Military Technological College

FPD COMPUTING

WORKBOOK-II[CA2]

MODULE CODE: MTCG1015

Term – 1	AY: 2024-25	COMPUTING

MILITARY TECHNOLOGICAL COLLEGE

Delivery Plan - Year 2024-25 [Term 1]

Title / Module Code / Programme	Computing /MTCG1015/FPD	**Module Coordinator**	Ms. Rehana Anjum
Lecturers	TBA	**Resources & Reference books**	Moodle & Workbook
Duration & Contact Hours	Term 1: 5 hrs x 11 weeks = 55 hours		

WEEK No	Chapter	TOPICS	Hours	L O No
1	1	What is a Computer, Data, Information Basic Applications, Basic functional Blocks of Computer, Work of each Block Computer Components, Essential Computer Hardware, Input Unit, Storage Devices, Unit of data measurements, Primary storage devices Secondary storage devices, CPU	5	1
2	1	Output Unit, Motherboard, PSU, Ports Different types of computers Software, System software, Application software, Programming languages and software Software copyright, Omani data protection legislation, Install and uninstall software applications Minimum laptop computer configurations for students, Computer Ergonomics	5	1
3	2	Switching On the computer, Getting started with Windows 10, Working with files, Adjusting Computer settings, shutting down the computer, other ways to exit the computer properly, Ribbons, menus, and toolbars, File management. [CA1 until this topic] File Explorer, Working with files and Folders, Components of File explorer Malware	3	2
	1&2	Revision for CA1	1	1 & 2

	1&2	CA1 (20%) [Chapter 1] and [Chapter 2 until file management]	1	1 & 2
4	2	Password, Backing up of data	5	2
		Compress and Decompress Files and Folders, Formatting Storage Media, Built in help		
	3	Computer Networks, IP Address, Data transfer rate, LAN, WAN, MAN		3
		Advantages/Disadvantages of Using a Network, Intranet, Extranet, Internet, Brief history of Internet, Internet devices, Dial-Up, Broadband		
		WWW (World Wide Web), Web Browsers, Web servers		
5	3	URL, Domain, Using web, Search Engine	5	3
		Electronic mail, E-mail address structure, Parts of an E-mail message		
		Microsoft Outlook functionalities, How E-mail works		
		Moodle and Outlook, Conferencing,		
		VoIP, Instant messaging, Blogs, Things to be cautious about on the Internet, Risks to personal and organizational data		
6	3	How to protect data, Techniques to improve data security, Effects of IT on our lives and on Society [CA2 until this topic]	1	3 4
		Moodle file upload/download exercise		
		Microsoft Setting Exercise, MS Word Exercise 4.1	1	
	2&3	Revision for CA2	1	2&3
	2&3	CA2 (30%) [Chapter 2 and Chapter 3]	2	2&3
7	4	MS Word Exercise 4.1 (Cont.)	5	4
		MS Word Exercise 4.2		
		MS Word Exercise 4.3		
		MS Word Exercise 4.4		
8	4	MS Word Exercise 4.5	5	4
		MS Word Exercise 4.6		
		MS Word Exercise 4.7		6
9	5	MS Word Exercise 4.8	5	6
		MS Excel Exercise 4.9		
		MS Excel Exercise 5.1		

		MS Excel Exercise 5.2		
10	5 & 6	MS Excel Exercise 5.3	5	6
		MS Excel Exercise 5.4		
		MS Excel Exercise 5.6		
		MS Excel Exercise 5.10		
		MS PowerPoint Exercise 6.1		5
11	6	MS PowerPoint Exercise 6.2	5	5
		MS PowerPoint Exercise 6.3		
		MS PowerPoint Exercise 6.4		
		MS PowerPoint Exercise 6.7		
	4, 5 & 6	FINAL EXAM (50%) [Chapter 4, Chapter 5, and Chapter 6]	90 min	4, 5 & 6
		TOTAL Teaching hours	55hrs	

Indicative Reading	
Title/Edition/Author	ISBN
BASIC COMPUTER COURSE MADE SIMPLE (3rd Ed, 2016), Author: Satish Jain Publisher: Bpb Publications	ISBN – 13: 9788183334594 ISBN – 10: 8183334598
Computing Essentials 2021 Author: Timothy J. O'Leary, Daniel O'Leary, Linda I. O'Leary Publisher: Mc Graw-Hill	ISBN – 978-1-259-92127-8
MICROSOFT OFFICE INSIDE OUT: 2021 (Microsoft 365) EDITION Author: Microsoft Corporation, Ed Bott and Carl Siechert Publisher: Sebastopol, CA: O'Reilly Media, Inc., 2013	ISBN – 9780735677562
WINDOWS 11 FOR DUMMIES Author: Andy Rathbone Publisher: Hoboken, NJ: Wiley, 2021	ISBN – 9781118134610
Fundamentals of Computer Science (1st Edition August 2023), Author: Dr. Mahalingam Palaniandi and Dr. R. Selvam Publisher: VR1 Publications	ISBN : 978-93-91332-78-5

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Assessment Plan (Passing Mark 50%)

Assessment	Mark
CA1	20%
CA2	30%
Final	50%
Total	100%

Attendance Policy

1. First warning: 10%
2. Second warning: 15%
3. Third warning: 20%

Chapter2: Basic operation and file management (Cont.)

