UNIT I

The World Wide Web: Introduction to world wide Web, Web Pages and Contents, Web Clients, **Web Servers**, **Web Applications**, **Websites – Home Pages: Web Site Development** ; **How to Builds Web Sites?** , **Web Content Authoring, Web Graphics Design**, **Web Programming. What is a scripting language? Motivation for and applications of scripting**, **How scripting languages differ from nonscripting languages**, **Types of scripting languages**.

INTERNET

1. Internet is a global communication system that links together thousands of individual networks.
2. It allows exchange of information between two or more computers on a network.
3. Internet helps in transfer of messages through mail, chat, video & audio conference, etc.
4. It has become mandatory for day-to-day activities: bills payment, online shopping and surfing, tutoring, working, communicating with peers, etc.

THE WORLD WIDE WEB:

1. World Wide Web, which is also known as a Web,
2. World Wide web is a collection of websites or web pages stored in web servers and connected to local computers through the internet.
3. These websites contain text pages, digital images, audios, videos, etc.
4. Users can access the content of these sites from any part of the world over the internet using their devices such as computers, laptops, cell phones, etc.
5. The WWW, along with internet, enables the retrieval and display of text and media to your device.

WHAT DOES WORLD WIDE WEB (WWW) MEAN?

The World Wide Web (WWW) is a network of online content that is formatted in HTML and accessed via HTTP. The term refers to all the interlinked HTML pages that can be accessed over the Internet. The World Wide Web was originally designed in 1991 by Tim Berners-Lee, The World Wide Web is most often referred to simply as "the Web."

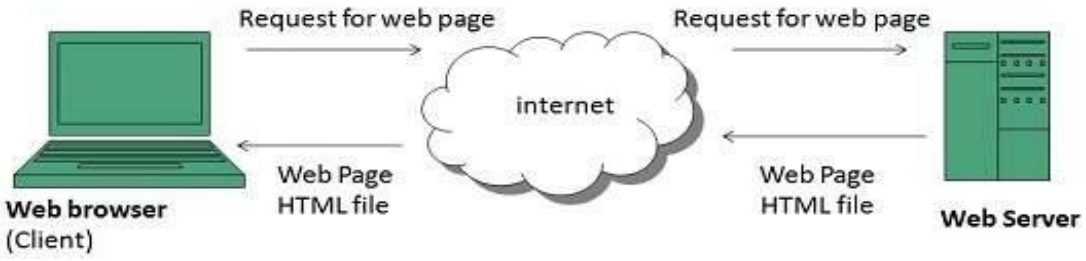
INTRODUCTION TO WORLD WIDE WEB

1. English scientist Tim Berners-Lee invented the World Wide Web in 1989.
2. He wrote the first web browser in 1990 while employed at CERN near Geneva, Switzerland.
3. The browser was released outside CERN in 1991, first to other research institutions starting in January 1991 and then to the general public in August 1991.
4. The World Wide Web has been central to the development of the Information Age and is the primary tool billions of people use to interact on the Internet.
5. The origins of the Web can be traced to research projects sponsored the US Government in the 1960s and 70s to build a network infrastructure capable of withstanding any number of possible disasters.
6. The result was a loosely-coupled network of computers called the Internet.
7. Throughout the 1980s and early 90s the Internet was used primarily by large corporations and universities for e-mail and document transfer.
8. However, it wasn't until the development of Web browsers and a language called HTML that things really took off.
9. HTML (Hyper Text Markup Language) was developed by Tim Berners-Lee while he worked as a researcher in Switzerland.
10. The original intent of HTML was to provide a quick and easy way to facilitate information transfer among scientists.

WORLD WIDE WEB OPERATION

WWW works on client- server approach. Following steps explains how the web works:

1. User enters the URL (say, **http://www.dvdarbar.ac.in**) of the web page in the address bar of web browser.
2. Then browser requests the Domain Name Server for the IP address corresponding to www.dvdarbar.ac.in
3. After receiving IP address, browser sends the request for web page to the web server using HTTP protocol which specifies the way the browser and web server communicates.
4. Then web server receives request using HTTP protocol and checks its search for the requested web page. If found it returns it back to the web browser and close the HTTP connection.
5. Now the web browser receives the web page, It interprets it and display the contents of web page in web browser's window.



The moment you open the browser and type a URL in the address bar or search something on Google, the WWW starts working. There are three main technologies involved in transferring information (web pages) from servers to clients (computers of users). These technologies include Hypertext Markup Language (HTML), Hypertext Transfer Protocol (HTTP) and Web browsers.

HYPERTEXT MARKUP LANGUAGE (HTML):

1. HTML is a standard markup language which is used for creating web pages.
2. It describes the structure of web pages through HTML elements or tags.
3. These tags are used to organize the pieces of content such as 'heading,' 'paragraph,' 'table,' 'Image,' and more.
4. You don't see HTML tags when you open a webpage as browsers don't display the tags and use them only to render the content of a web page.
5. In simple words, HTML is used to display text, images, and other resources through a Web browser.

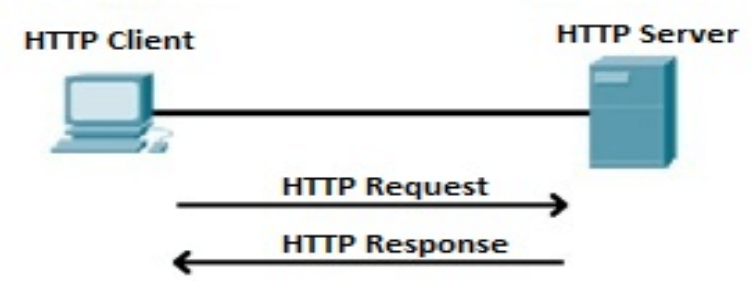
WEB BROWSER:

1. A web browser, which is commonly known as a browser, is a program that displays text, data, pictures, videos, animation, and more.
2. It provides a software interface that allows you to click hyperlinked resources on the World Wide Web.

3. When you double click the Browser icon installed on your computer to launch it, you get connected to the World Wide Web and can search Google or type a URL into the address bar.
4. In the beginning, browsers were used only for browsing due to their limited potential. Today, they are more advanced; along with browsing you can use them for e-mailing, transferring multimedia files, using social media sites,
5. Some of the commonly used browsers include Google Chrome, Mozilla Firefox, Internet Explorer, and more.

HYPERTEXT TRANSFER PROTOCOL (HTTP):

1. Hyper Text Transfer Protocol (HTTP) is an application layer protocol which enables WWW to work smoothly and effectively.
2. It is based on a client-server model. The client is a web browser which communicates with the web server which hosts the website.
3. This protocol defines how messages are formatted and transmitted and what actions the Web Server and browser should take in response to different commands.
4. When you enter a URL in the browser, an HTTP command is sent to the Web server, and it transmits the requested Web Page.



5. When we open a website using a browser, a connection to the web server is opened, and the browser communicates with the server through HTTP and sends a request.

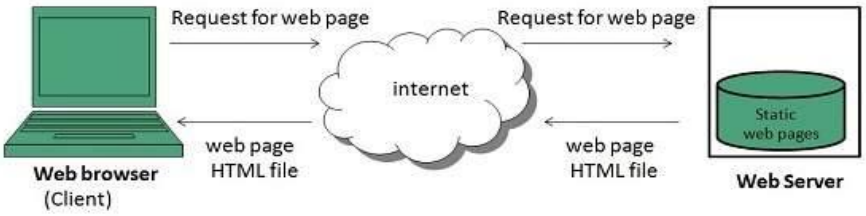
WEB PAGE

1. Web page is a document available on world wide web. Web Pages are stored on web server and can be viewed using a web browser.
2. A web page can cotain huge information including text, graphics, audio, video and hyper links. These hyper links are the link to other web pages.

