- *Internet Related Terminologies: Internet, Requirements of Internet, Internetworking,*
  Internet Service Providers , Internet Addressing, World Wide Web(WWW), Uniform Resource Locator(URL), Web Server, Webpage, Web Server, Website, Web Browser,
  Hyper Text Mark-up Language (HTML), Dynamic Hyper Text Mark-up Language (DHTML),Extended Mark-up Language (XML), Search Engine, Downloading and Uploading files on/from the net, Hacking, Cracking, Cookies.

The **Internet** (or simply Net) is a global system of interconnected computer networks. It consists of millions of private, public, academic, business, and government networks that are linked by a broad array of electronic and optical networking technologies. Transmission Control Protocol / Internet Protocol (TCP/IP) is the communication protocol for communication between computers on the Internet.

Applications of Internet:

- Search engine: It can be used to search for resources on the Net. Eg Google, Yahoo
- E-commerce: Conducting business such as online market places Eg
- Communication: This is a major role of the Internet. It helps people to communicate either with the use of social networking websites or through e mails. Even chatting is a major use of the internet.
- Education: Educational resources like books, tutorials, online courses, research papers
- World Wide Web (WWW) is the universe of knowledge and information available on the Internet.

Requirements of Internet: Basic requirements to connect a computer to the internet are: computer system, software, modem / router and connection. Internet users subscribe to a service called an Internet Service Provider (ISP), which offers a link, or node, into the Internet. The user's modem / router will dial the ISP. The ISP will check that the user's password is valid before allowing access to its file server, and it will normally offer a range of 'customer services' as well as access to the Internet.
Some common types of connections are:

- **Dial-up**: This is the slowest and uses phone line. The landline and the Internet cannot be used at the same time.
- **DSL**: Uses a broadband connection which also connects via a phone line but is much faster than dial-up. Both Internet and phone line can be used at the same time.
- **Cable**: Cable service uses broadband and connects to the Internet via cable TV network.
- **Satellite**: uses broadband and connects to the Internet through satellites.
- **3G and 4G**: service is most commonly used with mobile phones and connects wirelessly.

Internetworking: is the process or technique of connecting different networks by using intermediary devices such as routers or gateway devices. Internetworking

ensures data communication among networks owned and operated by different entities. Internetworking is only possible when the all the connected networks use the same protocol stack or communication methodologies. TCP/IP is the commonly used internetworking protocol. The most notable example of internetworking is the Internet, a network of networks based on many underlying hardware technologies, but unified by the TCP/IP protocols.

An Internet service provider (ISP): is a company that provides customers with Internet access. Data may be transmitted using several technologies, including dial-up, DSL, cable modem, wireless or dedicated high-speed interconnects. Typically, ISPs also provide their customers with the ability to communicate with one another by providing Internet email accounts. Other services, such as telephone and television services, may be provided as well. The services and service combinations may be unique to each ISP.

An **Internet Protocol address** (IP address) is a unique identifier assigned to each device connected to a computer network that uses the Internet Protocol for communication. To make the system scalable, the address structure is subdivided into the *network* ID and the *host* ID. The network ID identifies the network the device belongs to; the host ID identifies the device. This implies that all devices belonging to the same network have a single network ID. The IP address is represented in *dot-decimal* notation. The address is grouped into four dot-separated bytes. Eg 172.16.254.1. Each of the 4 sets of numbers can range from 0 to 255. An address like 315.12.192.1 is illegal.

WWW Terminology

World Wide Web - A system of Internet servers that support specially formatted documents. The documents support links to other documents, as well as graphics, audio, and video files. The World Wide Web was originally designed in 1991 by Tim Berners-Lee at CERN. The content can be accessed via a Web browser.

A **Uniform Resource Locator (URL)**, is a character string that identifies a web resource. A URL specifies the location of the resource on a computer network and the means used to access it.

Eg. *http://www.example.com/software/index.html*

A URL for HTTP is normally made up of three components:

- **Protocol**. The set of rules to be used to access the resource on the Internet Eg *http*.
- **A host.** The host name identifies the host/server that holds the resource. For example, *www.example.com.*
- **A path.** The path identifies the specific resource (or file) in the host that the web client wants to access. For example, */software/ index.html*. where *software* is the name of a folder in the server's file system and *index.html* is the HTML document or web page requested by the client.

A **web server** is a system that delivers content or services to end users over the internet using the HTTP protocol. It is a system that runs websites. The content is stored and delivered in the form of HTML web pages. A web server consists of a physical server, server operating system (OS) and server software used to facilitate HTTP communication. Apache and Microsoft's IIS have emerged as two of the most popular web server software.

A web page is a document commonly written in HyperText Markup Language (HTML) that is accessible through the Internet or other network using a web browser. A web page is accessed by entering a URL address and may contain text, graphics, and hyperlinks to other web pages and files.

Document - When used in reference to the World Wide Web, a document is any file containing text, media or hyperlinks that can be transferred from an HTTP server to a client program.

A **website** is a collection of related web pages, including multimedia content, typically identified with a common domain name, and published on a web server. A website may be accessible via a public network, such as the Internet, or a private LAN, by referencing a URL that identifies the site. Each Web site contains a home page, which is the first document users see when they enter the site. The site might also contain additional documents and files. Each site is owned and managed by an individual, company, government etc. Websites are typically dedicated to a particular topic or purpose, ranging from entertainment and social networking to providing news and education. All publicly accessible websites collectively constitute the World Wide Web, while private websites, such as a company's website for its employees, are typically a part of an intranet.