File Explorer: File Explorer displays the hierarchical structure of files, folders, and drives on your computer. It's a built-in application of windows 10.

Working on Files and Folders:

- Create folders
- Create files
- Open an existing file
- Rename an existing file
- Save an existing file in a different format in a specific location
- Copy and paste files and folders
- Delete files and folders
- Searching files and folders

Class Activity: -

Complete the following activity to learn how to deal with the files and folders:

1. Create a folder on the Desktop and name it as 'Mails'.

   File Explorer → Click Desktop → Home Tab → Click New folder → Type the name 'Mails'.

2. Inside the Mails folder create MS Word file and name it as 'Cover letter'.

   Open MS Word application → Click Blank document
   On File menu →Click Save as → Click Browse → Browse the 'Mails' folder on Desktop
   Give File name 'Cover letter'
   Click Save

3. Open the 'Cover letter' file and type: 'Content of the cover letter goes here'.

4. Save the changes in the file.

   Select File menu → Click Save

5. Close the file.

   Click Close file button at the top right corner

6. Rename the 'Cover letter' file as 'Cover'.

   On the Word file click right mouse button → On the shortcut menu Click Rename → Name as 'Cover'

7. Open the 'Cover' file and save it as a PDF file in the following location.
   a. Save as PDF in 'D:\Important mails'

   Double click and open the 'Cover' file
   On File menu → Click Save as
   Browse the new location 'D:\Important mails'
   If the location is n1ot available, create the 'Important mails' folder in the D drive.
   Change the Save as type to PDF
   Click Save

8. Copy and paste the ‘Mails’ folder which is available on the Desktop into D:\Important mails.

On the Mails folder click right mouse button → On the shortcut menu click Copy Open ‘D:\Important mails’ folder In the “Important mails” folder click right mouse button and click Paste

9. Delete the ‘Mails’ folder which is available on the Desktop.

On the Desktop on the Mails folder, click right mouse button On the shortcut menu, click Delete

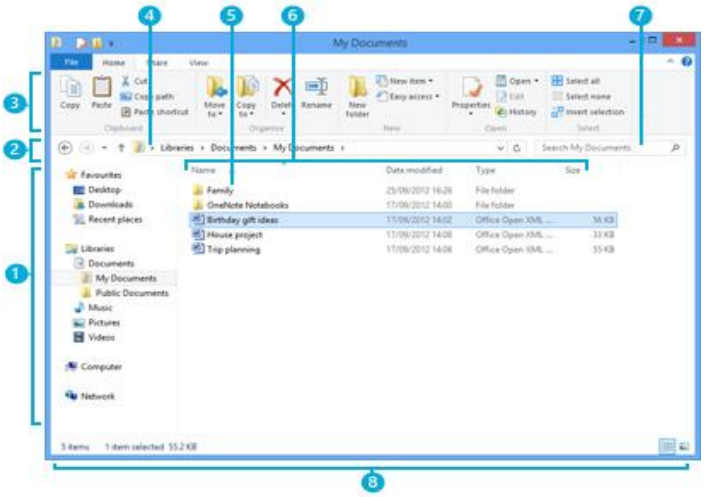
10. Recover the ‘Mails’ folder which is Deleted just now.

Open Recycle Bin on the Desktop On the Mails folder click right mouse button → On the shortcut menu click Restore Check the recovered folder on the Desktop

11. Search for ‘Cover’ file by using File Explorer search box.

Click in the Search box in File explorer and type the file name Click search button. Try different search options

Components of File Explore:

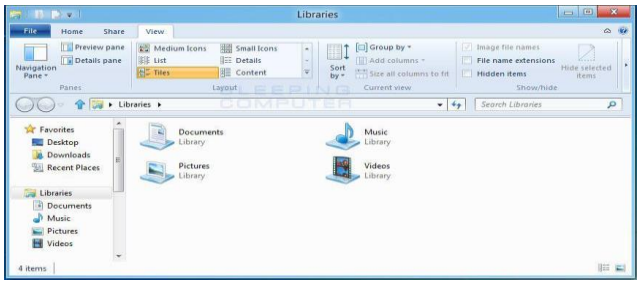


1. **Navigation pane:** Used to display common folders, such as Favorites, OneDrive, shared network, This PC, and Network, using a Folder list tree structure.
2. **Back, Forward & Up:** Used to navigate between previously viewed folders.
3. **Ribbon:** Used to access buttons or options organized in groups on tabs.
4. **Address bar** (shows the **file path**): Used to navigate directly to a different location, including local and network disks, folders, and web locations.
5. **File List:** Shows you the files and folders in the current folder.
6. **Column headings:** Titles of each of the columns displayed in the file and folder list.
7. **Search Box:** Use to perform instant searches, which show only those files that match what you typed in the Search box for the current folder and any of its subfolders.
8. **Status bar:** Displays information about a selected folder and its contents, such as the total number of items in the folder, the number of items selected and total file size.