TYPES OF WEB PAGES

Static Web page

1. Static web pages are also known as flat or stationary web page.
2. They are loaded on the client's browser as exactly they are stored on the web server.
3. Such web pages contain only static information. User can only read the information but can't do any modification or interact with the information.
4. Static web pages are created using only HTML. Static web pages are only used when the information is no more required to be modified.



Dynamic Web page

1. Dynamic web page shows different information at different point of time.
2. It is possible to change a portaion of a web page without loading the entire web page.
3. A dynamic web page is a web page that displays different content each time it's viewed.
4. For example, the page may change with the time of day, the user that accesses the webpage, or the type of user interaction.
5. There are two types of dynamic web pages.

Client-Side Scripting:

a) Web pages that change in response to an action within that web page, such as a mouse or a keyboard action, use client-side scripting.
b) Client-side scripts generate client-side content.
c) Client-side content is content that's generated on the user's computer rather than the server.
d) In these cases, the user's web browser would download the web page content from the server, process the code that's embedded in the web page, and then display the updated content to the user.
e) Scripting languages such as JavaScript and Flash allow a web page to respond to client-side events.

Server-Side Scripting

a) Web pages that change when a web page is loaded or visited use server-side scripting.

b) Server-side content is content that's generated when a web page is loaded. For example, login pages, forums, submission forms, and shopping carts, all use server-side scripting since those web pages change according to what is submitted to it.

c) Scripting languages such as PHP, ASP, ASP.NET, JSP, ColdFusion and Perl allow a web page to respond to submission events.

WEB CONTENTS

1. Web content is the textual, visual, or audio content that is encountered as part of the user experience on websites.
2. Web content may include—among other things—text, images, sounds, videos, and animations. 'the stuff in your Web site.' This may include documents, data, applications, e-services, images, audio and video files, personal Web pages, archived e-mail messages, and more.
3. *Web content refers to the textual, aural/audio, or visual content published on a website. Content means any creative element, for example, text, applications, images, archived e-mail messages, data, e-services, audio and video files, and so on.*
4. Web content is the key behind traffic generation to websites. Creating engaging content and organizing it into various categories for easy navigation is most important for a successful website. Also, it is important to optimize the web content for search engines so that it responds to the keywords used for searching.

There are two basic kinds of web content:

a) **Text:** Text is simple. It is added on the webpage as text blocks or within images.
b) The best written content is unique textual web content that is free from plagiarism.
c) Web content added as text can also include good internal links that help readers gain access to more information.
d) **Multimedia:** Another kind of web content is multimedia. Simply put, multimedia refers to any content which is not text; some examples include:

- Animations: Animations can be added with the help of Flash, Ajax, GIF images as well as other animation tools.

- Images: Images are considered the most popular option to incorporate multimedia to websites. Clip art, photos, or even drawings can be created by means of a scanner or a graphics editor. It is recommended to optimize the images so that the users can download them quickly.

- Audio: Different types of audio files can be added as part of the web content so as to increase the desirability of the website.

- Video: It is the most popular multimedia contents; however, when adding video files, the publishers should make sure that they efficiently on various browsers.

NOTE: *Web content management (WCM) is essential to run a website successfully. To manage web content, publishers should organize content in line with the requirements of the audience.*

This includes usage of common content, terminology, and positioning; consistent navigation; link management; and finally metadata application. There are a wide range of WCM tools available for effectively handling web content.

WEB CLIENTS

Web client. The client, or user, side of the Web. It typically refers to the Web browser in the user's machine. It may also refer to plug-ins and helper applications that enhance the browser to support special services from the site.

Your **web** browser is an **example** of a **web client**.

A *web client* consists of two parts:

- Dynamic web pages containing various types of markup language (HTML, XML, and so on), which are generated by web components running in the web tier
- A web browser, which renders the pages received from the server

WEB CLIENT- explanation

- A web client can be said as an application or web browser that communicates with a web server installed on a computer, using the Hypertext Transfer Protocol (HTTP).
- It is basically a consumer application that collects processed data from the web servers.
- The web client requests information from the web server, which is basically a PC that is designed to accept requests from remote computers and send on the requested information.
- Web server is responsible for storing the information in order to be viewed by the clients and is also usually a Web Host.
- Web server is needed to store all information and data of different websites while the Web clients (the web browsers) are used to access and locate this information and data.

Your **web** browser is an **example** of a **web client**.

WEB BROWSER

1. web Browser is an application software that allows us to view and explore information on the web.

2. User can request for any web page by just entering a URL into address bar.
3. Web browser can show text, audio, video, animation and more.
4. It is the responsibility of a web browser to interpret text and commands contained in the web page.

Earlier the web browsers were text-based while now a days graphical-based or voice-based web browsers are also available. Following are the most common web browser available today

Examples:

Browser	Vendor
Internet Explorer	Microsoft
Google Chrome	Google
Mozilla Firefox	Mozilla
Netscape Navigator	Netscape Communications Corp.
Opera	Opera Software
Safari	Apple
Sea Monkey	Mozilla Foundation
K-meleon	K-meleon

WEB SERVERS

Web server is a computer where the web content is stored. Basically web server is used to host the web sites but there exists other web servers also such as gaming, storage, FTP, email etc.

OR

A Web server is a program that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients

A **web server** stores and delivers the content for a website – such as text, images, video, and application data – to clients that request it.

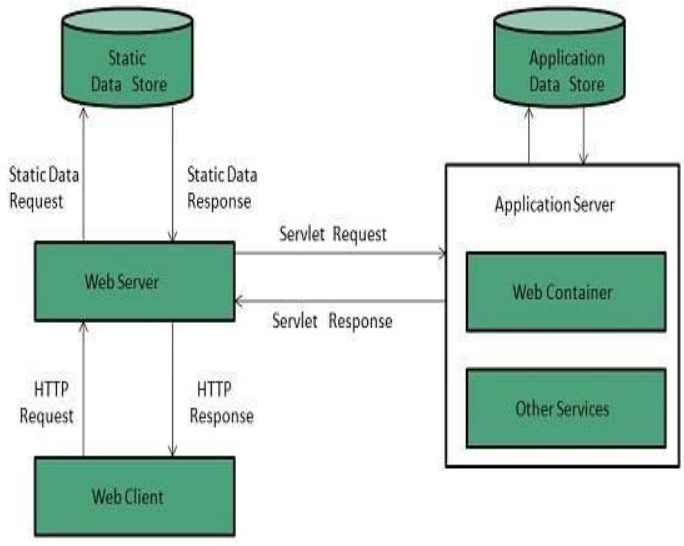
Detail Explanation

1. Every Web server has an IP address and possibly a domain name.
2. For example, if you enter the URL *http://www.dvdarbar.ac.in/index.html* in your browser, this sends a request to the Web server whose domain name is dv*darbar.ac.in.*
3. The server then fetches the page named *index.html* and sends it to your browser.
4. Any computer can be turned into a Web server by installing server software and connecting the machine to the Internet.

WEB SERVER WORKING

Web server respond to the client request in either of the following two ways:

- Sending the file to the client associated with the requested URL.
- Generating response by invoking a script and communicating with database



Key Points

- When client sends request for a web page, the web server search for the requested page if requested page is found then it will send it to client with an HTTP response.
- If the requested web page is not found, web server will the send an **HTTP response:Error 404 Not found.**
- If client has requested for some other resources then the web server will contact to the application server and data store to construct the HTTP response.

