Introduction to Internet and WWW

The **Internet** is a global system of interconnected computer networks that use the standard Internet protocol suite (TCP/IP) to link several billion devices worldwide

How it works:

- The **Internet** is a worldwide collection of **networks** that links millions of businesses, government offices, educational institutions, and individuals. Data is transferred over the Internet using **servers**, which are computers that manage network resources and provide centralized storage areas, and **clients**, which are computers that can access the contents of the storage areas.
- The data travels over communications lines. Each computer or device on a communications line has a numeric address called an **IP** (Internet protocol) **address**, the text version of which is called a **domain name**. Every time you specify a domain name, a **DNS** (**domain name system**) **server** translates the domain name into its associated IP address, so data can route to the correct computer.

Ways to access the Internet:

- You can access the Internet through an Internet service provider or a wireless service provider. An **Internet service provider** (**ISP**) provides temporary Internet connections to individuals and companies. A **wireless service provider** (**WSP**) provides wireless Internet access to users with wireless modems or Web-enabled handheld computers or devices.

Dial-Up Internet

- With **dial-up access**, you use a computer, a modem, and a regular telephone line to dial into an ISP or OSP.

Broadband Cable Internet

- A **cable modem** provides high-speed Internet connections through a cable television network.

DSL [digital subscriber line]

- This provides Internet access by transmitting digital data over the wires of a local telephone network

Satellite Internet

- This is provided through communications satellites. Modern satellite Internet service is typically provided to users through geostationary satellites that can offer high data speeds, with newer satellites achieving downstream data speeds up to 15 Mbps

Advantages of Internet

- Ability to do research from your home versus research libraries.
- Friendships and love connections have been made over the internet by people involved in love/passion over similar interests.
- News, of all kinds is available almost instantaneously. Commentary, on that news, from every conceivable viewpoint is also available.
- Platform for products like SKYPE, which allow for holding a video conference with anyone in the world who also has access.
- Things such as Yahoo Answers and other sites where kids can have readily available help for homework.

Disadvantages of Internet

- Pornography that can get in the hands of young children too easily.
- Hackers can use the internet for identity theft.
- Easy to waste a lot of time on the internet.
- There is a lot of wrong information on the internet.
- Hackers can create viruses that can get into your personal computer and ruin valuable data.

Internet Service Provider (ISP) -

- An Internet Service Provider is the company that provides the technical aspects of connecting computer(s) to the internet and providing internet services to end users.
- Uganda ISPs include:
- Uganda Telecom,
- Airtel,
- MTN, Africell
- UTL etc

The services offered by the ISP

- ISP offers Internet connection to the end users
- Hiring storage space to small organisations.
- Provides network security
- Website hosting

Factors to consider when choosing ISPs

- Speed/Performance of ISP should be adequate for number of computers sharing the Internet connection.
- The ISP security systems setups available to ensure that your connectivity is safe
- Price; Choose an ISP with affordable rates after agreeing with the terms and conditions
- Compatibility – That the speed of their modems and their software matches the speed of yours
- The type of services the ISP provides e.g. Wireless access services *(WiFi)*, Cables specially in rural places are limited.

What Factors Affect The Speed Of An Internet Connection?

- Computer Processor speed
- Distance the data travels
- Heavy traffic on the network
- Modem speed
- Natural conditions such as stormy weather and thunder, which interfere with the transmission of signals.
- Malware, Spyware and Viruses

The world wide web (WWW)

- The most widely used service on the Internet is the World Wide Web. The **World Wide Web** (**WWW** or **Web**) consists of a worldwide collection of electronic documents called **Web pages**.
- A collection of related web pages is called a **website**
- There are many application programs called web browsers that enable the users to access the world wide web
- **A web browser** is an application software or program designed to enable users to access, retrieve and view electronic documents and other resources over the internet

Examples of browsers;

- Firefox
- Internet explorer
- Chrome
- Safari
- Opera
- Netscape
- Each Web page has a unique address, called a **URL** (**Uniform Resource Locator**) that tells a browser where to locate the Web page.
- A URL consists of a protocol, domain name, and sometimes the path to a specific Web page or location on a Web page. Most URLs begin with **http://**, which stands for **hypertext transfer protocol**, the communications standard that enables pages to transfer on the Web.

