Internet Fundamentals and web tools (ICT – 2)
II BA / BCOM / BSC / BBA – III Semester

Ch. Anil Kumar

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Unit – 1 : Fundamentals of Internet

1.1. Networking concepts:

- **Definition of Network:** Two or more computers connected logically with the help of data communication devices and transmission media referred to as computer network.
- **Network Components:** The important components used in the computer network are:
  - ✓ **Media:** It is the medium through which the data travels. The various alternatives for transmission media are: twisted pair cable, coaxial cable, fibre optics, etc.
  - ✓ **Processor:** Processor is the hardware which helps to transfer the data from source to destination. Different processors used in the data communication are: modem, router, bridge, etc.
  - ✓ **Software:** To transfer the data from source to destination we require software, examples are: networking operating system software, internet explorer, etc.
  - ✓ **Topology:** It is the way which data travels, the various topologies available are: star, ring, bus, mesh, tree, etc.
- **Advantages:** Advantages of computer network is:
  - ✓ **Sharing:** network lets you share the information with other computers on the network
  - ✓ **Sharing resource:** this means that you can setup certain computer resources like a disk drive or a printer that all of the computers on the network can access them.
  - ✓ **Backup:** all data is stored on the server, backing up the critical data is a simple process.
- **Disadvantage:**
  - ✓ **Crash:** if the server crashes, then whole of the system will be disturbed.
  - ✓ **Data integrity:** As all the data is shared it is possible unauthorized person can access the data if the network security is poor or weakly implemented.
  - ✓ **No privacy:** network may also means loss of privacy. Especially your boss, with the right network privileges may be in the position to read your private email.

1.2. Data Communications:

"Data communication means sharing the information. This sharing can be local or remote or with in a building. Local communication usually occurs in face to face, while remote communication takes place over distance."

Data communication is the exchange of data between the two devices via some of transmission medium. Data communication devices must be the part of the communication system made up of combination of hardware and software.

- **Components of data communication:** there are five major components of data communication system.
  - ✓ **Message:** the information which is to be communicated.
  - ✓ **Sender:** it can be computer, workstation, telephone, etc.
  - ✓ **Receiver:** it can be computer, workstation, telephone, etc.
  - ✓ **Medium:** it is physical path by which the message travels from sender to receiver.
  - ✓ **Protocol:** it is the set of rules that govern the data communication.
- **Signals used in communication:** different types of signals used in communication are analog and digital.
  - ✓ **Analog signal:** Analog refers to continues set of specific points of data and all possible points between. Analog signals can have any value in a range.

Value

Time

Analog signal
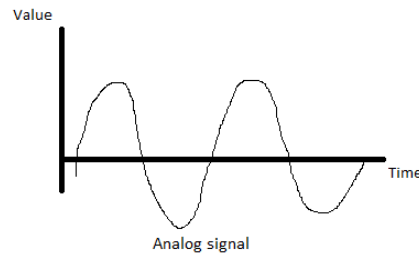
✓ <u>Digital signal:</u> digital signal is discrete. It can have only limited number of defined value often as simple as 1 and 0. It is as a light being switched off and on. Digital signals can have only a limited number of values.

Value

Time

Digital signal
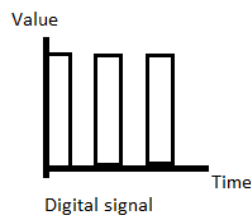
1.3. <u>Types of Networking:</u> there are three types of network. They are: Local area network (LAN), wide area network (WAN), Metropolitan area network (MAN).

- <u>Local area Network (LAN):</u> when two or more computers are connected in a small are i.e. within a diameter of not more than a few kilometers then such network is known as local area network. It is made for an organization and most of the times it is within a single building. The data rate in LAN is in the form of Mbps. The characteristics of LAN are:
  ✓ it covers an area of less than 5 kilometers
  ✓ it provides high speed data communication
  ✓ They have low error rates.
  ✓ They use simple data communication protocols.
- <u>Wide area network (WAN):</u> a wide area network is connection of two or more computers which are geographically dispersed. It has longer distance communications than LAN. It uses public networks like telephone network or microwave relays for communication facilities. A cost is involved with such networks so high mostly it is used by government agencies. The characteristics of WAN are:
  ✓ It inter connects computers at different sites.
  ✓ it can connect two or more LAN's too
  ✓ It operates nationwide or worldwide.
  ✓ Links are slow as compared to LAN's i.e. 1200 kbps
- <u>Metropolitan area Network (MAN):</u> it resides between LAN and WAN. It interconnects computer within a city. It uses dual queue dual bus protocol. The implementation for MAN provides transfer rates from 34 mbps which is not very slow as compared to LAN. They use broad band cables as transmission media. They also use fibre optical cable as transmission media.

1.4. <u>Internet and its services:</u>
- <u>Internet:</u> The internet is a global network that connects billions of computers all over the world. It is a network of networks. The internet links different organizations, academic institutions, government offices, and home users to share information among large group of users.

- **Internet services:** Today the internet become a part of not only the big organizations, universities, and offices, but has become the need of home users all over the world. The internet services are:
  - ✓ **E-Mail:** Electronic mail or e-mail is a means of transmission of messages electronically over communication networks. E-mail is one of the most widely used services on the internet. Anyone who has e-mail account can send an e-mail to any other person who also has an e-mail account. Gmail.com, yahoomal.com, rediffmail.com, hotmail.com, etc. are provides the e-mail facility to the users.
  - ✓ **File transfer protocol:** File transfer protocol is one of the oldest applications of the internet, which is basically used for transferring files from one computer to another computer, such as from a user's personal computer to a web server. It is the preferred method of exchanging files because it is faster and reliable.
  - ✓ **Chatting:** Chatting is a very popular service of the internet that allows two or more online users come together to talk using an instant messenger. Chatting helps users to stay connected with concerned people in business or family who live many miles away.
  - ✓ **Electronic news paper:** An online news paper is a newspaper on the internet, which is either published separately or as an online version of a printed periodical.
  - ✓ **World Wide Web:** the technical definition of the World Wide Web or simply web can be given as "all resources and users on the internet that are using the hypertext transfer protocol" on the web, all the documents are formatted in a special markup language is called HTML.
  - ✓ **Online shopping:** Online shopping refers to buying goods or services from merchants who sell on the internet.
  - ✓ **Search engine:** The World Wide Web stores enormous amount of information on an amazing variety of topics in hundreds of millions of pages.