EXAMPLES OF WEB SERVERS

1. Apache HTTP Server
2. Internet Information Services (IIS)
3. Lighttpd
4. Sun Java System Web Server
5. Jigsaw Server-w3c server

WEB APPLICATIONS

A **web application** or **web app** is a client–server computer program that the client runs in a web browser. Common web applications include webmail, online retail sales, online banking,

OR

A web application is a computer program that utilizes web browsers and web technology to perform tasks over the Internet. A Web application can be defined as an application that can be accessed through the Internet using a Web browser. A web application is a software or program which is accessible using any web browser. Its frontend is usually created using languages like HTML, CSS, Javascript, which are supported by major browsers. While the backend could use

any programming stack like LAMP, MEAN(MEAN is a free and open-source JavaScript software stack for building dynamic web sites and web applications.), etc.

OVERVIEW OF WEB APPLICATIONS

1. Millions of businesses use the Internet as a cost-effective communications channel.
2. It lets them exchange information with their target market and make fast, secure transactions.
3. However, effective engagement is only possible when the business is able to capture and store all the necessary data, and have a means of processing this information and presenting the results to the user.
4. Web applications use a combination of server-side scripts (PHP and ASP) to handle the storage and retrieval of the information, and client-side scripts (JavaScript and HTML) to present information to users.
5. This allows users to interact with the company using online forms, content management systems, shopping carts and more.
6. In addition, the applications allow employees to create documents, share information, collaborate on projects, and work on common documents regardless of location or device.

EXAMPLE OF A WEB APPLICATION

- Web applications include online forms, shopping carts, word processors, spreadsheets, video and photo editing, file conversion, file scanning, and email programs such as Gmail, Yahoo and AOL.
- Popular applications include Google Apps and Microsoft 365.
- Google Apps for Work has Gmail, Google Docs, Google Sheets, Google Slides, online storage and more.
- Other functionalities include online sharing of documents and calendars.
- This lets all team members access the same version of a document simultaneously.

HOW A WEB APPLICATION WORKS

1. Web applications are usually coded in browser-supported language such as JavaScript and HTML as these languages rely on the browser to render the program executable.
2. Some of the applications are dynamic, requiring server-side processing. Others are completely static with no processing required at the server.
3. The web application requires a web server to manage requests from the client, an application server to perform the tasks requested, and, sometimes, a database to store the information.
4. Application server technology ranges from ASP.NET, ASP and ColdFusion, to PHP and JSP.

BENEFITS OF A WEB APPLICATION

- Web applications run on multiple platforms regardless of OS or device as long as the browser is compatible

- All users access the same version, eliminating any compatibility issues
- They are not installed on the hard drive, thus eliminating space limitations
- They reduce software piracy in subscription-based web applications (i.e. SaaS)
- They reduce costs for both the business and end user as there is less support and maintenance required by the business and lower requirements for the end user's computer

WEBSITES

Website is a location on web and is hosted on a web server. It is a set of related web pages. It is accessed using Internet address known as Uniform Resource Locator

A website is a group of globally accessible, interlinked web pages which have a single domain name. It can be developed and maintained by an individual, business or organization. The website aims to serve a variety of purposes. Example: Blogs.

A website is hosted on a single or multiple web server. It is accessible via a network like the Internet or a private local area network via IP address.

web site is a collection of related network web resources, such as web pages, multimedia content, which are typically identified with a common domain name, and published on at least one web server. Notable examples are wikipedia.org, google.com, and amazon.com.

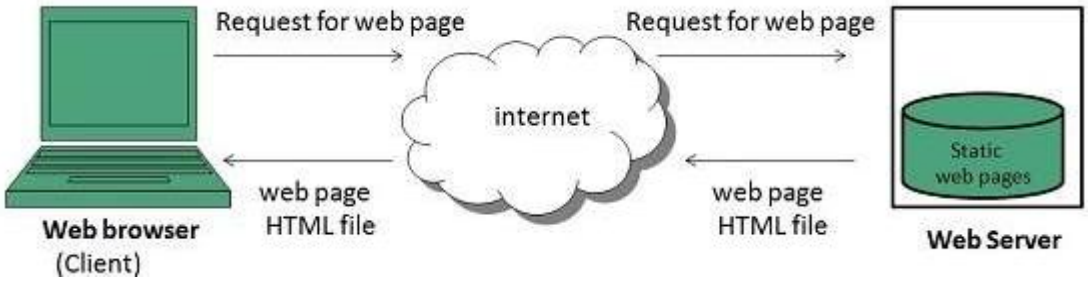
Websites can be accessed via a public Internet Protocol (IP) network, such as the Internet, or a private local area network (LAN), by a uniform resource locator (URL) that identifies the site.

STATIC WEBSITES

1. Static websites are also known as flat or stationary websites.
2. They are loaded on the client's browser as exactly they are stored on the web server.
3. Such websites contain only static information.
4. User can only read the information but can't do any modification or interact with the information.
5. Static websites are created using only HTML. Static websites are only used when the information is no more required to be modified.

Static websites can be edited using four broad categories of software:

6. Text editors, such as Notepad or TextEdit, where content and HTML markup are manipulated directly within the editor program
7. Offline editors, such as Microsoft FrontPage and Adobe Dreamweaver (previously Macromedia Dreamweaver), with which the site is edited using a GUI and the final HTML markup is generated automatically by the editor software.



DYNAMIC WEBSITES

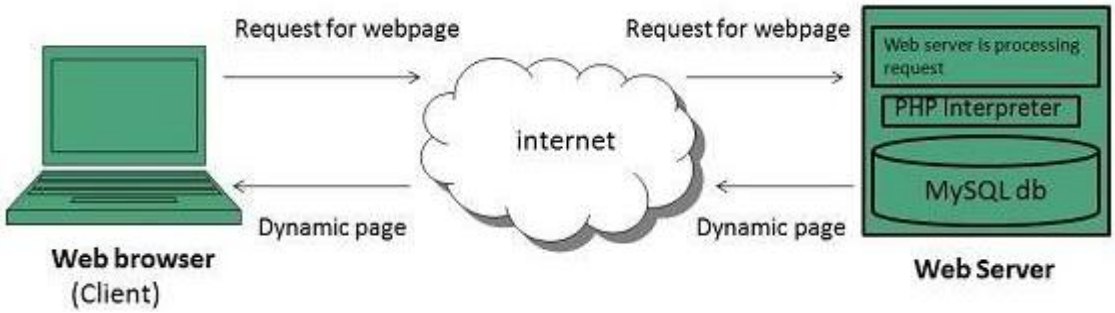
1. Dynamic websites shows different information at different point of time.
2. It is possible to change a portion of a web page without loading the entire web page.
3. There are a wide range of software systems, such as Java Servlets and Java Server Pages (JSP), Active Server Pages that are available to generate dynamic web systems and dynamic sites.
4. Various web application frameworks and web template systems are available for general-use programming languages like Perl, PHP, Python and Ruby to make it faster and easier to create complex dynamic websites.

Server-side dynamic web page

1. It is created by using server-side scripting.
2. There are server-side scripting parameters that determine how to assemble a new web page which also include setting up of more client-side processing.

