WEB TECHNOLOGIES

Introduction to Internet:- A global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols. "the guide is also available on the Internet" The Internet is the global system of interconnected computer networks that use the Internetprotocol suite (TCP/IP) to link devices worldwide. It is a network of networks that consists of private, public, academic, business, and government networks of local to global scope, linked by a broad array of electronic, wireless, and optical networking technologies. The Internet carries a vast range of information resources and services. History of Internet This marvelous tool has quite a history that holds its roots in the cold war scenario. A need was realized to connect the top universities of the United States so that they can share all the research data without having too much of a time lag. This attempt was a result of Advanced Research Projects Agency (ARPA) which was formed at the end of 1950s just after the Russians had climbed the space era with the launch of Sputnik. After the ARPA got success in 1969, it didn‘t take the experts long to understand that how much potential can this interconnection tool have. In 1971 Ray Tomlinson made a system to send electronic mail. This was a big step in the making as this opened gateways for remote computer accessing i.e.telnet. During all this time, rigorous paper work was being done in all the elite research institutions. From giving every computer an address to setting out the rules, everything was getting penned down. 1973 saw the preparations for the vital TCP/IP and Ethernet services. At the end of 1970s, Usenet groups had surfaced up. By the time the 80s had started, IBM came up with its PC based on Intel 8088 processor which was widely used by students and universities for it solved the purpose of easy computing. By 1982, the Defense Agencies made the TCP/IP compulsory and the term —internet‖ was coined. The domain name services arrived in the year 1984 which is also the time around which various internet based marked their debut. A worm, or a rust the computers, attacked in 1988 and disabled over 10% of the computer systems all over the world. While most of the researchers regarded it as an opportunity to enhance computing as it was still in its juvenile phase, quite a number of computer companies became interested in dissecting the cores of the malware which resulted to the formation Computer Emergency Rescue Team (CERT). Soon after the world got over with the computer worm, World Wide Web came into existence. Discovered by Tim Berners-Lee, World Wide Web was seen as a service to connect documents in websites usinghyperlinks. Web Technologies Page 2 World Wide Web The World Wide Web (abbreviated WWW or the Web) is an information space where documents and other web resources are identified by Uniform Resource Locators (URLs), interlinked by hypertext links, and can be accessed via the Internet. English scientist TimBerners-Lee invented the World Wide Web in 1989. He wrote the first web browser computerprogram in 1990 while employed at CERN in Switzerland. The Web browser was released outside CERN in 1991, first to other research institutions starting in January 1991 and to the general public on the Internet in August 1991. 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. Web pages are primarily text documents formatted and annotated with Hypertext Markup Language (HTML). In addition to formatted text, web pages may contain images, video, audio, and software components that are rendered in the user's web browser as coherent pages of multimedia content. Embedded hyperlinks permit users to navigate between web pages. Multiple web pages with a common theme, a common domain name, or both, make up a