1.5. Internet addressing:

Each computer and router on the internet must have a name so that it can be uniquely identified. An Internet addressing or Internet protocol address or IP address consists of 32 bits, or four bytes. IP addresses as four natural numbers from 0-255. It is common to express IP addresses as four natural numbers separated by dots. The network interface card NIC of every computer that wants to send or receive messages on the internet must have at least one address. This is similar to the need for you to have a unique address receive mail. On the internet, this address is called IP address. IP address is often expressed in the dotted decimal format, such as: 192.168.1.1

1.6. Internet applications:

- Search engine: It can be used to search anything and everything. Most popular search engines are Google and yahoo.
- Shopping: Shopping has become easier with the advent of internet. You can buy or sell online.
- 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.
- Job search: Nowadays, many people search for their jobs online as it is quicker and there is a larger variety of job vacancies present.
- Studying: Now right from kinder garden children are exposed to internet and computers. They find many useful things to learn on the internet.

1.7. Computer Viruses and its types:

Computer viruses are small software programs that are designed to spread from one computer to another and to interfere with computer operation. A virus might corrupt or delete data on your computer, use your e-mail program to spread itself to other computers, or even erase everything on your hard disk. Most Common Types of Viruses and Other Malicious Programs

- Resident Viruses: This type of virus is a permanent which dwells in the RAM memory. From there it can overcome and interrupt all of the operations executed by the system: corrupting files and programs that are opened, closed, copied, renamed etc
- Multipartite Viruses: Multipartite viruses are distributed through infected media and usually hide in the memory. Gradually, the virus moves to the boot sector of the hard drive and infects executable files on the hard drive and later across the computer system.
- Direct Action Viruses: The main purpose of this virus is to replicate and take action when it is executed. When a specific condition is met, the virus will go into action and infect files in the directory or folder that it is in and in directories.
- Overwrite Viruses: Virus of this kind is characterized by the fact that it deletes the information contained in the files that it infects, rendering them partially or totally useless once they have been infected.
- Boot Virus: This type of virus affects the boot sector of a floppy or hard disk. This is a crucial part of a disk, in which information on the disk itself is stored together with a program that makes it possible to boot (start) the computer from the disk.

1.8. Browser:

A browser is a software application used to locate, retrieve and display content on the World Wide Web, including Web pages, images, video and other files.

1.9. Types of Browsers:

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

- Internet Explorer: Internet Explorer (IE) is a product from software giant Microsoft. This is the most commonly used browser in the universe. This was introduced in 1995 along with Windows 95 launch.
- Google Chrome: This web browser is developed by Google and its beta version was first released on September 2, 2008 for Microsoft Windows. Today, chrome is known to be one of the most popular web browsers with its global share of more than 50%.
- Mozilla Firefox: Firefox is a new browser derived from Mozilla. It was released in 2004 and has grown to be the second most popular browser on the Internet.
- Safari: Safari is a web browser developed by Apple Inc. and included in Mac OS X. It was first released as a public beta in January 2003. Safari has very good support for latest technologies like XHTML, CSS2 etc.
- Opera: Opera is smaller and faster than most other browsers, yet it is full- featured. Fast, user-friendly, with keyboard interface, and more.

Unit – 2 : Internet Applications

2.1. Using internet explorer:

Internet explorer is a default web browser for Windows operating system installed computers or tablets. To open internet explorer go to start button → select all programs → select internet explorer (or) double click the internet explorer icon on the desktop, then the internet explorer window will appear. The internet explorer window is:
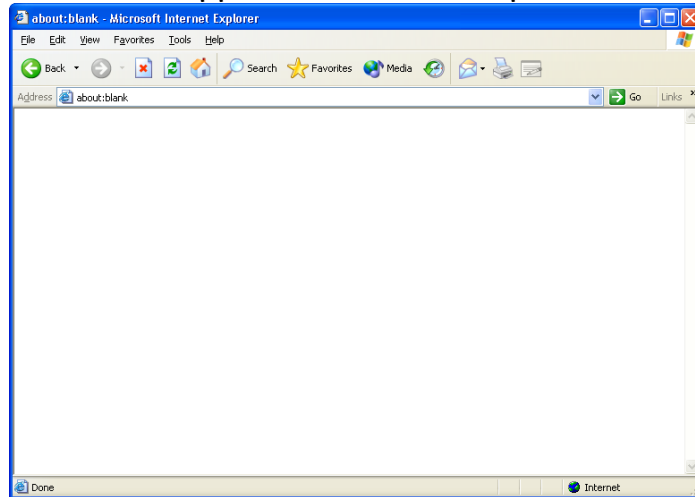
The parts of the internet explorer are: title bar, menu bar, tool bar, address bar, web page area and status bar.

✓ The title bar displays the name of the webpage or website you have opened.
✓ The menu bar contains menus like file, edit, view favorites, tools, and help, each menu contains its own options.
✓ Tool bar contains short cut buttons to menu options, which speedup your work.
✓ In the address bar you have to type the address of the website, and then press enter key. The website will open and the contents of the web site or web page are displayed at web page area.
✓ The status bar displays the status about the internet explorer.