Home page is the main page of a Web site. Typically, the home page serves as an index or table of contents to other documents stored at the site.

HTTP - HyperText Transfer Protocol is the protocol used by the World Wide Web. HTTP 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.

A web browser is a software program that allows a user to locate, access, and display web pages. Browsers are used for displaying and accessing content created using Hypertext Markup Language (HTML) and Extensible Markup Language (XML), etc. Browsers translate web pages into human readable content. Most browsers also support external plug-ins required to display active content, such as in-page video, audio and Flash content. Some popular browsers are Chrome, Firefox, and Internet Explorer.

Hypertext means non linear text. A novel or magazine article is an example of linear text because it is meant to be read from beginning to end. In non linear communication, the material can be accessed in any order using links.

Links or hyperlinks - These are the hypertext connections between Web pages.

HTML - HyperText Markup Language, is the authoring language used to create documents on the World Wide Web. HTML documents are text files with embedded codes for specifying different types of elements such as headings, paragraphs, tables, format (such as text styles) and hyperlinks. HTML describes the structure of Web pages using markup tags. Browsers do not display the HTML tags, but use them to render the content of the page.

HTML Tags. These are formatting codes used in HTML documents. Tags indicate how parts of a document will appear when displayed by browsing software. Tags are commonly used to indicate headings, paragraphs, line breaks, tables, etc. These tags are enclosed within angle braces <Tag Name>. Except few tags, most of the tags have their corresponding closing tags. For example, <html> has its closing tag </html> and <body> tag has its closing tag </body> tag etc. The tags act as containers to hold the content.

HTML Elements. A web page is composed of different type of elements such as paragraphs, headings, tables, images etc. An HTML element is defined by a *starting tag*. If the element contains other content, it ends with a *closing tag*. For example, This is a book. is a paragraph element, where is starting tag of a paragraph and is closing tag of the same paragraph and “This is a book.” is the text contained in the paragraph.

CSS - Cascading Style Sheets. It is a computer language that tells HTML how a webpage should look (as opposed to what information is in it).

Dynamic HyerText Markup Language (DHTML) is a combination of Web development technologies used to create dynamically changing web pages. Web pages may include animation, dynamic menus and text effects. The technologies used include a combination of HTML, JavaScript, CSS and the document object model (DOM).
Designed to enhance a Web user’s experience, DHTML includes the following features:

- Dynamic content, which allows the user to dynamically change Web page content
- Dynamic positioning of Web page elements
- Dynamic style, which allows the user to change the Web page’s color, font, size or content

Extensible Markup Language (XML) is used to describe data. The XML standard is a flexible way to store and transport data via the public Internet, as well as via corporate intranets. XML is software and hardware independent. XML data is known

as self-describing or self-defining, meaning that the structure of the data is embedded with the data. The basic building block of an XML document is an element, defined by tags. An element has a beginning and an ending tag. All elements in an XML document are contained in an outermost element known as the root element. Element names describe the content of the element, and the structure describes the relationship between the elements.

XML code is similar to HTML. Both XML and HTML contain markup symbols (tags) to describe page or file contents. The difference between XML and HTML is:

- XML is designed to carry data - with focus on what the data is. HTML is designed to display data - with focus on how the data looks
- XML does not use predefined tags. With XML, the author must define both the tags and the document structure. HTML works with predefined tags like <p>, <h1>, <table>, etc.

Search engine is a service that allows Internet users to search for content on the World Wide Web (WWW). The search engine collects and organizes content from all over the internet. A user enters keywords or key phrases into a search engine and receives a list of Web content results in the form of websites, images, videos or other online data. Popular search engines are Google and Microsoft's Bing.

Uploading means data is being sent from a client computer to the Internet. Examples of *uploading* include sending email, posting photos on a social media site and using a webcam. Even clicking on a link on a web page sends a tiny data *upload*.
Downloading means a client computer is receiving data from the Internet. Examples of downloading include opening a web page, receiving email, watching online videos.

Hacking is unauthorized intrusion into a computer or a network. The person engaged in hacking activities is generally referred to as a hacker. This hacker may alter system or security features to harm the system.
Hackers employ a variety of techniques for hacking, including:

- Password cracking: the process of recovering passwords from data stored or transmitted by computer systems
- Packet sniffer: applications that capture data packets in order to view data and passwords in transit over networks
- Spoofing attack: involves websites which falsify data by mimicking legitimate sites, and they are therefore treated as trusted sites by users or other programs
- Root kit, Trojan horse, Viruses: malicious programs that spread and damage the infected system
- Key loggers: tools designed to record every keystroke on the affected machine for later retrieval

Certain corporations employ hackers as part of their support staff. These legitimate hackers use their skills to find flaws in the company security system, thus preventing identity theft and other computer-related crimes.

Cracking: A **crack** is a methodology for breaking into a secured computer system. A cracker’s sole purpose is to break into a system, to prove that the system's security shield can be broken. Whereas, hackers go beyond just opening up a system to gain information for malicious intent, playful pranks and profiteering.

The term crack is also commonly applied to the files used in software cracking programs, which enable illegal copying and the use of commercial software by breaking (or cracking) various registration and copy-protection techniques.

Cookies are very small text files placed on a user’s computer by a web server when a user views some sites online. They're used to store data about the user and his preferences so that a web server doesn't have to repeatedly request this information, potentially slowing down load time.

Cookies are commonly used to store personal registration data like user name, address, the contents of a shopping cart, preferred layout for a web page, what map the user might be looking at, and so on.

Cookies make it easy for web servers to personalize information to fit a user’s specific needs and preferences when he is visiting a web site.

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