- The domain like google.com, mak.ac, whitehouse.gov etc which identifies the host that holds the resource. This is made up of top-level domain e.g .com,.ac, .gov etc

Types of top level domain

.com	commercial
.org	Non profit organization
.ac/.edu	Higher education
.gov	Government agency
.mil	Military organisation

Search for information on the Web

- **Search engine** is the program that is used to search for documents over the world wide web
- A **search engine** is a software or program that is used to find Web sites or Web pages and Internet files by entering a relevant word or phrase, called **search text** or **keywords**, in the search engine's text box.
- Any Web page that is listed as the result of the search is called a **hit**. Each hit is a link that can be clicked to display the associated Web site or Web page.
- **Examples of search engines;**

Google, Ask, Bing , Yahoo! Search , Aol search, Wow , WebCrawler

Types of websites

1. Personal websites

- This is maintained by a private individual who normally is not associated with any organization.
- The websites may include family photos and an online diary

2. News websites

- These provide access to online news over the web.
- They may offer breaking news and provide update news to its subscribers
- These include yahoo news, CNN google news etc

3. Informational websites

- These websites enable information and resource sharing over the web
- The most common informational website is the wikipedia.org, an online encyclopedia

4. business/marketing Web page

- These contain content that promotes or sells products or services

5. Social networking websites

- These websites build online communities of people who share common interests and interact with others socially and create friendships
- The users of this website create a user profile that is publically accessed by all other users
- Examples include Facebook.com, twitter, WhatsApp, mySpace.com

6. wiki

- This is a website that allows a group of individuals to create and edit content via a web browser and then develop one document for all
- Wikis are powered by wiki software

7. blog

- It is a regularly updated website or web page typically one run by an individual or small group that is written in an informal or conversational style.

Netiquette

Netiquette, which is short for Internet etiquette, is the code of acceptable behaviours users should follow while on the Internet. Rules for e-mail, newsgroups, and chat rooms include:

1. Keep messages brief and use proper grammar and spelling.
2. Be careful when using sarcasm and humour.
3. Be polite and avoid offensive language.
4. Avoid sending **flames** (abusive messages) and **spam** (unsolicited junk mail).

5. Do not use all capital letters, which is the equivalent of SHOUTING!
6. Use **emoticons** (such as :) for smile) to express emotion.
7. Use abbreviations (such as BTW for by the way) for popular phrases.
8. Clearly identify a **spoiler**, which is a message that reveals a solution to a game or an ending to a movie or program.
9. Read the **FAQ** (frequently asked questions) document.
10. Do not assume all material is accurate or up-to-date.
11. Never read someone's private e-mail.

Services offered by the internet

E-COMMERCE

E-commerce an acronym for electronic commerce is a business transaction that takes place over the internet

Communication services

These services include

- e-mail,
- video teleconferencing,
- Newsgroup,
- Instant Messaging
- Chat room

E-mail

- E-mail or email an acronym for electronic mail is the sending of electronic messages over the internet, from the sender to one or more recipients (the receiver)
- For the message exchange to occur, both the sender and the receiver need to have the e-mail address e.g. *kingsway@gmail.com*

Advantages of email communication

- One can quickly communicate with anyone on the internet since email reaches its destination very fast
- The cost of sending email message does not depend on the distance and the size of the message
- One can read or work with the email at his or her convenient time
- You do not need to be shy about using email to communicate with anyone.

disadvantages

- It is difficult to express emotions while using email since there is no face to face contact.
- Email communication is not necessarily private since messages are passed through several systems or networks where sometimes emails are intercepted and read
- You can receive too much or unwanted email. These unwanted emails over the internet are called *spams*
- Email messages and addresses can easily be forged .

How Does E-Mail Work?

- **SMTP (Simple Mail Transfer Protocol) Server:** moves e-mail over the Internet. decides which path an e-mail message will take . e-mail may be routed through several SMPT servers.
- **Mail server:** final destination server. stores the messages.
- **Mail Client Software or E-Mail Program:** software on your PC that communicates with the mail server.

