german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

مؤسسة حضرموت
Hadhramout Foundation
Human Development تنمية بشرية

WEB BOOT CAMP

Introduction to Web – Part I

ضمن برنامج تطوير قدرات الشباب

What's 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

What's 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 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
  - **World Wide Web (WWW)** - A hypertext interface to Internet information resources

What's 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).
- 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's HTTP?

- HTTP stands for Hypertext Transfer Protocol. 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's URL?

- URL stands for Uniform Resource Locator, and is used to specify addresses on the World Wide Web. A URL is the fundamental network identification for any resource connected to the web (e.g., hypertext pages, images, and sound files).
- A URL will have the following format

  protocol://hostname/other_information

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

What's URL?

- 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's Website?

- Currently you are on our website Tutorialspoint.com which is a collection of various pages written in HTML markup language. This is a location on the web where people can find tutorials on latest technologies. Similarly, there are millions of websites available on the web.
- Each page available on the website is called a web page and first page of any website is called home page for that site.

What's 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 google.com you have to specify the IP address of the Web server that will host the site

What's Web Browser?

- Web Browsers are software installed on your PC. To access the Web you need a web browsers, such as Netscape Navigator, Microsoft Internet Explorer or Mozilla Firefox.
- On the Web, when you navigate through pages of information this is commonly known as browsing or surfing.

What's SMTP Server?

- SMTP stands for Simple Mail Transfer Protocol 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's ISP?

- ISP stands for Internet Service Provider. 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.

What's HTML?

- HTML stands for Hyper Text Markup Language. This is the language in which we write web pages for any Website. Even the page you are reading right now is written in HTML.
- This is a subset of Standard Generalized Mark-Up Language (SGML) for electronic publishing, the specific standard used for the World Wide Web

What’s 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

What's DNS?

- DNS stands for Domain Name System. When someone types in your domain name, www.google.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's 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

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

How the 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.

How the Web Works?

- 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?

- 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

How the Web Works?

- 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.

How the Web Works?

- 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.

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 tutorialspoint.com. On the Web, when you navigate through pages of information, this is commonly known as web browsing or web surfing.

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.
- When you register a web address, also known as a domain name, such as tutorialspoint.com you have to specify the IP address of the Web server that will host the site. You can load up with Dedicated Servers that can support your web-based operations.

Server Types

- There are four leading web servers – Apache, IIS, lighttpd and Jagsaw.
- Apart from these Web Servers, there are other Web Servers also available in the market but they are very expensive. Major ones are Netscape's iPlanet, Bea's Web Logic and IBM's WebSphere.

Site Advantages

If you are constructing a Website, then we hope you are aware of its advantages as well

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.

Site Advantages

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.

Site Advantages

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.

Site Advantages

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.

Site Advantages

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.

Site Advantages

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.

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 needs just first four skills listed here. Rest of the skills are required if you want to go for a bigger and more interactive Website

Skills Required

- **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.

Skills Required

- **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.

Skills Required

- **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.
- **PERL Script** – PERL is another language which is being highly used to develop interactive Web Applications.
- **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.

Skills Required

- **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.

Skills Required

- **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

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.

Tools Required

- **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 you 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

Tools Required

- **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 favourite 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.

Tools Required

- **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 helps you to develop your HTML pages vary 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.

Tools Required

- **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.

Domain Names

- A domain name is the part of your Internet address that comes after "www". For example, in www.google.com the domain name is google.com.
- 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

Domain Extension Types

- **.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.

Domain Extension Types

- **.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.

Choose 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.

Choose a Domain Name

- 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...

Choose a Domain Name

- 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.

What are Sub-Domains

- 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.