Client-side dynamic web page

1. It is processed using client side scripting such as javascript.
2. And then passed in to **Document Object Model (DOM).**



HOME PAGES:

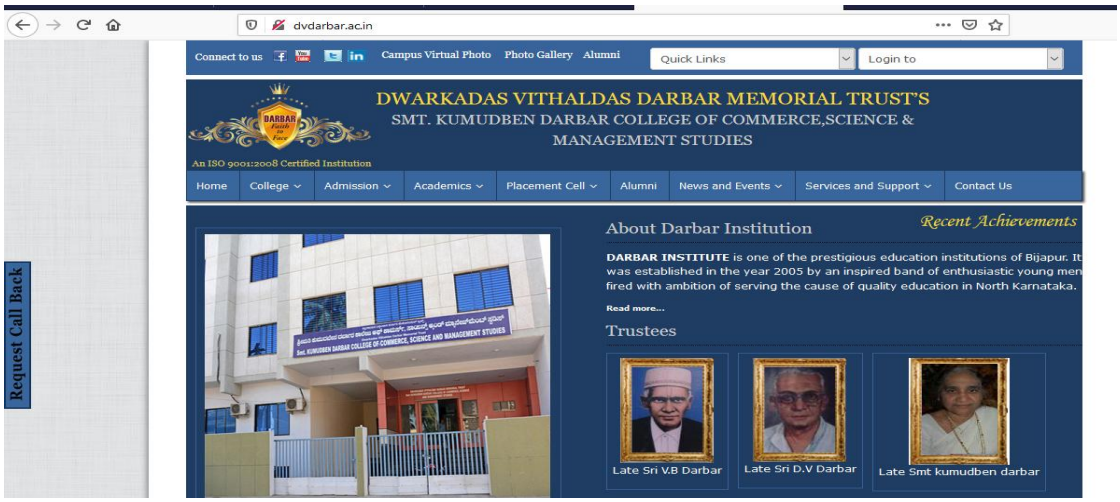
1. A home page or a start page is the initial or main web page of a website or a browser.
2. The initial page of a website is sometimes called main page as well.
3. The **homepage** or **home page** is the name of the **main page** of a website where visitors can find hyperlinks to other pages on the site.
4. By default, the homepage on all web servers is index.html, however, can also be index.htm, index.php, or whatever the developer decides.
5. A home page may also be referred to as a "front page," "welcome page," or "landing page."
6. A typical website has a homepage with menu items like “about,” “contact,” “products,” “services,” “press” or “news.”

WEBSITE HOME PAGE

1. A home page is generally the main page a visitor navigating to a website from a web search engine will see, and it may also serve as a landing page to attract visitors.
2. The home page is used to make easy navigation to other pages on the site by providing links to homepage and recent articles and pages, and possibly a search box.
3. For example, a news website may present headlines and first paragraphs of top stories, with links to full articles.
4. Websites use the home page to attract users to create an account. Once they are logged in, the home page may be redirected to their profile page. This may in turn be referred to as the "personal home page".

WEBSITE HOMEPAGE VS. BROWSER HOMEPAGE

1. A **browser home** is a default document displayed when you first open your browser.
2. It can be configured to display a specific website in the browser's preferences.
3. For example, you may have Google as your browser's home to open a search when you first open the browser.
4. If you were to search for "Darbar BCA College Bijapur" from your browser's home and clicked the dvdarbar.ac.in link, you would be directed to our college website homepage as shown below

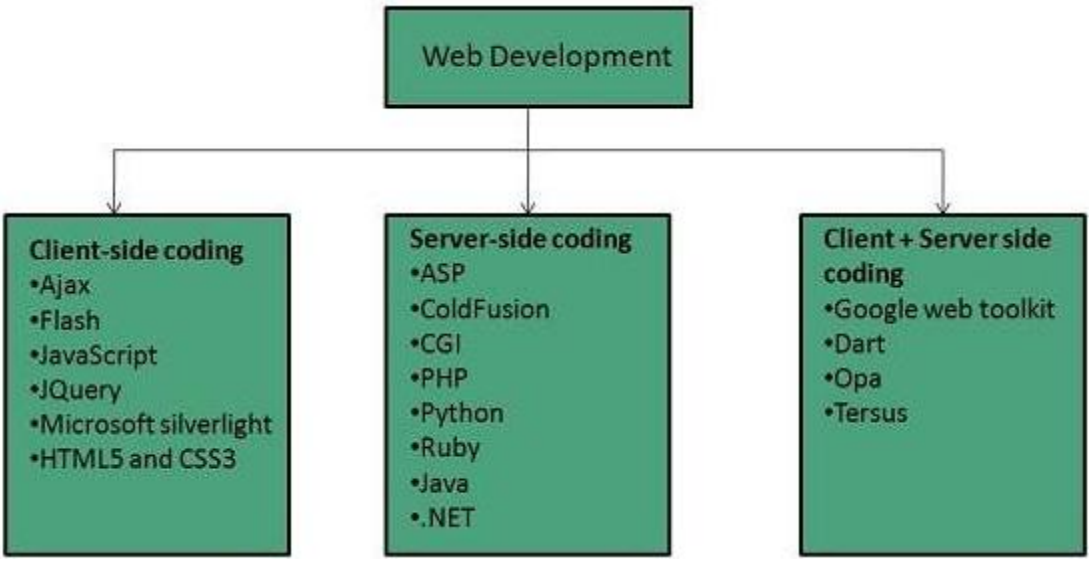
5. 

WHY DOES A WEBSITE NEED A HOMEPAGE?

- For most websites, the majority of visitors who visit will never visit the homepage.
- However, it's still an important part of a website because those visitors who do visit the homepage need a way to understand what your website offers.
- Ideally, your website homepage should include a link to all web pages or if you have a big website all major sections of the website.
- Other important things to consider are including a company phone number, contact information, and the websites most popular web pages.

WEB DEVELOPMENT/ WEB SITE DEVELOPMENT

1. **Web development or website development** refers to building website and deploying on the web.
2. Web development requires use of scripting languages both at the server end as well as at client end. **Web development is also known as website development.**
3. Web development broadly refers to the tasks associated with developing websites for hosting via intranet or internet.
4. The web development process includes web design, web content development, client-side/server-side scripting and network security configuration, among other tasks.

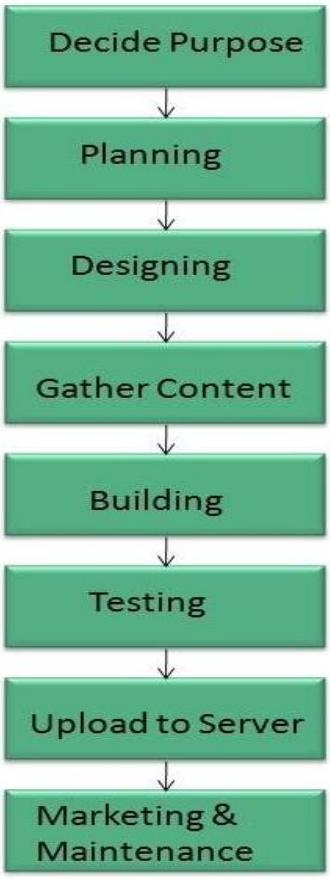


Before developing a web site once should keep several aspects in mind like:

- What to put on the web site?
- Who will host it?
- How to make it interactive?
- How to code it?
- How to create search engine friendly web site?
- How to secure the source code frequently?
- Will the web site design display well in different browsers?
- Will the navigation menus be easy to use?
- Will the web site loads quickly?
- How easily will the site pages print?
- How easily will visitors find important details specific to the web site?
- How effectively the style sheets be used on your web sites?