2.2. Standard internet explorer buttons:

Back button   Forward Button   Stop   Refresh   Home
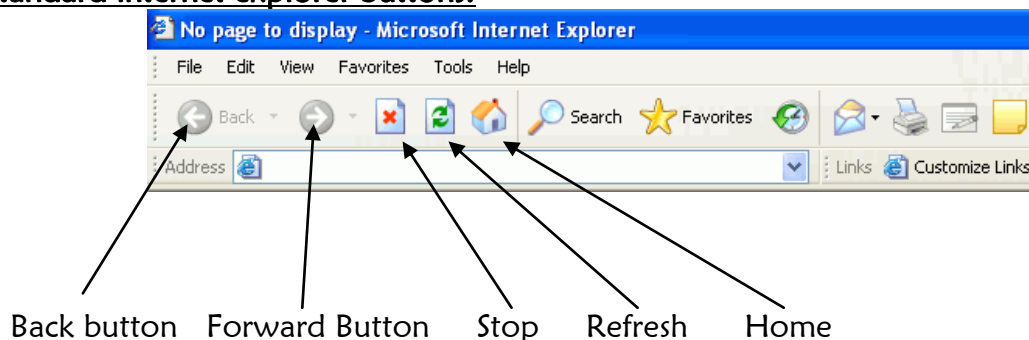
- Back button: Your web browser keeps a stack of the web pages that you have visited in that window. Let's say your home page is google.com and from there you visit a few other websites: youtube.com, yahoo.com, and cnn.com. Upon visiting the last one, the list looks like this:
  google.com -> youtube.com -> yahoo.com -> cnn.com
                                              ^
                                              |
                                        current page

When you press the Back button, the browser takes you back to the previous page in the list, like this:

google.com -> youtube.com -> yahoo.com -> cnn.com

```
                              ^
                              |
                        current page
```

- Forward Button: when you press the forward button, the browser takes you forward to the current page in the list, like this

google.com -> youtube.com -> yahoo.com -> cnn.com

```
                              ^
                              |
                        current page
```

google.com -> youtube.com -> yahoo.com -> cnn.com

```
                                        ^
                                        |
                                  current page
```

- Stop Button: If you want to stop loading the current web page then press stop button.
- Refresh Button: the web page you have typed at address bar is not fully displayed at web page area or the links are not properly working, etc. in these cases you have to press refresh button to reload the webpage.
- Home Button: the internet explorer lets you set one web page as your home page, this page will automatically opened when the internet explorer window is opened. If you want to open your home page at any time then press home button.

2.3.   Entering a website address:

The area which is dedicated to enter the website address in the internet explorer is address bar. Put cursor at the address bar then type the address of the website you want to open.
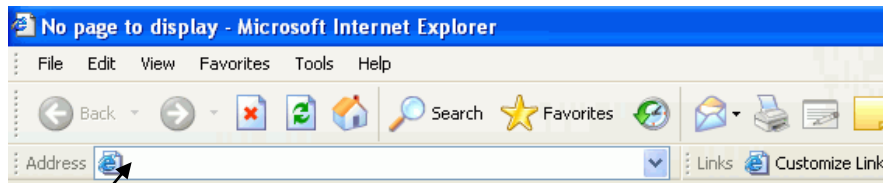
www.facebook.com

For example if you want to open Facebook website then type www.facebook.com in the address bar and then press the enter button the Facebook page will displayed at web page area in the browser

2.4.   Searching the internet:

By using the search engines, searching the information on the internet is easy. Search engine is an approach to organize the information and locating the information on the web, which is a computer program.

Popular search engines are: www.google.com, www.ask.com, www.alltheweb.com, etc. for example you want to search about the applications of internet on the internet. Then you have followed these steps:

✓ Enter the website of the search engine at the address bar for example www.google.com
✓ After Google page opened then type "applications of internet" at the search box and then press enter button on the keyboard.

✓ The Google will search about "applications of internet" in its server and displays some results.

✓ Open the results one by one; in any one of them you got the relevant information.

2.5. <u>Introduction to Social networking:</u>

Social networking on social media websites involves the use of the internet to connect users with their friends, family and associates. Social media websites are not necessarily about meeting new people online, although this does happen. Instead, they are primarily about connecting with friends, family and associates you already have in real life.

The most well-known social media sites are Facebook, Twitter, Instagram and LinkedIn. These sites allow you to share photos, videos and information, organise events, chat, and play online games. Concepts in the social media are:

- <u>Your Profile Page:</u> When you sign up to a social media site you need to provide your email address to verify your identity. This will automatically create your profile page. Depending on the social media site you're using, a profile page usually allows you to post a picture and a few general details about you and your interests. Your friends will be able to see your profile page and the information that you share. They will also be able to leave comments or share information with you on your profile page.

- <u>Privacy:</u> Social media sites have a variety of privacy settings you can adjust. This means you can control who sees your profile page and other information you share on the site. Some people do not mind having their personal information available for anyone to view online. However, we strongly recommend that you don't publish your home address and be mindful of posting other personal information about yourself (including your birthday), or others especially if you don't have their permission.

- <u>Friends:</u> The whole point of joining social media websites is to be in touch with your friends and family. "Friends" in the context of social media, and Facebook in particular, has a specific meaning. For example, for you to interact online with a friend, family member or associate either one of you must first send a "friend request" to the other and then have that request accepted. Once accepted, the technology recognises you as "friends" and you can interact with each other online, so you can view the other person's profile page, see their pictures, and send them messages.

2.6. <u>Twitter:</u> is an online social networking service that enables users to send and read short 140-character messages called "tweets". Registered users can read and post tweets, but those who are unregistered can only read them. Users access Twitter through the website interface, SMS or mobile device app.

Twitter was created in March 2006 by Jack Dorsey, Evan Williams, Biz Stone, and Noah Glass and launched in July 2006. The service rapidly gained worldwide popularity; it was one of the ten most-visited websites and has been described as "the SMS of the Internet". As of March 2016, Twitter has more than 310 million monthly active users.

2.7. <u>Tumblr:</u> Tumblr is a micro-blogging and social networking website founded by David Karp in 2007, and owned by Yahoo! since 2013. The service allows users to post multimedia and other content to a short-form blog. Users can follow other users' blogs. Bloggers can also make their blogs private.

2.8. <u>Linkedin:</u> LinkedIn is a business-oriented social networking service. Founded on December 14, 2002, and launched on May 5, 2003, it is mainly used for professional networking. As of 2015, most of the site's revenue came from selling access to information about its users to

recruiters and sales professionals. As of March 2016, LinkedIn has more than 433 million users, out of which more than 106 million are active.