- **POP (Post Office Protocol):** Download -mail from e-mail server. E-mail is stored and managed offline.
- **IMAP (Internet Message Access Protocol):** Leave e-mail on server. E-mail is managed by mail client.
- **MIME (Multipurpose Internet Mail Extensions):** Specifies how to encode non-text data, such as graphics and sound, so it can travel over the Internet.

E-Mail Addresses

- **Email Address:** Uniquely identifies an individual or organization that is connected to the Internet.
- **Parts of email address:**
  1. **User name** –This is the unique name that identifies person from others.

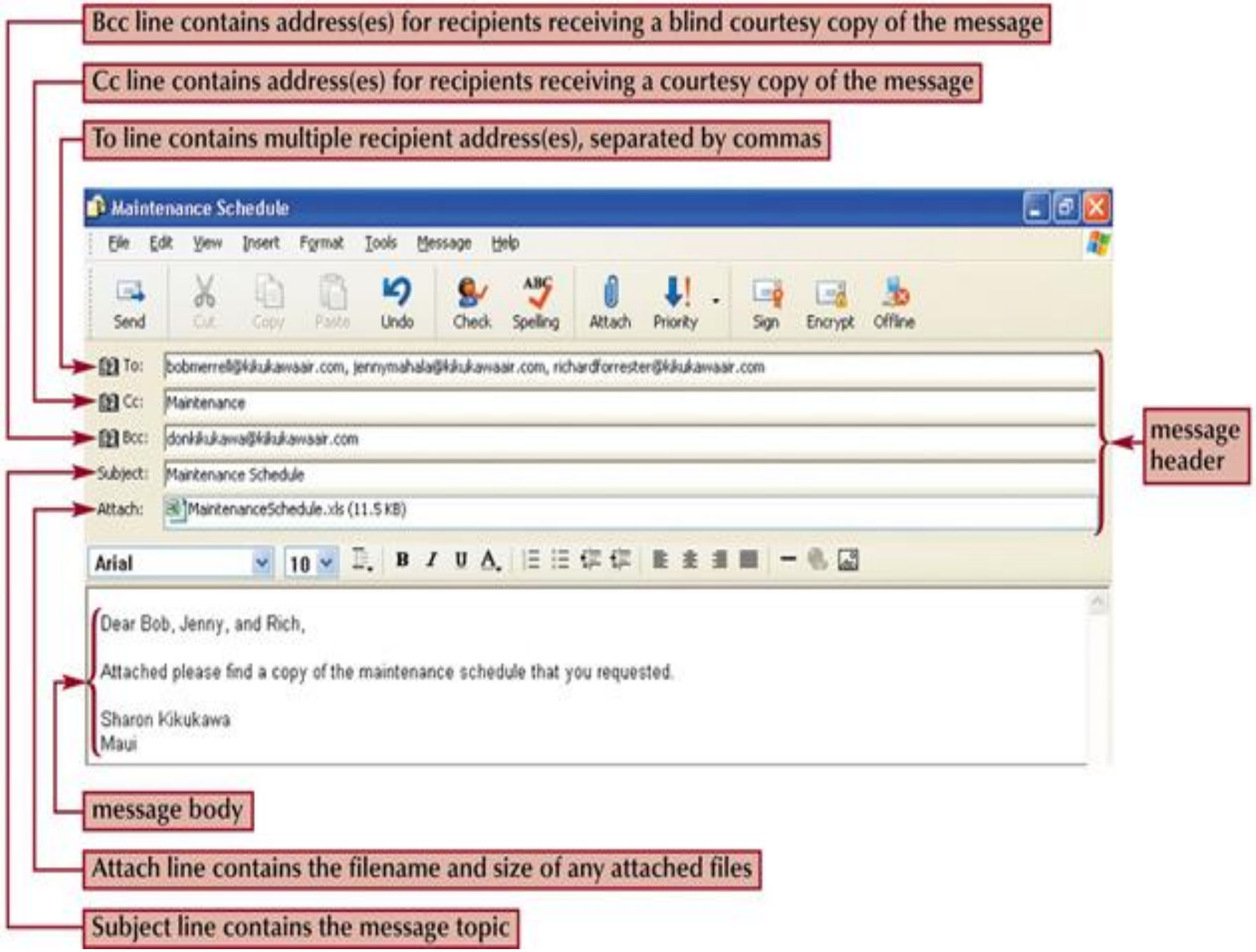
2. **Host name/Domain** –it consists of the mail server and the top-level domain. The mail server is the server hosting the email account. E.g. Yahoo uses yahoo, while Gmail uses "Gmail" as the server name. The top-level domain is the extension, such as .com, .net or .info which specifies the computer to which the email is to be delivered.