WEB DEVELOPMENT PROCESS

Web development process includes all the steps that are good to take to build an attractive, effective and responsive website. These steps are shown in the following diagram:



WEB DEVELOPMENT TOOLS

1. Web development tools helps the developer to test and debug the web sites.
2. Now a days the web development tool come with the web browsers as add-ons.
3. All web browsers have built in tools for this purpose.
4. Thsese tools allow the web developer to use HTML, CSS and JavaScript etc..
5. These are accessed by hovering over an item on a web page and selecting the “Inspect Element” from the context menu.

SKILLS REQUIRED FOR WEBSITE DEVELOPMENT

For being a successful web developer, one should possess the following skills:

- Understanding of client and server side scripting.
- Creating, editing and modifying templates for a CMS or web development framework.
- Testing cross browser inconsistencies.
- Conducting observational user testing.
- Testing for compliance to specified standards such as accessibility standards in the client region.

- Programming interaction with javaScript, PHP, and Jquery etc.

NOTE: Web development is the coding or programming that enables website functionality, per the owner's requirements. It mainly deals with the non-design aspect of building websites, which includes coding and writing markup.

Web development ranges from creating plain text pages to complex web-based applications, social network applications and electronic business applications.

The web development hierarchy is as follows:

- Client-side coding
- Server-side coding
- Database technology

HOW TO BUILDS WEB SITES?

Basic principles how websites are built

1. **CHOOSE YOUR DOMAIN NAME**

   a) First you have to register your site name and indicate your domain name in any Internet domain registrar and web hosting company like Berta.me. or godaddy.com
   b) If your personal name works as a brand name or your small business has already a company name then it should not be a problem. You may use *yourcompanyname.berta.me* or something similar. If you want to purchase and add your own domain name.
   c) *You can change a domain name, but you cannot change a Berta.me hosting name ("yoursitename.berta.me"). If you are not happy with already chosen name, make a new Berta.me page before you start designing!*

2. **EXPLORE OTHER WEBSITES YOU LIKE**

   a) Web design trends change rapidly.
   b) Do the research to see sites of your competitors or other businesses.
   c) Check out that you should look enough similar and at the same time enough unique compare to your competitors to stand out in the crowd.

3. **ORGANIZE YOUR WEBSITE**

   a) Your menu items will depend on a type of your website and amount of information you have in each section.
   b) For an artist portfolio there could have sections, such as, *About, Portfolio, Exhibitions, Bio and Contacts*.

c) A company site could have sections, such as, *About, Products, Team, Shop, Contacts*. You may add, delete or re-arrange sections as you wish.

4. **YOUR WEBSITE'S LOOK AND FEEL**

a) Before you start designing, think of how your website will feel and look for a visitor.
b) You may choose few adjectives that would describe your site best e.g. light, white, minimalistic, colorful, etc.
c) Remember to reflect on these adjectives every time you make a decision about colors, fonts, layout and other important web design elements

5. **COLORS FOR YOUR WEBSITE**

a) Combine ideas from websites you like and your thoughts how it should feel and look to decide on the background, menu and header colors.
b) You can read an article about choosing color palette for your website. Few main tips are (1) to use natural colors, (2) make a strong contrast between background and text, (3) select around 3 colors and use them throughout the entire website, and (4) take into account people with visual disabilities.

6. **WEBSITE PHOTOS AND IMAGES**

a) Many users place their art works as their main focus of their sites.
b) In these situations photos and images should not oppose or disappear in background or elements of the web design.
c) If your focus is not visuals, but text content and you do not have any photos, search for some relevant images in Internet with a high-resolution quality. Usually visuals convey message better than text.

7. **WEB-FRIENDLY FONT**

a) Use fonts which are offer by hosting company and own system fonts. They should fit in the overall web design feel and at the same time also needs to be *web friendly*.
b) Since people have different fonts installed on their computers, it might be so that some stylish or rear fonts may look different on different computers.
c) Safe choice is one of the classic fonts: *Ariel, Verdana, Serif, Time New Romans, Courier* and some others.
d) *Check how your font looks on different browsers and operating systems*

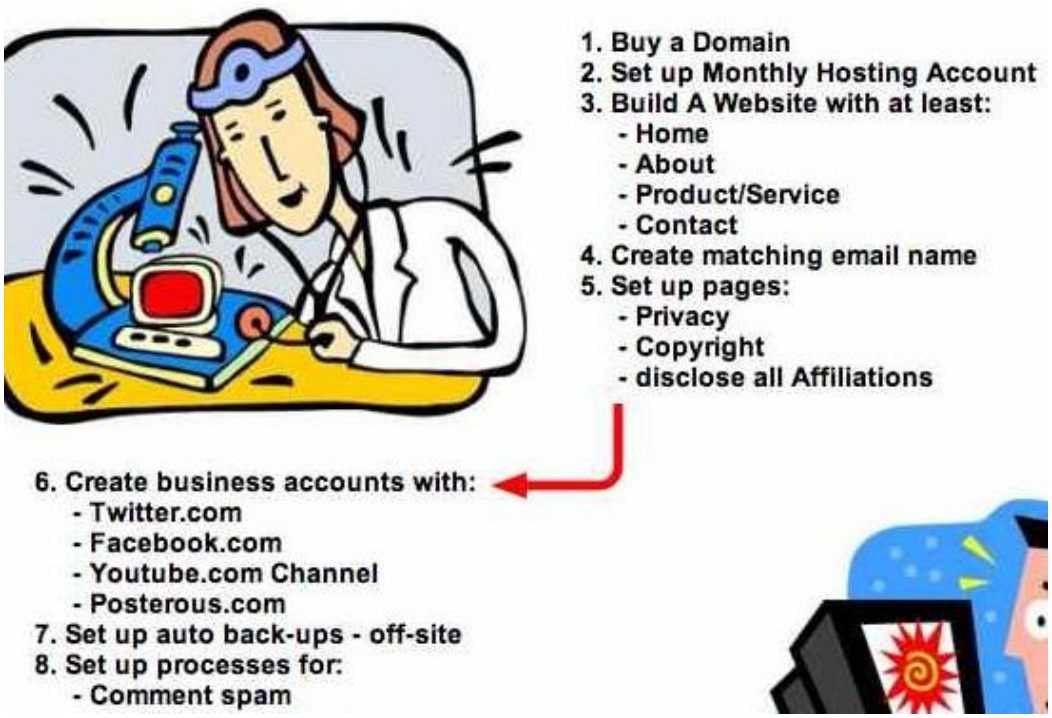
8. **CONTENT FOR YOUR WEBSITE**

a) You can write your content gradually, but it would be wise to put some main bullets of text beforehand to understand overall message of your website.
b) Keep your text short – 2-3 sentences, because people do not like to read long texts.
c) Integrate and remember keywords of each section to add in your SEO (search engine optimization tool).

d) The tone of your text should fit your web design overall feel. There are plenty of web sources to structure and write a good content.

The website also builds using Website builder

Website builders are tools that typically allow the construction of websites without manual code editing. They fall into two categories:



Website builders are tools that allow the construction of websites without manual code editing. They fall into two categories:

- online proprietary tools provided by web hosting companies. These are typically intended for users to build their private site. Some companies allow the site owner to install alternative tools (commercial or open source) - the more complex of these may also be described as Content Management Systems;
- software which runs on a computer, creating pages offline and which can then publish these pages on any host. (These are often considered to be "website design software" rather than "website builders".)