2.9. **Facebook:** Facebook is an online social networking service based in Menlo Park, United States. The Facebook website was launched on February 4, 2004 by Mark Zuckerberg, along with fellow Harvard College students and roommates, The founders had initially limited the website's membership to Harvard students; however, later they expanded it to higher education institutions in the Boston area,

Users can create a user profile, add other users as "friends", exchange messages, post status updates and photos, share videos, use various applications (apps), and receive notifications when others update their profiles. Additionally, users may join common-interest user groups organized by workplace, school, or other topics, and categorize their friends into lists such as "People from Work" or "Close Friends". In groups, editors can pin posts to top.

2.10. **Flickr:** Flickr is an image hosting and video hosting website and web services suite that was created by Ludicorp in 2004 and acquired by Yahoo in 2005. In addition to being a popular website for users to share and embed personal photographs, and effectively an online community, the service is widely used by photo researchers and by bloggers to host images that they embed in blogs and social media.

2.11. **Skype:** Skype is an application that provides video chat and voice call services. Users may exchange such digital documents as images, text, video and any others, and may transmit both text and video messages. Skype allows the creation of video conference calls. Skype is available for Microsoft Windows, Macintosh, or Linux, as well as Android, Blackberry, and both Apple and Windows smart phones and tablets. Skype Credit or a subscription is required to call a landline or a mobile phone number. At the end of 2010, there were over 660 million worldwide users, with over 300 million estimated active each month as of August 2015.

2.12. **Yelp:** Yelp is an American multinational corporation headquartered in San Francisco, California. It develops, hosts and markets Yelp.com and the Yelp mobile app, which publish crowd-sourced reviews about local businesses, as well as the online reservation service SeatMe and online food-delivery service Eat24. The company also trains small businesses in how to respond to reviews, hosts social events for reviewers, and provides data about businesses, including health inspection scores.

2.13. **Vimeo:** Vimeo is a video-sharing website in which users can upload, share and view videos. It was the first video sharing site to support high-definition video. Vimeo was founded in November 2004 by Jake Lodwick and Zach Klein.

2.14. **Yahoo!:** Yahoo is an American multinational technology company headquartered in Sunnyvale, California. It is globally known for its Web portal, search engine Yahoo! Search, and related services, including Yahoo! Directory, Yahoo! Mail, Yahoo! News, Yahoo! Finance, Yahoo! Groups, Yahoo! Answers, advertising, online mapping, video sharing, fantasy sports and its social media website. It is one of the most popular sites in the United States.

Yahoo was founded by Jerry Yang and David Filo in January 1994 and was incorporated on March 2, 1995. Marissa Mayer, a former Google executive, serves as CEO and President of the company.

2.15. <u>Google+:</u> Google+ is an interest-based social network that is owned and operated by Google Inc. The service, Google's fourth foray into social networking, experienced strong growth in its initial years, although usage statistics have varied, depending on how the service is defined. Three Google executives have overseen the product, which has undergone substantial changes leading to a redesign in November 2015.

2.16. <u>YouTube:</u> YouTube is a global video-sharing website headquartered in San Bruno, California, United States. The service was created by three former PayPal employees in February 2005. In November 2006, it was bought by Google for US$1.65 billion. YouTube now operates as one of Google's subsidiaries. The site allows users to upload, view, rate, share, and comment on videos, and it makes use of WebM, H.264 / MPEG-4 AVC, and Adobe Flash Video technology to display a wide variety of user-generated and corporate media video. Available content includes video clips, TV clips, music videos, movie trailers, and other content such as video blogging, short original videos, and educational videos.

2.17. <u>Whatsapp:</u> WhatsApp Messenger is a proprietary cross-platform, encrypted, instant messaging client for smartphones. It uses the Internet to send text messages, documents, images, video, user location and audio messages to other users using standard cellular mobile. As of February 2016, WhatsApp had a user base of one billion, making it the most popular messaging application.

WhatsApp Inc., based in Mountain View, California, United States, was acquired by Facebook Inc. on February 19, 2014, for approximately US$19.3 billion.

Unit – 3 : E-Mail

3.1. Definition of E-Mail:

E-Mail or electronic mail is a system for sending messages from one individual to another via telecommunications links between computers or terminals using dedicated software. The sender and receiver must have email addresses to share their data.

3.2. Advantages and disadvantages:

- Advantages: As in the early days of the telephone, the original users of email only had a limited number of people whom they could communicate. Now that email is more prevalent, some of the advantages of using email are:
  - ✓ Convenience: there are not trips to post office and no need to search for stationary and stamps. Sending information through email is easy.
  - ✓ Speed: email is fast, based on the speed of the underlying communication network.
  - ✓ Inexpensive: once you are on-line, the cost of sending a message is small.
  - ✓ Printable: a hard copy is easy to obtain.
  - ✓ Global: increasingly, people and business all over the world are using email.
- Disadvantages: Despite all of the advantages, we should bear in mind that not everyone everywhere has access to email. Although the telephone is not truly universal either, it still far outdistances email in terms of its worldwide availability.
  - ✓ Misdirection: with email, you are your own worst enemy. It is far more likely that you will accidentally send email to an unintended recipient than it is for someone actually to intercept your email.
  - ✓ Forgery: email does not preclude forgeries, that is, someone impersonating the sender, since the sender is usually not authenticated in any way.
  - ✓ Overload: email can also be too convenient and result in a flood of mail.
  - ✓ Junk: another more recent negative development involves junk email. This flooding of undesirable or inappropriate email is sometime referred to as spam and is becoming serious problem.
  - ✓ No response: A mild frustration sometimes associated with using email is dealing with recipients who do not read and respond to their email on a regular basis.