website. Website content can largely be provided by the publisher, or interactively where users contribute content or the content depends upon the users or their actions. Websites may be mostly informative, primarily for entertainment, or largely for commercial, governmental, or non-governmental organizational purposes WWW is another example of client/server computing. Each time a link is followed, the client is requesting a document (or graphic or sound file) from a server (also called a Web server) that's part of the World Wide Web that "serves" up the document. The server uses a protocol called HTTP or Hyper Text Transport Protocol. The standard for creating hypertext documents for the WWW is Hyper Text Markup Language or HTML. HTML essentially codes plain text documents so they can be viewed on the Web. Browsers: WWW Clients, or "Browser": The program you use to access the WWW is known as a browser because it "browses" the WWW and requests these hypertext documents. Browsers can be graphical, allows to see and hear the graphics and audio; text-only browsers (i.e., those with no sound or graphics capability) are also available. All of these programs understand http and other Internet protocols such as FTP, gopher, mail, and news, making the WWW a kind of "one stop shopping" for Internetusers. Web Technologies Page 3 Year List of Web browsers 1991 World Wide Web (Nexus) 1992 Viola WWW, Erwise, MidasWWW, MacWWW (Samba) 1993 Mosaic,Cello,[2] Lynx 2.0, Arena, AMosaic 1.0 1994 IBM WebExplorer, Netscape Navigator, SlipKnot 1.0, MacWeb, IBrowse, Agora (Argo), Minuet 1995 Internet Explorer 1, Internet Explorer 2, Netscape Navigator 2.0, OmniWeb, UdiWWW, Grail 1996 Arachne 1.0, Internet Explorer 3.0, Netscape Navigator 3.0,Opera 2.0, PowerBrowser 1.5,[4] Cyberdog,Amaya 0.9,[5] AWeb,Voyager 1997 Internet Explorer 4.0, Netscape Navigator 4.0, Netscape Communicator 4.0, Opera3.0,[6] Amaya 1.0[5] 1998 iCab, Mozilla 1999 Amaya 2.0,[5] Mozilla M3, Internet Explorer 5.0 2000 Konqueror,Netscape 6, Opera 4,[7] Opera 5,[8] K-Meleon 0.2, Amaya 3.0,[5] Amaya 4.0[5] 2001 Internet Explorer 6, Galeon 1.0, Opera 6,[9] Amaya 5.0[5] 2002 Netscape 7, Mozilla 1.0, Phoenix 0.1, Links 2.0, Amaya 6.0,[5] Amaya 7.0[5] 2003 Opera 7,[10] Apple Safari 1.0, Epiphany 1.0, Amaya 8.0[5] 2004 Firefox 1.0, Netscape Browser, OmniWeb 5.0 2005 Opera8,[11]Apple Safari2.0, Netscape Browser 8.0, Epiphany 1.8, Amaya 9.0,[5] AOL Explorer 1.0, Maxthon 1.0,Shiira 1.0 2006 Mozilla Firefox 2.0, Internet Explorer 7,Opera 9,[12], SeaMonkey 1.0, K-Meleon 1.0, Galeon 2.0, Camino 1.0, Avant11, iCab 3 2007 Apple Safari 3.0, Maxthon 2.0, Netscape Navigator9,NetSurf 1.0, Flock 1.0, Conkeror 2008 Google Chrome 1, Mozilla Firefox 3, Opera 9.5,[13], Apple Safari 3.1, Konqueror 4, Amaya 10.0,[5] Flock 2, Amaya 11.0[5] 2009 Google Chrome 2–3, Mozilla Firefox 3.5, Internet Explorer 8,Opera 10,[14], Apple Safari 4, SeaMonkey 2, Camino 2,surf, Pale Moon 3.0[15] 2010 Google Chrome 4–8, Mozilla Firefox 3.6, Opera 10.50,[16], Opera 11, Apple Safari 5, K-Meleon 1.5.4, 2011 Google Chrome 9–16, Mozilla Firefox 4-9, Internet Explorer 9,Opera 11.50, Apple Safari 5.1, Maxthon 3.0, SeaMonkey 2.1–2.6 2012 Google Chrome 17–23, Mozilla Firefox 10–17, Internet Explorer 10, Opera 12, Apple Safari 6, Maxthon 4.0, SeaMonkey 2.7-2.14 2013 Google Chrome24–31,Mozilla Firefox 18–26,Internet Explorer 11, Opera 15– 18, Apple Safari 7, SeaMonkey 2.15-2.23 Web Technologies Page 4 2014 Google Chrome 32–39, Mozilla Firefox 27–34, Opera 19–26, Apple Safari 8 2015 Google Chrome 40–47, Microsoft Edge,Mozilla Firefox 35–43, Opera 27–34, Vivaldi 2016 Google Chrome 48–55,Mozilla Firefox 44–50,Microsoft Edge 14, Opera35– 42, Apple Safari 10, SeaMonkey 2.24–2.30, Pale Moon 26.0.0[17], Pale Moon 27.0.0[18] 2017 Google Chrome56–60,Microsoft Edge 15,Mozilla Firefox 51–55.0.2, Opera43– 45, Opera Neon Uniform Resource Locators, or URLs: A Uniform Resource Locator, or URL is the address of a document found on the WWW. Browser interprets the information in the URL in order to connect to the proper Internet server and to retrieve your desired document. Each time a click on a hyperlink in a