Online vs. offline website builders

1. Online website builders typically require customers to sign up with the web hosting company.

2. Some companies provide examples of fully functional websites made with their website builder.
3. The range of services varies anywhere between creating basic personal web pages or social network content to making complete business and e-commerce websites, either template based or, on the more flexible platforms, totally design free.
4. The main advantage of an online website builder is that it is quick and easy to use, and often does not require prior experience.
5. Often using online website builder -a website can be built and be up and running live on the Internet quickly.
6. Technical support is usually provided, as are how-to video and help files.
7. Sites are generally created using either HTML tools- HTML tools are divided into those that allow editing of the source code and those that only have a WYSIWYG mode.
8. **Offline web builders** cater to professional web designers who need to create pages for more than one client or web host.
9. Modern offline web builders are usually both WYSIWYG and allow direct editing of source code and cascading style sheets (CSS) styling.
10. Offline website builder generally require at least a basic understanding of HTML and CSS. However, though they are more flexible than online builders, they are often expensive.
11. However, some open source website builders may be downloaded free of charge.
12. Examples of Online website builder are - IM Creator, WordPress.com, BaseKit, Shopifye..etc
13. Example for offline website builder software are WebSite X5

WEB CONTENT AUTHORING

Web content authoring is the process of creating page-level content for your content management websites. Web content authoring comprises the following activities:

- Defining the content records that populate the content areas of your website pages, optionally using workflow and Easy Edit features to help with this task.

- Managing images that you use in your content.

A web content management system is a **Software/Tool** application that enables enterprises to manage and publish digital content easily. Web content management systems include various capabilities, such as site design, content authoring, editing and personalization

What is Web Authoring?

Web authoring is a process in which an individual uses a graphical interface to create a website. With this approach, the user does not create HTML code to make a Web page. Instead, he uses a program or a "what you see is what you get" editor to do the job. When the user creates the content with the software program, the program then creates the appropriate type of HTML code for the creation of the website.

BEST PRACTICES FOR AUTHORING GOOD WEBSITE CONTENT

1. A website is very different from a book. Unlike reading for pleasure, a user comes to the website with some very specific needs in mind.
2. The content of the website should therefore be short, crisp and guide the person towards his or her solution.

Two important things to remember at this stage:

- Attention span of a website visitor is very less
- Attention should be grabbed with useful content written in simple, attractive and purposeful manner
- Apart from providing immediate solution, make your website interesting and effective enough to ensure repeated visits

PRINCIPLES OF AUTHORING WEB CONTENT

- **Original and Relevant:** Originality in content is not only appealing and relevant, it will help website to be ranked high in search engines
- **Accuracy:** All data and content has to be verified before posting them on the website. Linked sources need to verified.
- **Eye-catching Headlines and Captions:** Use headlines to draw attention to important updates or information. The text, however, should be appropriate to the context.
- **Regular Updates:** Outdated content will not only reflect badly on the image of the Department/website but will render it useless for the users.
- **Tailored to the Target Audience:** Toolkits 1 and 2 helps with identifying the Target Audience and their needs. Content should be for this audience.

Tips For Authoring Good Web Content

- Consistency in vocabulary
- Talk to your Audience directly in first or second person
- Language should be clear, simple and precise

EXAMPLES OF WEB CONTENT AUTHORING

Existing website content	Suggested content
The Department has to calculate its intentional goals in terms of its citizen's base.	The Department needs to define its objectives for the citizens.
This mission of this project is to give enough space to people so that they can exercise their rights and give valuable inputs into the decision-making process.	This project enables citizens to offer their feedback which will be taken into account in the decision-making process

- Shorter is better

Existing website content	Suggested content
When we will launch the scheme, the Department will organize a grand event to ceremoniously start the opening of the scheme.	The Department will soon launch a new scheme.
Agriculture and allied activities in the state have an overriding importance as sources of livelihood to about 75% of its population and thus the socio-economic condition of Assam is largely based on agriculture development.	Almost 75% of Assam's population depends on Agriculture and thus it is vital to the socio-economic development of the state

- Break it up
- One webpage for one topic
- Abbreviations or acronyms must be written in full form when it appears for the first time, and then abbreviated subsequently. However, if the short form is more popularly known and understood by the common citizens than its full form, the short form should be mentioned in the heading.
- Inverted Pyramid of Information. Most important followed by lesser important.
- Visual content appeals more

Common Errors To Be Avoided In Authoring Web Content

Some of the common errors which occur and can be avoided are listed below as in example

Incorrect content	Correct content
This kind of schemes are adopted for the benefit of the general public.	This kind of schemes is adopted for the benefit of the general public.
Either of the two policies are meant for the marginalised section of the society.	Either of the two polices is meant for the marginalised section of the society.
One must do his duty.	One must do one’s duty.
Much have been done for the public.	Much has been done for the public.
The sceneries of Assam are very charming.	The scenery of Assam is very charming.

What is web content authoring tool

A program that helps you write hypertext or multimedia applications. Authoring tools usually enable you to create a final application merely by linking together objects, such as a paragraph of text, an illustration, or a song. By defining the objects' relationships to each other, and by sequencing them in an appropriate order, authors (those who use authoring tools) can produce attractive and useful graphics applications. Most authoring systems also support a scripting language for more sophisticated applications.

Different Types of Authoring content Tools

eLearning Authoring Tool: eLearning authoring tools have been popular for the last decade, and usually offer the ability to develop slide based elearning with interactive elements. Generally these tools will allow you to output your content to multiple formats like HTML5 and SCORM.

Video Capture and Editing: These tools allow you quickly and easily capture and edit software simulations and other assets into professional looking videos. You can add annotations and other cool looking features, and even add internal assessments, quizzes, and knowledge checks. Often videos are created in these tools and then embedded in a course developed in an eLearning authoring tool.

Integrated Learning Platforms: These platforms have become increasingly popular and allow courses to be authored very quickly by creating a course structure and then building a course by adding images, slides, audio, PDF's, quizzes, and other assets. These platforms often allow some form of collaboration, and host and deliver the created content to learners.

WEB GRAPHICS DESIGN

What is Web Graphics

1. Web graphics in any websites is as significant as the content of the site.
2. An excellent designed graphics can give better and creative ideas to customer of what they are looking for.
3. Web graphics helps designers to enhance the website design by adding colors, visual appeals and helps in providing artistic professional touch to their creativity.
4. The websites that don't have web graphics don't appeal to visitors.
5. Successes of web graphics depend upon the effective and efficient placement on the websites.
6. The appropriate placement of graphics not only attracts end-users but also makes website well turned-out.
7. The appropriate use of Photoshop, Flash, Dream weaver and Fireworks tools assist in designing and creating unique graphics.
8. These professionally created graphics reflects the creativity of web designer and enhances the website quality.

9. Usually, graphics are used for explaining things and ideas that are not expressed by words.
10. For instance shopping and e-commerce website uses great deal of graphics so as to illustrate their products pictures.

The pictorial language of anything gives details of particular products and easily understands by people. The related graphics of products simplifies the content and helps in easy interpretation. Suppose, if you have product descriptions on your web site, you should have the related graphic depiction next to them. It is better to use logos, cartoons, graphs and charts where they make a reasonable sense.