3.3. User ID, Password, Email addresses:

- User ID: User ID or User name or account name. User id is the concatenation of the word "user" and "id" stands for identification. Your user id identifies you to the computer. User names must be single word containing group of alphabets, digits and symbols. If your name were Mary H. Lamb, sensible login names would be mhlamb, marylamb, mlamb, or lamb. Note that uppercase or lowercase is normally not significant in email names.
- Password: your password is a secret code that authenticates you to the computer. In theory, you are the only one who knows the password to your account, and no one except you should be able to log on to your account. A good password should be: at least five letters long contain a non alphabetical symbol such as # *, contain a number, posses uppercase and lowercase letters.
- Email Addresses: The basic form of email address is "username@domainname". The text before the @ sign specifies the username of the individual, while the text after the @ sign indicates how the computer system can locate the individual mail box. For example aniltimes13@gmail.com here aniltimes13 is username and gmail.com is domain name or server name.

3.4. <u>Domain names:</u> Domain names are used to identify one or more IP addresses. For example, the domain name microsoft.com represents about a dozen IP addresses. Domain names are used in URLs to identify particular Web pages. For example, in the URL http://www.pcwebopedia.com/index.html, the domain name ispcwebopedia.com.

Every domain name has a suffix that indicates which top level domain (TLD) it belongs to. There are only a limited number of such domains. For example:

- gov - Government agencies
- edu - Educational institutions
- org - Organizations (non profit)
- mil - Military
- com - commercial business
- net - Network organizations

3.5. <u>Mailers:</u> A mailer is the software that allows you to manage, read, and compose email. Examples for mailers are: gmail.com, mail.yahoo.com, rediffmail.com, ymail.com, etc.

3.6. <u>Message components:</u> An email message consists of the following general components:
- <u>Headers:</u> The message headers contain information concerning the sender and recipients. The exact content of mail headers can vary depending on the email system that generated the message. Generally, headers contain the following information:
  - ✓ Subject. Subject is a description of the topic of the message and displays in most email systems that list email messages individually.
  - ✓ Sender (From). This is the sender's Internet email address. It is usually presumed to be the same as the Reply-to address, unless a different one is provided.
  - ✓ Date and time received (On). The date and time the message was received.
  - ✓ Reply-to. This is the Internet email address that will become the recipient of your reply if you click the Reply button.
  - ✓ Recipient (To:). First/last name of email recipient, as configured by the sender.
  - ✓ Recipient email address. The Internet mail address of the recipient, or where the message was actually sent.
  - ✓ Attachments. Files that are attached to the message.
- <u>Body:</u> The body of a message contains text that is the actual content, such as "Employees who are eligible for the new health care program should contact their supervisors by next Friday if they want to switch." The message body can also include signatures or automatically generated text that is inserted by the sender's email system.
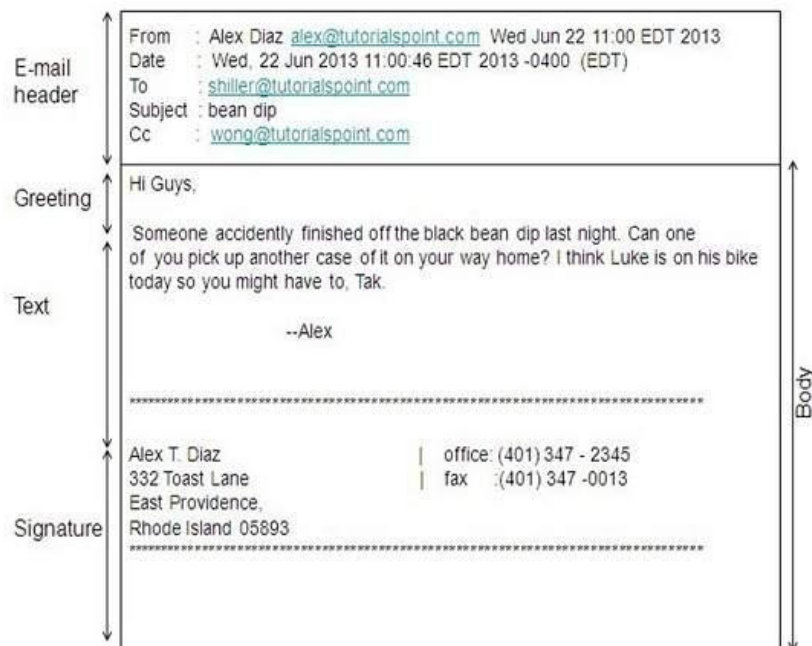
3.7. <u>Message composition:</u> To create and send a new email message, then follow these steps:

1. Click compose button.
2. Type the recipient's email address in the To box. Enter multiple addresses by separating them with a comma. NOTE: If the person is in your Address Book, you can just start typing the email address (or the name you've entered as their "Display Name") and a list of choices will appear. Just choose the correct one from the list.
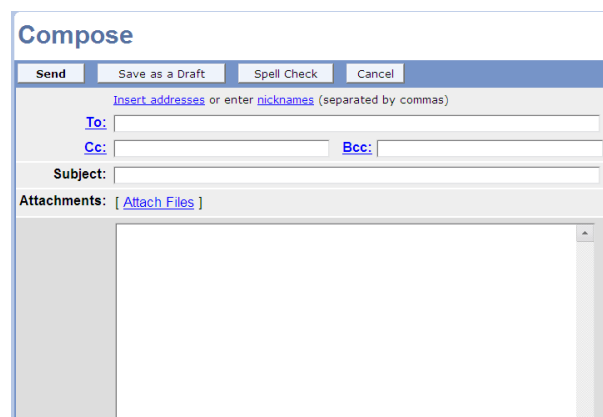
3. In the CC box (carbon copy) type the email addresses you want to receive a copy of the email. (A recipient who is CC is able to see and correspond with the other recipients of the message.)
4. In the BCC box (blind carbon copy) type the email addresses you want to receive a copy of the email. (The email addresses of recipients who are BCC will not appear in the headers of the message.)
5. Type a brief description of the email message in the Subject box. For example, if you're sending out a recipe for oatmeal cookies, the subject might be "My oatmeal cookies recipe".
6. Type the body of the email message.
7. If you wish to add a signature to your email, select one from the Signature pull-down menu.

8. If you wish to attach files to this message, use the Browse buttons at the bottom of the page to choose files from your hard drive. You can include up to three attachments with a message.
9. If you want to send your email message now, click Send.
10. If you want to send your email message later, or work on it more at a later time, click Save as a draft and you'll be able to retrieve it from the Drafts folder later.