File Path: The location of a file.

"C:\Users\Desktop\Site-logos\technastic-logo.png"

Change the View using the VIEW tab:



Answer the following question:

1. …… gives the hierarchical structure of files, folders and drives.
    a. File explorer
    b. Internet explorer
    c. Control panel

Malware:
It is short for "malicious software". Malware is any software intentionally designed to cause damage to a computer or computer network.

How does malware affect computers?

- Affect the efficiency of the computer. (Restart again and again, improper functions)
- Gathers sensitive information (passwords, credit card details)
- Files get corrupted
- Programs and files don't work properly
- Unknown files or programs randomly appear
- Takes up system resources (You have less available memory then you expected.)

Malware is most commonly delivered through the Internet and by email messages.

Most common types of Malwares:

- Viruses
- Worms
- Trojan horses

Viruses: A computer virus is a type of malware that propagates by inserting a copy of itself into, and becoming part of, another program. We call it infected file or infected program.

Almost all viruses are attached to an executable (.exe) file, which means the virus may exist on a system but will not be active or able to spread until a user runs or opens the malicious (infected) host file or program.

In order for a virus to infect your computer, you have to run the infected program, which in turn causes the virus code to be executed.

It spreads from one computer to another, leaving infections as it travels. Viruses can range in severity from causing mildly annoying effects to damaging data or software.

Worms: Computer worms are similar to viruses in that they replicate themselves and can cause the same type of damage. In contrast to viruses, which require the spreading of an infected host file, worms are standalone software and do not require a host program or human help to propagate. Worms take advantage of system features to travel through the network.

Trojan horses: A Trojan horse is another type of malware named after the wooden horse the Greeks used to infiltrate Troy. It is a harmful piece of software that looks legitimate (useful). Users are typically tricked into loading and executing it on their systems. After it is activated, it can achieve any number of attacks on the host, from irritating the user (popping up windows or changing desktops) to damaging the computer (deleting files, stealing data, or activating and spreading other malware, such as viruses).

Answer the following questions:

1. Computer viruses, worms and Trojan horses are commonly known as
    a. malware
    b. system software
    c. application software

2. Which of the following is not a malware?
    a. Bugs
    b. Trojan horses
    c. Worms

How to protect your computer from malware?

- Get anti-virus software.
- Make sure your anti-virus program is up to date.
- Scan the downloaded files before you open or play them.
- Don't open email attachments from unknown sources.
- Enable the firewall.

Popular antivirus software:

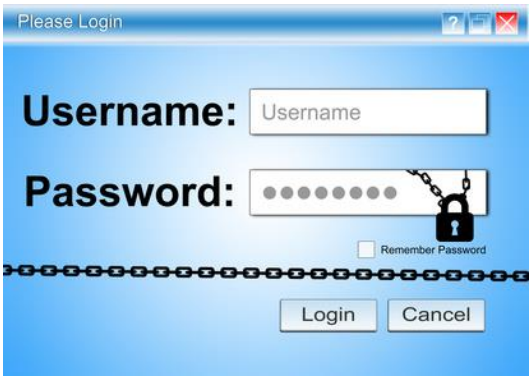
Norton Antivirus, McAfee Internet Security, Avira Antivirus Pro, AVG, Windows defender.

Privacy issues on personal data:

- There are different kinds of personal data stored in files and folders on computers. Examples include the date of birth, address, telephone numbers, bank account details, medical records of a person. In addition to that browsing history, financial information and current location are some examples.
- Some outside parties such as hackers, online marketing teams, enemies, and thieves, etc. are interested in your data. Those people have different strategies to take advantages of your data which may lead to social, legal and financial problems.
- So, your data must be kept confidential and should not let outside parties' view, modify or use them without your permission. Strong passwords and file access rights are some simple techniques to mitigate privacy issues in computing.

Password:

A secret series of characters that enables a user to access a file, computer, or program. The password helps ensure that unauthorized users do not access the computer. Ideally, the password should be something that nobody could guess (Strong password).



Password creation practices:

- Password must be at least eight characters long.
- Must contain a combination of at least three of the following characters:
  - uppercase letters
  - lowercase letters
  - numbers
  - symbols (punctuation marks)
- Must not contain the user's username or screen name

Password policy:

A password policy is a set of rules designed to enhance computer security by encouraging users to employ strong passwords and use them properly.

MTC password policy (under IT Systems Policy)

> 5.10 **Password Policy**
>
> Passwords are an important aspect of computer security. A poorly chosen password may result in unauthorized access and/or exploitation of the MTC resources. All users have to consider the following points:
>
> 1. Passwords must meet complexity requirements letters and Base 10 digits.
> 2. Minimum password length to be at least a value of 8 characters.
> 3. Maximum password age to expire passwords after 90 days.