Basics Tips of Graphic design are:

- **Clarity in web page:** In a clear web design the things should be placed according to their importance so that the related things must look relevant with the content.
- **Imagery:** Image plays vital role in web designing so it is advisable to try the level best to use an appropriate image for best impact on the visitors.
- **Color:** Every color has its own language. Colors and its combinations stimulate people's interest in different things. That's why colour combination is also very important aspects of web designing. Without colours web pages look dull and unattractive. While using balanced colour scheme web pages can look attractive, dynamic and inviting to users.
- **Color Contrast:** It is very important to use adequate colour contrast between text and background. So it is necessary to use colour contrast relevant and must be according to the nature of website and graphics used. The appropriate use of colour contrast gives a pleasing look and appeal to websites.
- **Readability:** Font sizes used in website plays vital role and work as great differentiators. The font size depicts something important or a new section. It is suggested to use sans-serif face for all body copy. Through using underlines, bold and italics important things can be emphasized but use them in sparing fashion.
- **Effective text**: HTML text is used more often in web designing. It is more effective then the other graphic word. In the web environment, text has enormous strengths. In many situations using text delivers far better results than graphics.
- **Page Layout:** The way elements are arranged on screen carries lots of meaning that we interpret when decoding web pages. The relative position implies relationships on lots of different levels. So it is necessary to take extreme provision while creating page layouts. The sequencing of contents, graphics and images play important in conveying messages regarding products and services.
- **Alignment:** Alignment should have to directly visible on web pages. It looks clear and easily visible. Left-aligned text is easier to read than right-aligned text. So, while web designing it is suggested to follow web alignment standard.
- **3D Effect on the graphic design:** 3D creates a sense of space between different text and elements. 3-D illusion effects are powerful mode that can achieve great results. They can also be adding to overall page file size.
- **Navigation Buttons:** Navigation buttons help the visitors to navigate through web site. The navigation button should be placed on the top of the page under company logo or

down the left side. If it is difficult to find links visitors get irritated as they will not be able to access the information they were looking for in website.

1. All these information are important and they must be followed during graphic design.
2. All graphic images on your web site should match in color, typeface, and special effects.
3. You can use graphics in many of the ways on your web site.
4. You can use them as markers, as links, as a branding mode and also as headings.
5. These all make marketing website in an easy way.
6. Therefore using graphic designs in site will improve your web site and helps in magnetize your visitors or customer.

Web graphics are visual representations used on a Web site to enhance or enable the representation of an idea or feeling, in order to reach the Web site user. Graphics may entertain, educate, or emotionally impact the user, and are crucial to strength of branding, clarity of illustration, and ease of use for interfaces.

Examples of graphics include maps, photographs, designs and patterns, family trees, diagrams, architectural or engineering blueprints, bar charts and pie charts, typography, schematics, line art, flowcharts, and many other image forms.

Graphic designers have many tools and technologies at their disposal for everything from print to Web development,. Web graphic designers create determine the layout, font color, font type, logos, pictures and other visual and verbal aspects of a website. First, a Web graphic designer determines what the employer wants out of the product. This includes what message is being sent out and what audience is being targeted. They then create sketches and samples of potential layouts for the website, before developing the finished product.

WEB PROGRAMMING

Web programming refers to the writing, markup and coding involved in Web development, which includes Web content, Web client and server scripting and network security. The most common languages used for Web programming are XML, HTML, JavaScript, Perl 5 and PHP. Web programming is different from just programming, which requires interdisciplinary knowledge on the application area, client and server scripting, and database technology.

Web programming can be briefly categorized into client and server coding. The client side needs programming related to accessing data from users and providing information. It also needs to ensure there are enough plug ins to enrich user experience in a graphic user interface, including security measures.

1. To improve user experience and related functionalities on the client side, JavaScript is usually used. It is an excellent client-side platform for designing and implementing Web applications.

2. HTML5 and CSS3 supports most of the client-side functionality provided by other application frameworks.

The server side needs programming mostly related to data retrieval, security and performance. Some of the tools used here include ASP, Lotus Notes, PHP, Java and MySQL. There are certain tools/platforms that aid in both client- and server-side programming.

WHAT ARE WEB PROGRAMMING LANGUAGES?

All web programming is done with web programming languages. These languages can include static technologies like HTML, XHTML, CSS, JavaScript, and XML. However, most web site programming is done using server-side web programming languages. This code runs on the server and then gives static information back to the web browser. The most popular web programming languages are: PHP, ASP.NET, Ruby on Rails, Perl, ASP classic, Python, and JSP.

WHAT ARE THE BENEFITS OF WEB PROGRAMMING?

Web programming allows you to turn a simple, static HTML page into a dynamic masterpiece. It allows others to interact with your web site and use the application on any computer with Internet access. It is often easier than programming applications that will run directly on the computer. It allows you to make or edit anything dynamic on your website, such as a forum, a guestbook, or even a form submission.

WHAT IS A SCRIPTING LANGUAGE?

1. A **script** or **scripting language** is a computer language with a series of commands within a file that is capable of being executed without being compiled.
2. Good examples of server-side scripting languages include Perl, PHP, and Python.
3. The best example of a client side scripting language is JavaScript.
4. A scripting language is a programming language designed for integrating and communicating with other programming languages.
5. Some of the most widely used scripting languages are JavaScript, VBScript, PHP, Perl, Python, Ruby, ASP and Tcl.
6. Since a scripting language is normally used in conjunction with another programming language, they are often found alongside HTML, Java or C++.

Advantages of scripting language

- Open source, allowing users to view and edit the **script** if needed.
- Does not require the file to be compiled, but may be when necessary.
- Easy to learn and write.
- Easy to port between different operating systems.
- Much faster to develop than an actual program - some individuals and companies write scripts as a prototype for actual programs.
- **Easy learning:** The user can learn to code in scripting languages quickly, not much knowledge of web technology is required.

- **Fast editing:** It is highly efficient with the limited number of data structures and variables to use.
- **Interactivity:** It helps in adding visualization interfaces and combinations in web pages. Modern web pages demand the use of scripting languages. To create enhanced web pages, fascinated visual description which includes background and foreground colors and so on.
- **Functionality:** There are different libraries which are part of different scripting languages. They help in creating new applications in web browsers and are different from normal programming languages.

Disadvantages of scripting language

- Open source, allows others to view source code, which may be prohibited by some companies.
- Requires the user to install an interpreter or separate program before the script can be run.
- In some situations, they may be slower than a compiled program.

Application of Scripting Languages: Scripting languages are used in many areas:

- Scripting languages are used in web applications. It is used in server side as well as client side. Server side scripting languages are: JavaScript, PHP, Perl etc. and client side scripting languages are: JavaScript, AJAX, jQuery etc.
- Scripting languages are used in system administration. For example: Shell, Perl, Python scripts etc.
- It is used in Games application and Multimedia.
- It is used to create plugins and extensions for existing applications.
- To automate certain tasks in a program
- Extracting information from a data set
- Less code intensive as compared to traditional programming languages

MOTIVATION

Reasons to study scripting languages:

- Real life enterprise systems are made up of many programs working together: web servers, mail servers, nodes in clusters, search indexers, database servers, billing, shipping and receiving software, statistics gathering and computation, data mining processes, rendering engines, source code revision control, etc. Scripts are often written to make these separate systems work together.
- Game developers writing complex logic, highly optimized geometric transformations, and gnarly 3-D effects like to offload some of the flow logic to artists with less coding skills.
- Writing anything other than systems utilties in C sucks. Writing small applications in Java and C# sucks.
- They use a lot of Python at Google.
- Allows complex tasks to be performed in relatively few steps.

- Allows simple creation and editing in a variety of text editors.
- Allows the additions of dynamic and interactive activities to web pages.
- Assumes minimum programming knowledge or experience.
- Interpreted language also have a simple syntax which,for the user: makes them easy to learn and use.

SCRIPTING LANGUAGES –EXPLAIN

1. A scripting language is a programming language that employs a high-level construct to interpret and execute one command at a time.
2. In general, scripting languages are easier to learn and faster to code in than more structured and compiled languages such as C and C++.
3. Compiled languages are converted permanently into executable files before they are run.
4. In contrast, scripting languages are typically converted into machine code on the fly during runtime by a program called an interpreter.
5. Although this approach can cause performance problems because the instructions are not handled solely by the processor, it does make it easier for scripts to work with programs written in other languages.