3.8. Mail management:

Email management is a systematic approach to maximizing the efficiency of email practices and minimizing the negative effects that email handling can have on an individual's productivity and job satisfaction. Tips for effective email management include:

- Limiting the number of times you process mail in a day.
- Limiting the amount of time you dedicate to processing email in a given session.
- Only keeping your email program open while you are actively dealing with it.
- Checking email only when you are going to process it.
- Deleting as many messages as possible immediately.
- Responding immediately to messages that can be answered very briefly.
- Moving messages to be dealt with later to a separate folder.
- Responding to only emails that require responses.
- Limiting recipients to as few individuals as possible.
- Keeping responses brief.
- Deleting all messages that are not archived after a specific amount of time.

3.9. Email inner workings:

Here we provide a simplified description of how email actually works. If we split the mailing or a letter into three phases, in the first phase you need to perform compose the letter, in the second phase, a mail person retrieves the letter from its place of deposit, is routed to its final destination mailbox, in the third phase, the recipient checks for mail, retrieves the letter from the mailbox, opens the envelope, reads the mail. Similar phases need to be carried out in the electronic setting:

- Mailer, Mail server and Mailbox:
  Three main components are necessary for the email system to work. In reality, the system is much more complex.
  ✓ Mailer: A mailer is the software that allows you to manage, read, and compose email. Examples for mailers are: gmail.com, mail.yahoo.com, rediffmail.com, ymail.com, etc.
  ✓ Mail server: the mail server is a computer whose function is to receive, store, and deliver email. Conceptually the mail server is always listening for the arrival of new email.
  ✓ Mailboxes: an electronic mailbox is a disk file specifically formatted to hold email messages and information about them. Your mail box is generally created for you by a system administrator when you first establish your account.
- Store and forward features:
  A mail server needs to be running nearly all the time, waiting for email message and routing them approximately, if a mail server crashes or is down for an extended period, email can be lost. Thus the mail server must be a 7 by 24 machine.
  When email arrives, it is saved for the addresses in the inbox until they pick it up by downloading the messages. The save and pickup process comprise the store and forward function.

Note that there may be a space limitation on the size of your mailbox. Generally, once this limit is reached, new incoming messages are refused until you free up space by deleting some messages.

- **Central mail spool and IMAP:**

Another popular method by which users obtain their email is called a central mail spool system. This type of setup is particularly useful if someone is going to be accessing email from multiple computers. For example A has a workstation at his office, as well as PC at home. His inbox is maintained on a central mail server. Also, A shares his email account with his son B.

Imagine what could happen if A were reading email at work while his son B was simultaneously trying to read the same inbox from home. Suppose B deleted an email message from home. Lots of complications can arise in this, and a protocol has been designed to handle many of the relevant issues. It is called interactive mail access protocol IMAP.

- **Bounce feature:**

When you send an email message, the mailer software sends a copy of it over the internet. The message has to be split up into small pieces called packets containing appropriate header information and sequence numbers. The sequence numbers are needed so the message can be reassembled in the correct order. The mailer used the destination email address to identify the computer to which the message should be routed. The following is necessary sometimes the email bounces, that is it is undeliverable. The major reasons are:

- ✓ Bad user account name
- ✓ Bad domain name
- ✓ Domain name server is down for a number of days
- ✓ Some other malfunction

Unit – 4 : WWW

4.1. Web applications:

A web application is any application that uses a web browser as a client. The application can be as simple as a message boarder a guest sign-in book on a website, or as complex as a word processor or a spreadsheet.

Most web applications are based on the client-server architecture where the client enters information while the server stores and retrieves information. Internet mail is an example of this, with companies like Yahoo and MSN offering web-based email clients.

The new push for web applications is crossing the line into those applications that do not normally need a server to store the information. Your word processor, for example, stores documents on your computer, and doesn't need a server.

Web applications can provide the same functionality and gain the benefit of working across multiple platforms. For example, a web application can act as a word processor, storing information and allowing you to 'download' the document onto your personal hard drive.

If you have seen the new Gmail or Yahoo mail clients, you have seen how sophisticated web applications have become in the past few years. Much of that sophistication is because of AJAX, which is a programming model for creating more responsive web applications.

4.2. Web terminologies:

- Browser - Special software designed to read web pages.
- Client - A piece of software designed to contact and obtains data from a Web Server. An Email Client or Browser Client are examples.
- DNS - Domain Name System, The system that translates Internet domain names into IP numbers.
- FTP - File Transfer Protocol, Common method for transferring files between computers via the Internet.
- HTML - Hyper Text Mark-Up Language, Standard Mark-Up coding language for creating web pages. It is the source code that the computer reads to create the page. See: HTTP
- HTTP - Hyper Text Transfer Protocol, Standard protocol for addressing Hyper Text web pages on the web. See: HTML
- ISP - Internet Service Provider, Companies that provide a means for their users to access the Internet.
- Search Engine - A web based database used to find websites. Work on the basis of a websites relevance to a search phrase.
- SMTP - Simple Mail Transfer Protocol. Common protocol used to send email from server to server via the Internet.
- URL - Uniform Resource Locator. At its simplest, URL can be seen to be synonymous with a 'web address'.
- Web page- a document, typically written in HTML, which is almost always accessible via HTTP, a protocol that transfers information from the Web server to display in the user's Web browser.
- Web Server- a computer that is only used to display websites and web pages.
- Website - a collection of Web pages, images, videos or other digital assets that is hosted on one or several Web server(s), usually accessible via the Internet, cell phone or a LAN.
- World Wide Web (www) - An international protocol (http:) used as a common means to communicate via the Internet.

4.3. Web browsers:

A browser is a software application used to locate, retrieve and display content on the World Wide Web, including Web pages, images, video and other files.