Other security mechanisms similar to the password:

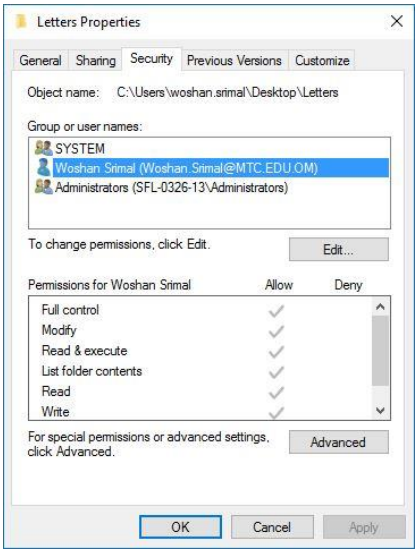
- Fingerprint
- Iris recognition
- Facial recognition

Answer the following question:

1. Which of the following statements is not correct about a strong password?
   a. Your password should not contain your username
   b. You may use only letters to make the password
   c. You must keep your password as a secret

File access rights (File permissions):

Operating systems control file access by setting permissions for files and folders. Permissions can be set to **allow access** or **deny access** to specific files and folders. When permission is allowed, you can access and perform any function on the file or folder. When permission is denied, you cannot access that file or folder. The permissions in Windows are Full Control, Modify, Read & Execute, List Folder Contents, Read, and Write. You can access these permissions by right-clicking on a file or folder, choosing Properties and then clicking on the Security tab.



What does each permission means in files and folders?

Permission	**Meaning for folders**	**Meaning for files**
Read	Allows viewing and listing of files and subfolders.	Allows reading the content of the file. (Accessing file's content)
Write	Allows to make new folders and add new files in the folder.	Allows to make changes in the content and save those changes.
Read & execute	Allows viewing the content of the folder and subfolders and execute files. (Run .exe program files)	Allows viewing and accessing the file content as well as executing of the file. (Run .exe program file)
List Folder Contents	Allows viewing list of files and folders as well as executing of files.	N/A
Modify	Permits reading and writing of files and subfolders; allows to delete the folder.	Permits reading and writing of the file; allows to delete the file
Full Control	Allows reading, writing, changing and deleting of files and subfolders.	Allows reading, writing, changing and deleting of the file.

Backing up of Data:

Backing up means copying files or data to at least one alternative medium (CD/DVD, HDD, USB flash drive or Cloud storage) as a precaution in case the first medium fails.

The additional copies are called ***backups***.

Why do we need to backup data?

- Storage media are not reliable.
- As a precaution in case the first medium fails, we must keep copies of data in another medium.

Answer the following question:

1. Backing up of data is ……
    a. copying files or data to same hard disk drive
    b. important to prevent from data losses due to hard disk failures
    c. not creating additional copies of data

Compress and decompress files and folders:

Compressed files take up less storage space. It can be transferred to other computers more quickly than uncompressed files. You can also combine several files into a single compressed folder.

- **To compress a file or folder:** On a PC, right-click the file or folder and choose Send To > Compressed (zipped) Folder.
- **To decompress:** Right-click the zipped file and select Extract All.

Answer the following question:

1. How can we make files smaller in size for sending/transferring to other computers?
    a. Cutting them
    b. Encrypting them
    c. Compressing them

Formatting storage media:

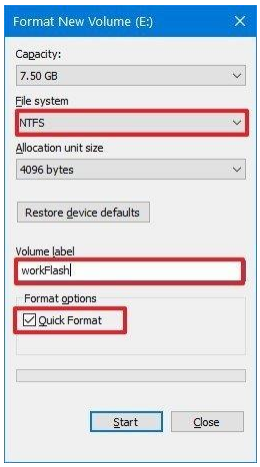
Formatting storage media is the process of preparing a data storage device such as a hard disk drive, floppy disk or USB flash drive for initial use. Formatting must be done with caution because it deletes data and removes programs installed. You must backup necessary data and applications before initializing the formatting process.

Formatting has the capability to erase bad applications and remove sophisticated viruses from the storage device.

How to format a USB flash drive using File Explorer:

To format a USB flash drive using File Explorer, use these steps:

1. Open **File Explorer**.
2. Click on **This PC** from the left pane.
3. Under the "Devices and drives" section, right-click the flash drive and select the **Format** option.
4. Use the "File system" drop-down menu and select the **NTFS** option.
   Quick tip: If you're planning to use the removable drive on Windows 10 as well as on macOS systems, you may want to select the **exFAT** option for compatibility. However, if you're also thinking about using the device on a Linux machine, **FAT32** is the best option, even though you'll be limited to 4GB file sizes.
5. In the "Allocation unit size" drop-down menu use the default selection.
6. In the "Volume label" field, type a label to quickly identify the flash drive in File Explorer. For example, **workFlash**.
7. Under the "Format options" section, select the **Quick format** option.
   Note: The "Quick format" option only deletes the file system table and the root folder, but the data may still be recoverable on the drive. If you don't check the option, a full format will take place, and it'll perform a scan for bad sectors and writes zeros in all sectors to delete the data. As a result, the process can take a long time depending on the size of the storage.



8. Click the **Start** button.
9. Click the **Yes** button.

<u>Answer the following question:</u>

1. Formatting storage media will …….
   a. save all the files in the drive
   b. delete all files from the drive
   c. make copy of the files in the storage media

Built in help:

Windows Help and Support is the built-in help app for Windows 8 and in Windows 10 the name of the app is Tips. It's a place to get quick answers to common questions, suggestions for troubleshooting, and instructions for how to do things.