WWW document instructs browser to find the URL that's embedded within the hyperlink. The elements in a URL: Protocol://server's address/filename Hypertext protocol: http://www.aucegypt.eduFile Transfer Protocol: ftp://ftp.dartmouth.eduTelnet Protocol: telnet://pac.carl.org News Protocol: news:alt.rock-n-roll.stones What are Domains? Domains divide World Wide Web sites into categories based on the nature of their owner, and they form part of a site's address, or uniform resource locator (URL). Common top-level domainsare: .com—commercial enterprises .mil—military site org—organization site (non-profits, etc.) int—organizations established by international treaty .net—network .biz—commercial and personal .edu—educational site (universities, schools, etc.) .info—commercial and personal .gov—government organizations .name—personal sites Additional three-letter, four-letter, and longer top-level domains are frequently added. Each country linked to the Web has a two-letter top-level domain, for example .fr is France, .ie is Ireland. MIME (Multi-Purpose Internet Mail Extensions):- MIME is an extension of the original Internet e-mail protocol that lets people use the protocol to exchange different kinds of data files on the Internet: audio, video, images, application programs, and other kinds, as well as the ASCII text handled in the original protocol, the Simple Mail Transport Protocol (SMTP). In 1991, Nathan Borenstein of Bellcore proposed to the IETF that SMTP be extended so that Internet (but

Java script is object based oriented language.◊ Inheritance is does not support in JavaScript, so it is called object based oriented language. JavaScript was developed by Netscape (company name)◊ & initially called live script. Later Microsoft developed & adds some features live script then it is called “Jscript”. Jscript is nothing but Java script. We cannot create own classes in java script. Java script is designed to add interactivity to HTML pages. It is usually embedded◊ directly into html pages. Java script is mainly useful to improve designs of WebPages, validate form data at◊ client side, detects (find) visitor‘s browsers, create and use to cookies, and much more. Java script is also called light weight programming language, because Java script is◊ return with very simple syntax. Java script is containing executable code. Java script is also called interpreted language, because script code can be executed◊ without preliminary compilation. It Handling dates, time, onSubmit, onLoad, onClick, onMouseOver◊ & etc. JavaScript is case sensitive.◊ Most of the javascript control statements syntax is same as syntax of controlstatements◊ in C language. An important part of JavaScript is the ability to create new functions within scripts.◊ Declare a function in JavaScript using function keyword. Creating a java script: - html script tag is used to script code inside the html page. The script is containing 2 attributes. They are 1) Language attribute:- It represents name of scripting language such as JavaScript, VbScript.

Web Technologies Page 5 Web Technologies Page 6 mainly Web) clients and servers could recognize and handle other kinds of data than ASCII text. As a result, new file types were added to "mail" as a supported Internet Protocol file type. Servers insert the MIME header at the beginning of any Web transmission. Clients use this header to select an appropriate "player" application for the type of data the header indicates. Some of these players are built into the Web client or browser (for example, all browsers come with GIF and JPEG image players as well as

