then you must take regular backup without failure. Else, it might lead to serious consequences.

Web - Site Statistics

Once your site is up and running, it is important that you track your visitors and analyze what they are using. You should have a detailed information on the following –

- **Who is your visitor?** – You should have your site visitor IP address available with you to know the geographical location and identity of that visitor.
- **Visitors' Timestamp** – You should be aware of the time when your site gets the most number of visitors so that you can plan a server down easily. Secondly, timestamp and IP address will help you identify your site visitors in case an investigation is required against a site visitor.
- **What the visitors prefer?** – What pages did the site visitor view on your website will give you an idea about the importance of various sections of your website.

- **How visitors came?** – This is another important information you should be aware of. How are you getting your site visitors? Are they coming directly or coming through some other website or advertising program.
- **How long do they stay?** – How much time a visitor spends on your site? If visitors are leaving your site just after browsing 1 or 2 pages, then you should come up with some innovative ways to retain them for a longer duration.
- **Visitors' Browser** – This information is important to improve your website for that type of web browsers.

Statistics Programs

There are many websites that help you to find out all the information discussed in the previous section. You just need to keep a small piece of code in the <head<....</head> section of your web pages and you will have not only all the above mentioned information but also a complete analysis of your site.

- You can try Google's Analytics Program to capture your website statistics.
- Another good program is Webalizer. This will give you all the basic site statistics you need.
- There is a site from sourceforge which gives you opportunity to collect your website statistics. So you can try it as well AWStats.

Site Statistics Terminology

Go through the following terms so that become more comfortable with your site statistics report and analysis.

- **Unique Visits** – The number of unique visitors you had in a given time period. Example – if there was only a single person who visited your website, and visited 1,000 separate times in a day, the unique visits would just be one. The uniqueness is counted based on the IP address of the visitor.
- **Total Visits** – The total number of visits including duplicate visits that a website receives in a given time period. Each time a site visitor reaches your site, it is counted as one visit.
- **Page Views or Page Impressions** – Each time a web page is loaded, it is referred to as a page view. If you are counting a website link available on this page, then it will be counted as a page impression.

- **Hits** – Hits are very similar to page views and will be counted every time a visitor clicks any link related to your website.
- **Direct Access** – It refers to the people who accessed your website through their bookmarks or typed in your URL manually in the URL box of the browser.
- **Referrer & Referral URL** – The web address where the visitor followed a link to reach your website. For example, if someone finds your website in google search and clicks over the link to reach your site, then google will be the referrer.

Web - Site Popularity

You designed a website and developed it and finally hosted it. Now just think how many site visitors know about this site address and related service.

If you want to make your site a success, then the actual work starts after hosting your website successfully. It includes the following actions, but gaining popularity is certainly not limited to these actions.

- **Search Engine Inclusion** – First step, you should go and include your website in various search engines like google, yahoo, and msn. Never trust automated software to include your site in search engines. There are many fraud companies in this business, so stay away from them and don't waste your money.
- **Open directory inclusion** – This is another way to make your site popular. There are many open directory projects like dmoz.com and yahoo.com where you can include your website to get attention from net surfers.
- **Google AdWords** – This is a paid program from google where you can register and you can pay based on the number of clicks on your website link or based on the number of page impressions.
- **Advertising Programs** – If you have a big budget, then you can go for higher resources like TV ads or Newspaper or magazine advertising programs. They are most effective and expensive as well.
- **Whitepapers and Article** – If you write whitepapers or articles, then you can include your website link in those whitepapers or articles to get more traffic on your site.
- **Site Link Exchange** – There are many sites including www.bit.ac.ug that do site link exchange. What it means is – You will keep the link of

another website on your site and the other site will keep yours. This is for the mutual benefit of the site link exchangers.

Web - Free Graphics

Graphic elements play a crucial role on any website. If you have time and talent to design your web graphics, then it is great. It does not only require time and talent to have web graphics, but you need to spend a good deal of money as well to buy good graphics software like Paint Shop Pro or Adobe Photoshop.

However, if you are not blessed with an artist's hand and you don't have money as well to spend on buying graphics software, then Internet is the heaven and you should appreciate thousands of graphics designers who have created free web graphics for you.

We also have listed tons of Free Graphics for you which you can use on your website. You will find it here [Free Web Graphics](#). A sample page is also given here.