How to get help in Windows 10:

- **Search for help** - Enter a question or keywords in the search box on the taskbar to find apps, files, settings, and get help from the web.
- **Tips app** - Find out what's new and see helpful tips on how to get the most out of Windows. Learn more about the Tips app.
- **support.microsoft.com** – Access support.microsoft.com/windows to find answers to more complex problems, browse support content in different categories, and contact support.
- **Get help** - Select the Get help link when you're in Settings to learn more about the setting you're using and find answers to your questions.

Chapter2 Exercises

A. Circle the right Answer:

1. Password policy is …….....
   (a) a set of rules which encourage users to use strong passwords
   (b) something relevant to file management
   (c) not an important thing

2. Disk drives are assigned with ……
   (a) Numbers
   (b) Letters
   (c) Both

3. What does ‘malware’ stand for?
   (a) Malfunction Software
   (b) Malicious Hardware
   (c) Malicious Software

4. Which is NOT a malware?
   (a) Bugs
   (b) Worms
   (c) Trojan Horses

5. Which of the following are **types of operations** that may be performed on the Folder?

   i. Create

   ii. Delete

   iii. Rename

   (a) i and ii only
   (b) i and iii only
   (c) All i, ii and iii

6. Which of the following are results of **malware infections**?

   i. Restart again and again

   ii. Gather sensitive information

   iii. Improve the performance

   (a) i and ii only
   (b) ii and iii only
   (c) All i, ii and iii

B. Answer the following questions:

1. Write one difference between Virus and Worms?

2. What is File Explorer program?

3. Give two examples of Antivirus program.

4. Give three ways to protect the computer from malware.

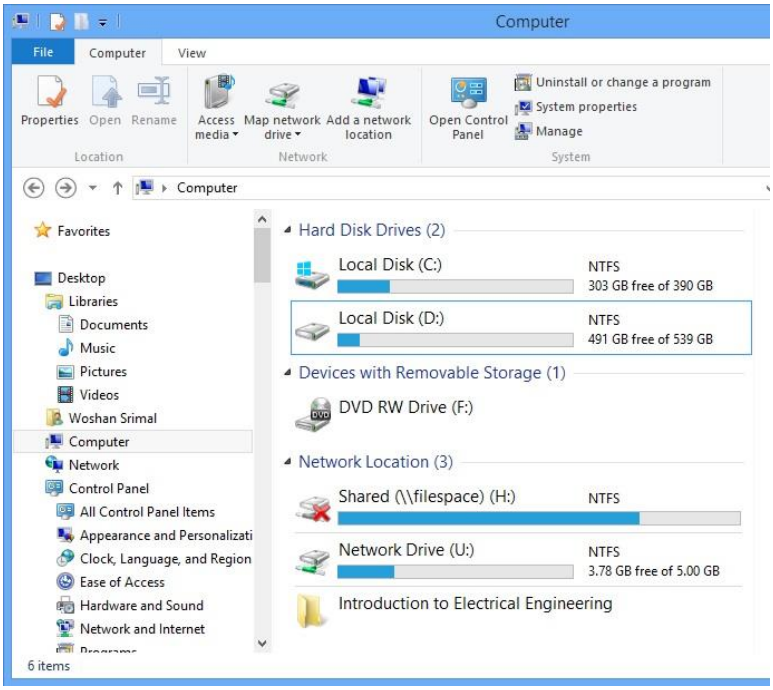
5. What is Compressing?

6. What is file path?

C. Fill in the blanks:

1. …… is a small picture that links to a file or program.
2. Malware is short form of …….
3. Backing up of data means ……
4. …… is the process of preparing a data storage device for initial use.

D. <u>Refer to the given image of the File Explorer, then answer the questions given below:</u>



1) How much **total free space** is available in the Hard Disk Drives? ……

2) If you want to **uninstall a software application** from this computer, where do you click? (Write the name of the command)

   ……..

3) Where can you click to change the **view** of the File Explorer? (Write the name of the **Tab**)

   ……..

4) How many **network locations** are available in this computer?

   …….

5) What is the **size** of the **U drive**? .....

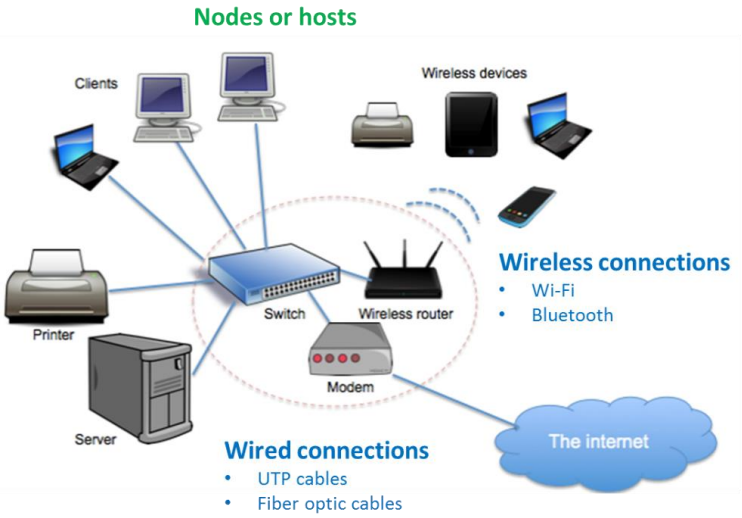
6) What kind of a **removable storage device** is available on this computer?