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

- Internet Explorer: Internet Explorer (IE) is a product from software giant Microsoft. This is the most commonly used browser in the universe. This was introduced in 1995 along with Windows 95 launch.
- Google Chrome: This web browser is developed by Google and its beta version was first released on September 2, 2008 for Microsoft Windows. Today, chrome is known to be one of the most popular web browsers with its global share of more than 50%.
- Mozilla Firefox: Firefox is a new browser derived from Mozilla. It was released in 2004 and has grown to be the second most popular browser on the Internet.
- Safari: Safari is a web browser developed by Apple Inc. and included in Mac OS X. It was first released as a public beta in January 2003. Safari has very good support for latest technologies like XHTML, CSS2 etc.
- Opera: Opera is smaller and faster than most other browsers, yet it is full- featured. Fast, user-friendly, with keyboard interface, and more.

4.4. URL, components of URL:

- URL: Uniform Resource Locator. At its simplest, URL can be seen to be synonymous with a 'web address'. The website address you have entered at the address bar is also called as URL.
- Components of URL: components or parts of Uniform resource locator are:
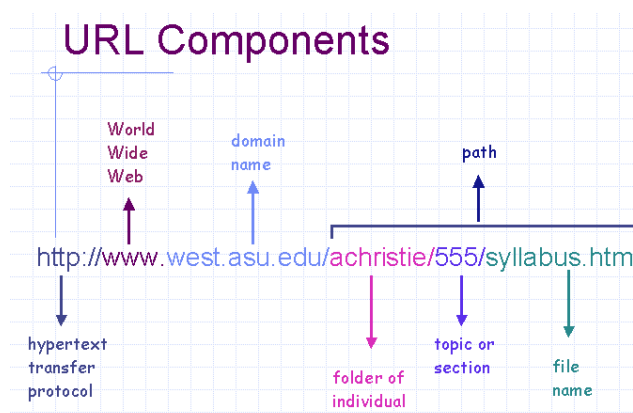
4.5. Search engines and examples:

By using the search engines, searching the information on the internet is easy. Search engine is an approach to organize the information and locating the information on the web, which is a computer program.

Popular search engines are: www.google.com, www.ask.com, www.alltheweb.com, etc. for example you want to search about the applications of internet on the internet. Then you have followed these steps:

✓ Enter the website of the search engine at the address bar for example www.google.com
✓ After Google page opened then type "applications of internet" at the search box and then press enter button on the keyboard.
✓ The Google will search about "applications of internet" in its server and displays some results.

Open the results one by one; in any one of them you got the relevant information.

Unit – 5 : Basic HTML

5.1. Basic HTML:
- HTML stands for Hyper Text Mark-up Language
- A mark-up language is a set of mark-up tags
- HTML documents are described by HTML tags
- Each HTML tag describes different document content

5.2. Structure of HTML document:
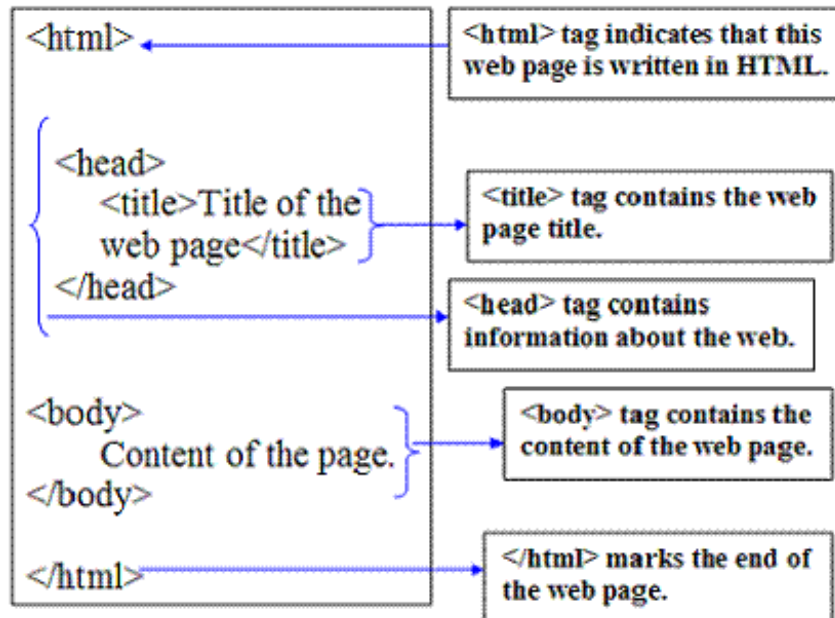
5.3. HTML head and body tags:
- Head tag:
  The <head> tag is a container of various important tags like <title>, <meta>, <link>, <base>, <style>, <script> tags.
  - ✓ <title> tag:
    The HTML <title> tag is used for specifying the title of the HTML document. Following is an example to give a title to an HTML document:
    <title>HTML Title Tag Example</title>
  - ✓ <meta> tag:
    The HTML <meta> tag is used to provide metadata about the HTML document which includes information about page expiry, page author, list of keywords, page description etc.
    <meta name="author" content="Ch. Anilkumar">
  - ✓ <base> tag:
    The HTML <base> tag is used for specifying the base URL for all relative URLs in a page, which means all the other URLs will be concatenated into base URL while locating for the given item.
    <base href="http://www.chanilkumar.com/" />
  - ✓ <link> tag:
    The HTML <link> tag is used to specify relationships between the current document and external resource. Following is an example to link an external style sheet file available in css sub-directory within web root:
    <link rel="stylesheet" type="text/css" href="/css/style.css">

✓ <u><style> tag:</u>

The HTML <style> tag is used to specify style sheet for the current HTML document. Following is an example to define few style sheet rules inside <style> tag:

<style type="text/css">

✓ <u><script> tag:</u>

The HTML <script> tag is used to include either external script file or to define internal script for the HTML document. Following is an example where we are using Java script to define a simple Java script function:

<script type="text/javascript">

- <u>Body tag:</u>

The <body> tag defines the document's body. The <body> element contains all the contents of an HTML document, such as text, hyperlinks, images, tables, lists, etc.

<body>

Simple html program

</body>

5.4. <u>Semantic and syntactic tags:</u>

- <u>Semantic tags:</u> semantic tags are also called as content based tags. There are more number of semantic tags are available, they are:

  ✓ <u><EM> tag:</u>

  The emphasis tag with its corresponding ending tag is used for text put text in italic.

