INTRODUCTION TO INTERNET APPLICATION PROGRAMMING TERMINOLOGIES

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Key Terminologies:

- Computer network
- Intranet
- Extranet
- Internet
- Website
- Hyperlink
- Web browser
- URL (Universal Resource locator)
- Web content
- HTML

- **What is a computer network?**

A computer network is a group of connected computers that use a set of common communication protocols over digital interconnections for the purpose of sharing resources located on or provided by the connected devices.

- **Communication protocols/ network protocols**: the rules that govern communication between connected devices in a network.

○ Examples of communication protocols include:

1. **FTP** (File Transfer Protocol): allows the transfer of files from one DTE to another via a network.

2. VOIP (Voice Offer Internet Protocol): allows Internet users to make audio calls over the Internet.

3. **SMTP** (Simple Mail Transfer Protocol): facilitates the sending and receiving of email messages over a network.

4. **IP** (Internet Protocol): uniquely identifies a DTE connected to a network using an IP address.

5. **POP** / **POP3** (Post Office Protocol): helps network users download email messages via a network.

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- **HTTP** (Hyper Text Transfer Protocol): HTTP is a protocol designed to transfer information between computers over WWW (World Wide Web).

- HTTP is used for transferring website information like document, file, image and video between computers over the Internet.

- **Research question**: describe the functions of the following protocols:-

1. TCP (Transmission Control Protocol)
2. IMAP (Internet Message Access Protocol)
3. TCP/ IP

Uses of networks in an organization

- Communication
- Resource sharing
- Cost reduction
- To improve organization business processes (activities) efficiency and accuracy
- Improve business productivity
- Information backup
- To achieve and sustain competitive advantages

Summary: Types of computer networks:

Types of networks

Description Features	LAN (Local Area Network)	WAN (Wide Area Network)
Network Ownership	Private	Public
Data transmission speed	high	Relatively low
Data and information security	high	low
Geographical coverage area/ Distance covered	limited	unlimited
Communication media required	Either guided or wireless	Fiber Optic media
Implementation and maintenance expenses	cheaper	expensive

- **Forms of LANs**
- **Intranets**: a privately owned organization network that is accessed by the internal entities within the organization.
- An intranet is a private network contained within an enterprise that is used to securely share company information and computing resources among employees. An intranet can also be used to facilitate working in groups and teleconferences.

- **Extranets:** a privately owned organization network that grants access to internal organization entities and **selected** external entities surrounding the organization such as customers, business partners, suppliers, the government etc.

Review questions:

1. Discuss four uses of intranets in an organization
2. Explain **three** benefits of organizational extranets

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What is the Internet?

1. The Internet is a global wide area network that connects computer systems across the world

2. It is a network of networks that consists of different types of computer networks. It is a public network therefore anyone can access the Internet

3. A global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols.

Note: There is a difference between **I**nternet and **i**nternet terms.

internet refers to a series of networks owned by two or more organizations and set up to communicate with each other. However, an internet can be connected to the Internet.

Requirements for connecting to the Internet

1. **Internet Service Provider (ISP):** ISP refers to a company or organization that offer Internet connection services at a fee. Examples of ISPs in Kenya include Safaricom, Zuku, Airtel, Orange etc.

Factors to consider while selecting ISPs

1. Internet connection charges
2. Network coverage
3. Network connection efficiency
4. Connection reliability
5. Availability of after sale services
6. Bandwidth (unlimited)

Continuation... Internet connectivity requirements:

- Data Terminal Equipment (DTE):
- Communication media: either guided or wireless)
- Modem (Modulator Demodulator): signal modulation and signal demodulation
- Web browser: what is a web browser?

1. Web browser is set of instructions that act as an interface between the Internet user and the Internet.

2. A communication software used to view and download Web pages and various types of files such as text, graphics and video. Examples are Microsoft Internet Explorer , Netscape Navigator, Google chrome, Firefox etc.

- Communication protocols/ networking protocols

Uses of Internet technology to an organization

1. Cost reduction
2. Selling and marketing (E-commerce) –(website):web page
3. Telecommuting / telneting (working remotely)
4. Communication
5. Information research
6. Resource sharing (through cloud computing)
7. Expand market segment (target wide range of customers therefore generating increased sales of products and services)

Limitations of Internet technology

- **Digital divide**: The Internet technology tends to accelerate the digital divide rather than bridging the gap between the "rich and poor"

- High installation and maintenance expenses

- **Security and privacy issues**: the Internet is vulnerable to insecurity issues such as hacking, cracking, malware (Malicious Software's) such as computer viruses, loss of data integrity, loss of information confidentiality etc. therefore, there is need to institute security controls to overcome such security threats.

- **Network failure:** - the network may fail and thus the Internet services may be brought to a stand still for some time. Therefore, there is need to have technical backup to bring the network services back to the intended cost

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- **Definitions of Website:**

1. A collection of different but related web pages connected using hyperlinks.

2. A group of World Wide Web pages usually containing hyperlinks to each other and made available online by an individual, company, educational institution, government, or organization

3. A set of related web pages located under a single domain name.

- **What is an hyperlink?**

Hyperlink refers to a graphical image or textual information on a website that allows the user to navigate from one webpage to another or from one website to another.

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Web browser: set of instructions that act as an interface between the Internet user and the Internet. Examples of web browsers include internet explorer, Mozilla Firefox, Netscape navigator etc.

HTML(Hyper Text Markup Language): a language used to create webpages. "Hypertext" refers to the hyperlinks that an HTML page may contain while "Markup language" refers to the way tags are used to define the page layout and elements within the page.

- **Definition of Web content**

1. Web content refers to the content published on a website.
2. Web content is the textual, visual, or audio content that is encountered as part of the user experience on websites.

- Web content is the key behind traffic generation to websites. Creating engaging content and organizing it into various categories for easy navigation is most important for a successful website

- Web content may include:

1. Text
2. Images
3. Sounds
4. Videos
5. Animations.

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URL (Universal Resource Locator):The electronic address of a website or web page.an example of URL for KCAU website:

https://www.kca.ac.ke/

Research questions:

1. With the aid of an example, explain the components of a URL

2. Differentiate between absolute address and relative address as used in websites