   .....

Chapter3: Using Internet

Computer network:
A collection of computing devices that are connected in various ways in order to communicate and share resources.

Connections between network devices can be wired or wireless.



Node or **Host** refers to any device on a network.

Examples: Computers, Printers, Scanners, Mobile Phones, Camera, etc.

IPv4 Address:

Internet Protocol (IP) addresses are used to individually identify all the computers in the Internet. The IP address is indicated in four values from 0 to 255 separated by a decimal point. This is called Dotted Decimal Notation.

Examples: 174.64.85.42

10.5.50.91

Answer the following questions:

1. A collection of interconnected computers is called …….
    a. Software
    b. Computer network
    c. Malware
2. The computers in a network can …….
    a. Share hardware devices like printers and cameras
    b. Share data and information
    c. Both a and b
3. Full form of IP (address) is ……

Data transfer rate:

This refers to the speed of data movements on a network. It is measured in bits per second (bps).

Measurement	Equal to
bps	Bits per second
Kbps	Thousand bits per second
Mbps	Million bits per second
Gbps	Billion bits per second

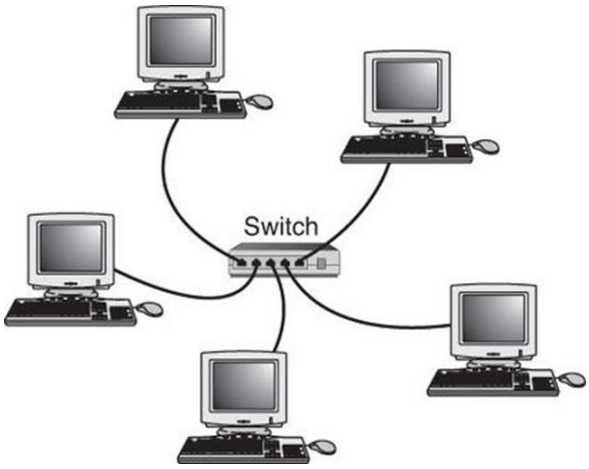
Answer the following question:

1. ……is a unit to measure how fast data is transferred from one location to another on network.
   a. kilometer
   b. bps
   c. Mile

Types of computer networks:
There are many different types of computer networks.

Examples: LAN, WAN, MAN.

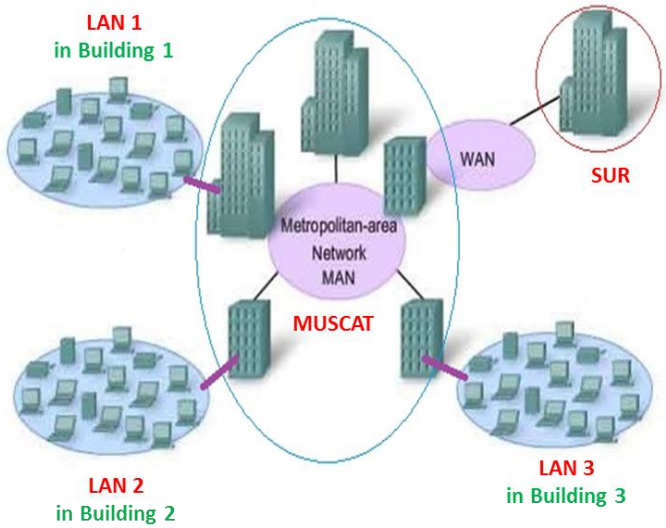
Local Area Network (LAN):
A network that connects a relatively small number of machines in a relatively close geographical area.



Example: A home network consisting of two computers and shared printer, a network of computers within a building.