3. The two are separated by an "at" sign(@)

E.g. *kingsway@gmail.com*, *kanti@yahoo.com*

Common Features of an E-Mail Message

- **Message Header:** contains the information about the message e.g. sender, recipient, subject, Cc
- **Message Body:** contains the actual message.
- **Signature:** appears at the bottom of your e-mail messages and contains standard information about yourself that the recipient can use to contact you in a variety of ways.


Bcc line contains address(es) for recipients receiving a blind courtesy copy of the message
Cc line contains address(es) for recipients receiving a courtesy copy of the message
To line contains multiple recipient address(es), separated by commas
Maintenance Schedule
File Edit View Insert Format Tools Message Help
Send Cut Copy Paste Undo Check Spelling Attach Priority Sign Encrypt Offline
To: bobmerrell@kikukawaair.com, jennymahala@kikukawaair.com, richardforrester@kikukawaair.com
Cc: Maintenance
Bcc: donkikukawa@kikukawaair.com
Subject: Maintenance Schedule
Attach: MaintenanceSchedule.xls (11.5 KB)
Arial 10
Dear Bob, Jenny, and Rich,
Attached please find a copy of the maintenance schedule that you requested.
Sharon Kikukawa
Maui
message header
message body
Attach line contains the filename and size of any attached files
Subject line contains the message topic

- You type the recipient's full e-mail address in the **To line** of an e-mail header.
- Use the **courtesy copy (Cc) or Carbon copy** and the **blind courtesy copy (Bcc) or blind carbon copy** lines to send mail to people who should be aware of the e-mail message, but are not the message's main recipients.
- No recipient can view the list of **Bcc recipients**.
- The **From line** of an e-mail message includes the sender's name.
- In a **mailing list**, a single e-mail address can represent several e-mail addresses.

- The **Subject line** should indicate the message's content and importance.

- An e-mail **attachment** provides a simple and convenient way of transmitting electronic documents to one or more people.

- Attachments can contain **viruses**, malicious programs that can harm your computer and its files. Therefore, it is advisable to always first do virus scan before downloading and opening the attachment

The Internet Protocols

A protocol is a set of rules that governs the communications between computers over internet or a network.

These include:-

1. TCP/IP:(Transmission Control Protocol and Internet Protocol)

- It provides means to allows two software on difference machines on the Internet find each other, assemble, and transfer data.
- It provides the essential service of making sure that each piece of data is transferred in the correct sequence and without error.

2.**FTP:(**File transfer protocol)

Is a protocol used to transfer data from one computer to another over the internet or through a network.

3.SMTP: (simple mail transfer protocol)

A protocol to allow two users to communicate through e-mail messages over the Internet.

4. HTTP (Hypertext transfer protocol)

A communication protocol used to transfer or convey information over the world wide web.

5. **HTTPS** (Hypertext transfer protocol secure) provides a secure means of information transfer over the web.

Cloud Computing

- This is the practice of storing regularly used computer data and programs on servers than can be accessed through computer network or internet
- Examples include:
- Dropbox, sky drive, google drive, icloud etc

Advantages of cloud computing

- One can access his information from any where he or she has connection to the internet
- Less expensive compared to purchasing hard drives
- It has backups incase one's computer crushed
- With permissions, others can acces, view and modify one's document.

Disadvantages

- Since information is stored via the internet, there is good chance for hackers to reach one's information easily
- When internet services are down, u can not get access to the document
- Uploading and downloading large files may take long time