  EM Tag: *ANIL*

  ✓ <u> tag:</u>

  The strong tag with its corresponding ending tag is used for put text in bold.

  STRONG tag: **ANIL**

  ✓ <u><small> tag:</u>

  The small tag <small> with its corresponding </small> ending tag is used for decreasing the original size of text.

  SMALL TAG : ANIL

  ✓ <u><big> tag:</u>

  The big tag <big> with its corresponding </big> ending tag is used for increasing the original size of text.

  BIG TAG : ANIL

- <u>Syntactic tags:</u>

  ✓ <u><B> tag:</u>

  The tag <B> with its corresponding </B> ending tag is used for put text in bold.

  B Tag: **ANIL**

  ✓ <u><I> tag:</u>

  The tag <I> with its corresponding </I> ending tag is used for put text in ilalic.

  I tag: *ANIL*

  ✓ <u><U> tag:</u>

  The tag <U> with its corresponding </U> ending tag is used for underling text.

  U TAG : <u>ANIL</u>

   ✓ <strike> tag:
      This tag is used for crossing out a word by having a line drawn thorough it.
      STRIKE TAG : ~~ANIL~~

5.5. HR, Font, Image, Anchor tags:

- HR tag:
  The HTML <hr> tag is used for creating a horizontal line.
- Font tag:
  The HTML <font> tag is used to specify the font of the text.
      <font face="cursive,serif" color="#ff9900" size="4">
- Image tag:
  The HTML <img> tag is used to put an image in an HTML document.

- Anchor tag:
  The <anchor>...</anchor> tag pair is used to create an anchor link.
       Ch.Anilkumar

5.6. Different types of lists using tags:

   HTML offers web authors three ways for specifying lists of information. All lists must contain one or more list elements. Lists may contain:

- ✓ - An unordered list. This will list items using plain bullets.
- ✓ - An ordered list. This will use different schemes of numbers to list your items.
- ✓ <dl> - A definition list. This arranges your items in the same way as they are arranged in a dictionary.
- Unordered Lists: An unordered list is a collection of related items that have no special order or sequence. This list is created by using HTML <ul> tag. Each item in the list is marked with a bullet.

      Beetroot
      Ginger
      Potato
      Radish

        ▪ Beetroot
        ▪ Ginger
        ▪ Potato
        ▪ Radish

- Ordered Lists: If you are required to put your items in a numbered list instead of bulleted then HTML ordered list will be used. This list is created by using <ol> tag. The numbering starts at one and is incremented by one for each successive ordered list element tagged with <li>.

```
<ol>
<li>Beetroot</li>
<li>Ginger</li>
<li>Potato</li>
<li>Radish</li>
</ol>
```

1. Beetroot
2. Ginger
3. Potato
4. Radish

- Definition Lists: HTML and XHTML support a list style which is called definition lists where entries are listed like in a dictionary or encyclopedia. The definition list is the ideal way to present a glossary, list of terms, or other name/value list.

  Definition List makes use of following three tags.

  <dl> - Defines the start of the list
  <dt> - A term
  <dd> - Term definition
  </dl> - Defines the end of the list

```
<dl>
<dt><b>HTML</b></dt>
<dd>This stands for Hyper Text Markup Language</dd>
<dt><b>HTTP</b></dt>
<dd>This stands for Hyper Text Transfer Protocol</dd>
</dl>
```

HTML
   This stands for Hyper Text Markup Language
HTTP
   This stands for Hyper Text Transfer Protocol

5.7. Table tags: The HTML tables allow web authors to arrange data like text, images, links, other tables, etc. into rows and columns of cells.

The HTML tables are created using the **<table>** tag in which the **<tr>** tag is used to create table rows and **<td>** tag is used to create data cells.

```
<table border="1">
<tr>
<td>Row 1, Column 1</td>
<td>Row 1, Column 2</td>
</tr>
<tr>
<td>Row 2, Column 1</td>
<td>Row 2, Column 2</td>
</tr>
</table>
```

This will produce following result:

Row 1, Column 1	Row 1, Column 2
Row 2, Column 1	Row 2, Column 2

5.8. Image formats:

There are 4 main formats in which to store images. They are:

- **TIFF:** TIFF stands for Tagged Image File Format. TIFF images create very large file sizes. TIFF images are uncompressed and thus contain a lot of detailed image data. TIFF is the most common file type used in photo software such as Photoshop, as well as page layout software.

- **JPEG:** JPEG stands for Joint Photographic Experts Group, which created this standard for this type of image formatting. JPEG files are images that have been compressed to store a lot of information in a small-size file. Most digital cameras store photos in JPEG format, because then you can take more photos on one camera card than you can with other formats.

- **GIF:** GIF stands for Graphic Interchange Format. GIFs also have an extremely limited color range suitable for the web but not for printing. This format is never used for photography, because of the limited number of colors. GIFs can also be used for animations.

- **PNG:** PNG stands for Portable Network Graphics. It was created as an open format to replace GIF, because the patent for GIF was owned by one company and nobody else wanted to pay licensing fees. It also allows for a full range of color and better compression.

5.9. Creation of simple HTML documents:

Program 1 : Simple program

```html
<html>
    <body>
    Hello world
    </body>
</html>
```

Program 2 : working with multiple Headings:

```html
<html>
    <body>
    <h1>This is heading 1</h1>
    <h2>This is heading 2</h2>
    <h3>This is heading 3</h3>
    <h4>This is heading 4</h4>
    <h5>This is heading 5</h5>
    <h6>This is heading 6</h6>
    </body>
</html>
```

Program 3 : inserting images on the web page:

```html
<html>
    <body>
    <img src="C:\Users\Anil\Pictures\DSC00287.JPG" width="104" height="142">
    </body>
</html>
```

Program 4 : program on linking web sites:

```
<html>
      <body>
      <a href="http://www.chanilkumar.weebly.com">Ch.Anilkumar</a>
      </body>
</html>
```

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