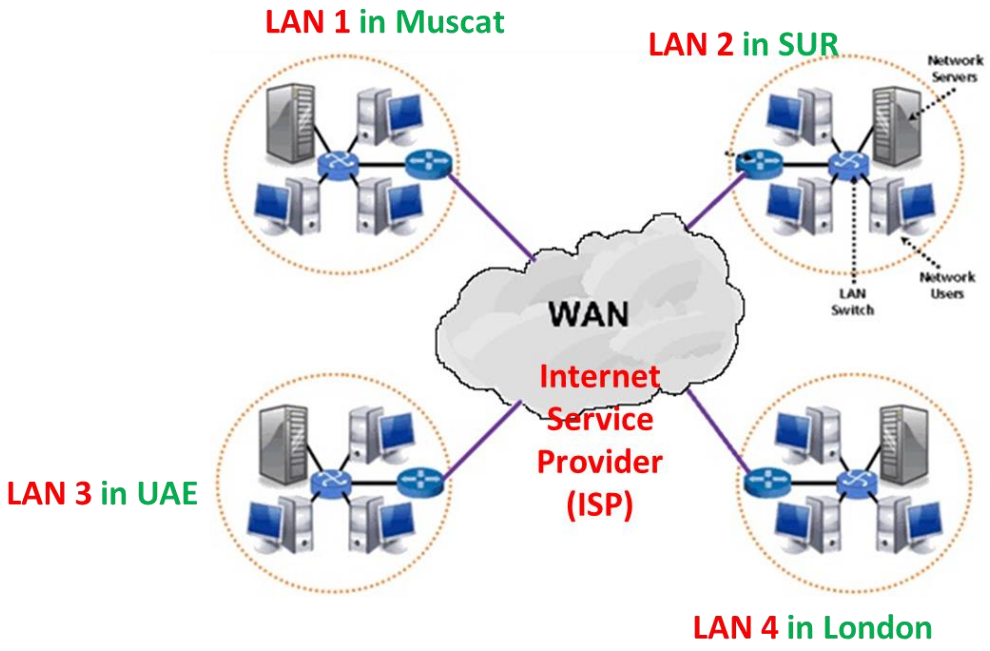
Metropolitan Area Network (MAN):
A metropolitan area network (MAN) is similar to a local area network (LAN) but spans an entire city or campus. MANs are formed by connecting multiple LANs. Thus, MANs are larger than LANs but smaller than wide area networks (WAN).

MANs are extremely efficient and provide fast communication via high-speed carriers, such as fiber optic cables.



Example: Interconnection of networks (LANs) in a city into a single larger network using backbone lines.

Wide Area Network (WAN):
A network that connects two or more local-area networks over a potentially large geographical distance, for example, a city, state or country.



Example: When two or more LANs are connected using a public network (Internet Service Provider or ISP).

Answer the following question:

1. Local Area Network (LAN) ……..…..
   a. is in a potentially large geographical area
   b. cannot share resources
   c. is a network that connects a relatively small number of computers

Advantages of using a computer network:

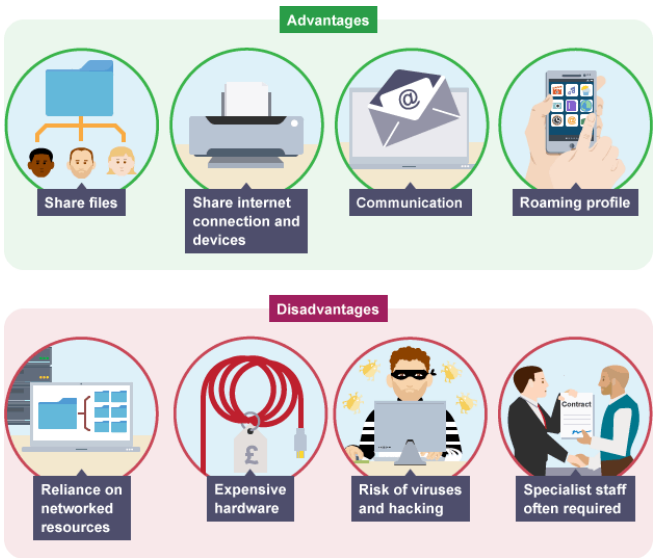
- File sharing
- Share network resources such as printers.
- Access Internet

Disadvantages and risks of using a computer network:

- People will be relying more of computer work, instead of exerting an effort for their tasks at hand.
- Expensive hardware required to set-up networks
- Specialist staff required to maintain networks

Risk associated with network computing:

- Viruses and other types of malwares can spread very quickly across networks
- Hacking computer systems
  - Unauthorized access to resources and data
  - Unauthorized modification on data
  - Stealing confidential data (theft)



Answer the following question:

1. Which of the following are the **advantages** of using a computer **network**?

   i. Sharing printer ii. Access Internet iii. Phishing

   a. ii and iii only

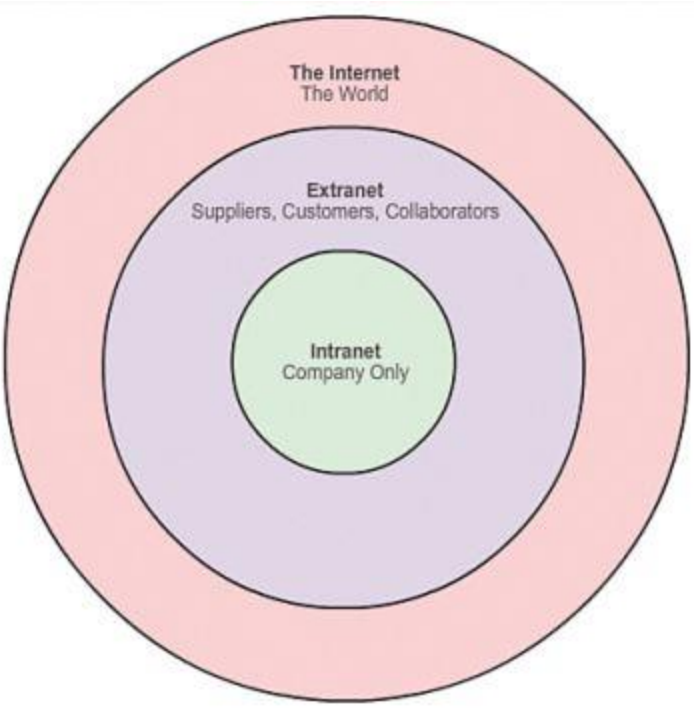
   b. i and ii only

   c. All i, ii and iii

Intranet:
A private/closed computer network within an organization is called Intranet. An intranet should be closed off to the general public and require a login for authorized users. (College network can be taken as an example).