What's the difference between Scripting and Programming Languages?

1. Scripting languages do not require the compilation step and are rather interpreted.
2. For example, normally, a C program needs to be compiled before running whereas normally, a scripting language like JavaScript or PHP need not be compiled.
3. Compiled programs run faster than interpreted programs because they are first converted native machine code.
4. Also, compilers read and analyze the code only once, and report the errors collectively that the code might have.
5. but the interpreter will read and analyze the code statements each time it meets them and halts at that very instance if there is some error.

NOTE: 1. One common distinction between a scripting language and a language used for writing entire applications is that, while a programming language is typically compiled first before being allowed to run, scripting languages are interpreted from source code or bytecode one command at a time.

2. Although scripts are widely employed in the programming world, they have recently become more associated with the World Wide Web, where they have been used extensively to create dynamic Web pages. While technically there are many client-side scripting languages that can be used on the Web, in practice it means using JavaScript.

HOW SCRIPTING LANGUAGES DIFFER FROM NONSCRIPTING LANGUAGES

Difference between Scripting and Non-Scripting Languages

The Scripting languages have powerful features to develop faster automation applications whereas Non-Scripting languages such as Java, C++, C etc. languages have limited features to relate with automated tasks in the applications.

- Scripting Languages are interpreted rather than compiled whereas Non-Scripting languages are mostly compiled.
- Scripting Languages run slower compared to Non-Scripting Languages as they are interpreted but not compiled.
- Scripting languages need not be compiled whereas Non-Scripting languages will be compiled into machine code.
- Scripting languages will be interpreted by an interpreter and will be transformed into machine code by interpreter itself.
- Scripting Languages are interpreter based whereas Non-Scripting Languages are complier based.
- Scripting Languages are used to integrate the existing systems or applications whereas Non-Scripting Languages are used to develop the applications from scratch.
- Scripting Languages are run within another program or which are wrapped or encapsulated whereas Non-Scripting Languages are run independently irrespective of the parent or external programs.
- Scripting Languages are interpreted line by line sequentially whereas Non-Scripting Languages are compiled at a time in a single stretch.
- Scripting Languages take less time to code and configure the set up to run the program as they can be easily run with a single line of commands whereas Non-Scripting Languages are needed to be configured to run after writing the code completely and requires series of sequential steps to execute the program.
- Scripting Languages require a host to run the scripts whereas Non-Scripting Languages do not require any host but requires application or web server to deploy the application to run and few standalone applications can be run independently.

TYPES OF SCRIPTING LANGUAGES.

1. Scripting languages, which can be embedded within HTML, commonly are used to add functionality to a Web page, such as different menu styles or graphic displays or to serve dynamic advertisements. These types of languages are **client-side scripting languages**. affecting the data that the end user sees in a browser window.
2. Other scripting languages are server-side scripting languages that manipulate the data, usually in a database, on the server.
3. Scripting languages came about largely because of the development of the Internet as a communications tool. JavaScript, ASP, JSP, PHP, Perl, Tcl and Python are examples of scripting languages

Types of Scripting Languages

- Server-side Scripting Language
  - Can use huge resources of the server
  - Complete all processing in the server and send plain pages to the client
  - Reduces client-side computation overhead
- Client-side Scripting Language
  - Does not involve server processing
  - Complete application is downloaded to the client browser
  - Client browser executes it locally
  - Are normally used to add functionality to web pages e.g. different menu styles, graphic displays or dynamic advertisements

Different Scripting Languages

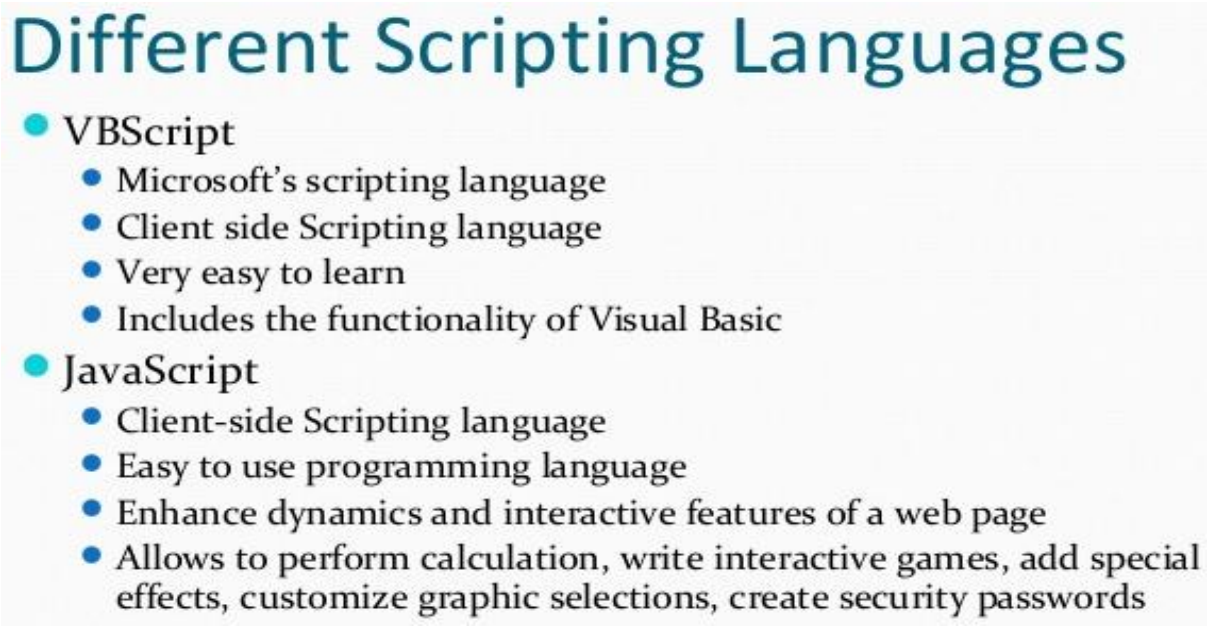
- Active Server Pages (ASP)
  - Server side scripting language
  - Developed by Microsoft
  - Good at connecting to Microsoft databases
  - Runs only on Microsoft servers
- Perl
  - Old UNIX language
  - Found on all Windows and Linux servers
  - Can handle text manipulation tasks
  - Excellent web scripting language

Different Scripting Languages

- PHP (Hypertext Pre-Processor)
  - Especially good at connecting to MySQL
  - Very popular language
  - Runs on UNIX and Windows
  - HTML-embedded scripting language
  - Syntax looks like C, JAVA, and PERL
  - Generate Dynamic content and good User Interface
  - Server side execution
- JSP (Java Server Pages)
  - Developed by Sun
  - Uses Java
  - Provide server-specific framework like Microsoft's ASP

Different Scripting Languages

- CGI (Common Gateway Interface)
  - Server-side solution
  - Needs to launch separate instance of application for each web request
  - Allows direct interaction with users
- ASP.NET
  - Server-side technology to create faster, reliable and dynamic web pages
  - Supports .NET framework languages (C#, VB.NET, JScript.NET)
  - Provides flexibility to designers and developers to work separately


Different Scripting Languages
VBScript
Microsoft's scripting language
Client side Scripting language
Very easy to learn
Includes the functionality of Visual Basic
JavaScript
Client-side Scripting language
Easy to use programming language
Enhance dynamics and interactive features of a web page
Allows to perform calculation, write interactive games, add special effects, customize graphic selections, create security passwords

End of UNIT -1