the ability to handle HTML files); other players may need to bedownloaded. New MIME data types are registered with the Internet Assigned Numbers Authority (IANA). MIME is specified in detail in Internet Request for Comments 1521 and 1522, which amend the original mail protocol specification, RFC 821 (the Simple Mail Transport Protocol) and the ASCII messaging header, RFC 822. Hypertext Transport Protocol: HTTP means HyperText Transfer Protocol. HTTP is the underlying protocol used by the World Wide Web and this protocol defines how messages are formatted and transmitted, and what actions Web servers and browsers should take in response to various commands. For example, when you enter a URL in your browser, this actually sends an HTTP command to the Web server directing it to fetch and transmit the requested Web page. The other main standard that controls how the World Wide Web works is HTML, which covers how Web pages are formatted anddisplayed. HTTP is called a stateless protocol because each command is executed independently, without any knowledge of the commands that came before it. This is the main reason that it is difficult to implement Web sites that react intelligently to user input. HTTPS: A similar abbreviation, HTTPS means Hyper Text Transfer Protocol Secure. Basically, it is the secure version of HTTP. Communications between the browser and website are encrypted by Transport Layer Security (TLS), or its predecessor, Secure Sockets Layer (SSL). The Web Programmer‟sToolbox: HTML - a markuplanguage• o To describe the general form and layout ofdocuments HTML is not a programming language - it cannot beused♣ describe computations. o An HTML document is a mix of content and controls Controls are tags and theirattributes♣ Tags often delimit content and specify something about howthe♣ content should be arranged in thedocument For example,

Write a paragraph here

is an element. Attributes provide additional information about the content of a tag♣ For

example, Plugins• o Integrated into tools like word processors, effectively converting themto WYSIWYG HTMLeditors Web Technologies Page 7 Filters• o Convert documents in other formats toHTML Advantages of both filters and plug-ins:• o Existing documents produced with other tools can be converted to HTML documents o Use a tool you already know to produceHTML Disadvantages of both filters andplug-ins:• o HTML output of both is not perfect - must be finetuned o HTML may benon-standard o You have two versions of the document, which are difficult tosynchronize XML• o A meta-markup language (a language for defining markuplanguage) o Used to create a new markup language for a particular purpose orarea o Because the tags are designed for a specific area, they can bemeaningful JavaScript• o A client-side HTML-embedded scriptinglanguage o Provides a way to access elements of HTML documents and dynamicallychange them Flash• o A system for building and displaying text, graphics, sound, interactivity,and animation(movies) o Twoparts: 1. Authoringenvironment 2. Player Supports both motion and shape animation PHP Ajax A server-side scripting language Great for form processing and database access through the Web Asynchronous JavaScript + XML No new technologies orlanguages♣ Much faster for Web applications that have extensive user/server interactions Uses asynchronous requests to the server Requests and receives small parts of documents, resulting in much faster responses Java Web Software Servlets – server-side Java classes JavaServer Pages (JSP) – a Java-based approach to server-side scripting JavaServer Faces – adds an event-driven interface model on JSP ASP.NET Does what JSP and JSF do, but in the .NET environment Allows.NET languages to be used as server-side scripting language

Ruby Rails A pure object-oriented interpreted scripting language Every data value is an object, and all operations are via method calls Both classes and objects are dynamic Web Technologies Page 8 A development framework for Web-based applications Particularly useful for Web applications that access databases Written in Ruby and uses Ruby as its primary user language HTML Common tags:- HTML is the building block for web pages. HTML is a format that tells a computer how to display a web page. The documents themselves are plain text files with special "tags" or codes that a web browser uses to interpret and display information on your computer screen. HTML stands for Hyper Text MarkupLanguage• An HTML file is a text file containing small markuptags• The markup tags tell the Web browser how to display thepage• An HTML file must have an htm or html fileextension.• HTML Tags:- HTML tags are used to mark-up HTML elements .HTML tags are surrounded by the two characters < and >. The surrounding characters are called angle brackets. HTML tags normally come in pairs like and The first tag in a pair is the start tag, the second tag is the end tag . The text between the start and end tags is the element content . HTML tags are not case sensitive, **means the same as. The most important tags in HTML are tags that define headings, paragraphs and line breaks. Tag Description This tag defines the document type and HTML version. This tag encloses the complete HTML document and mainly comprises of document header which is represented by ... and document body which is represented by**

...

tags. This tag represents the document's header which can keep other HTML tags like