Extranet:
An extranet is an extension of an intranet. It's the part of the intranet that outsiders can use. For example, an intranet may dedicate a number of servers for outsiders such as parents of the college students to login and pay tuition and look at student performance.

Internet:
The Internet is the largest computer network in the world. It is made up of millions of computers from all around the world, linked to each other by a network of telephone lines, cables and satellite connections. The Internet is the best-known example of a public WAN.

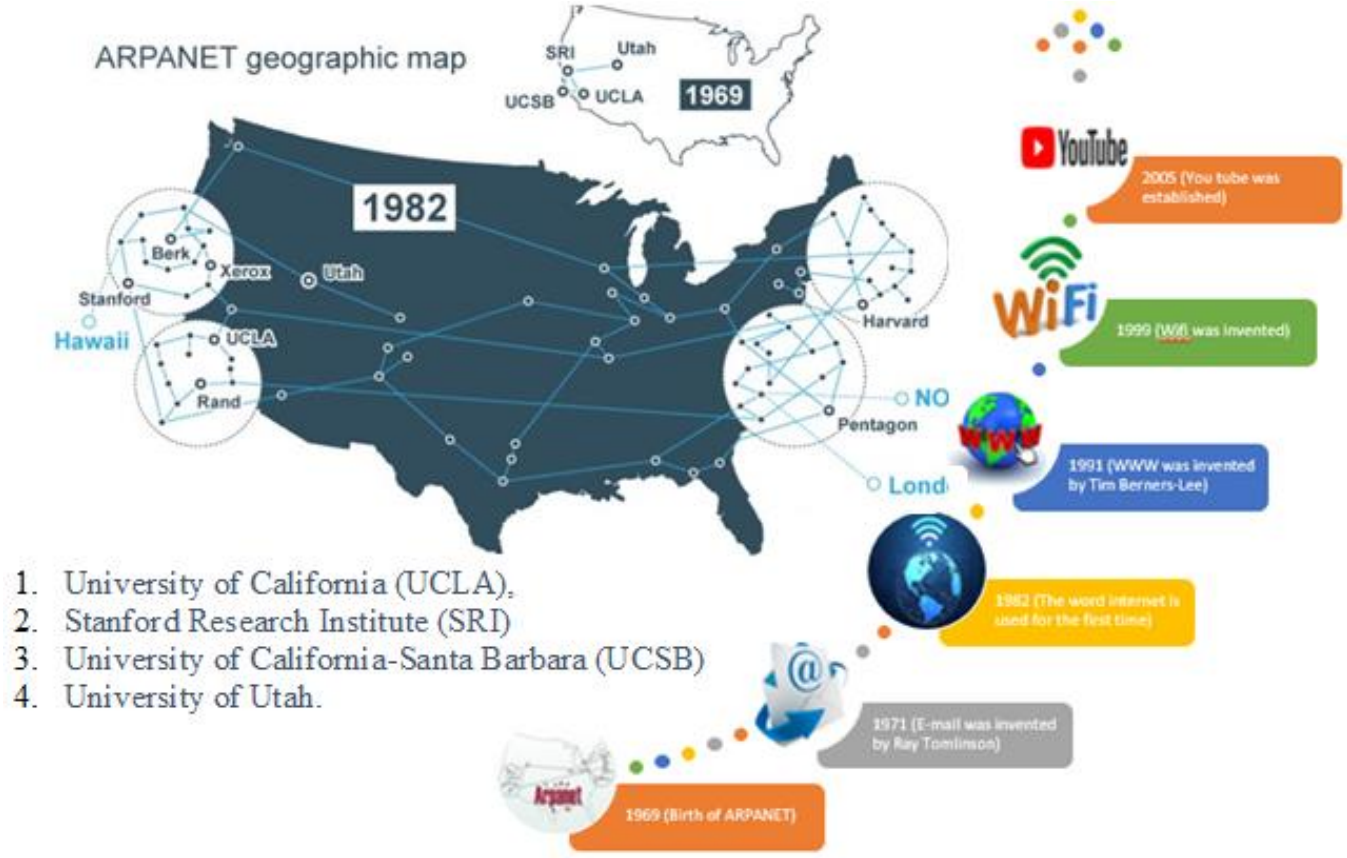


Answer the following question:

1. The Internet is …….
   a. a global network of interconnected computers
   b. a global protocol
   c. a global operating system

Brief history of Internet:

- ARPANET [Advanced Research Projects Agency Network] the originator of internet emerged in 1967 from U.S. Department of Defence.
- Within a decade it became the largest, most powerful and uncontrollable force in world.
- The term internet was first used in 1982 to refer to the enormous collection of inter-connected networks.
- World Wide Web (WWW) came into being in 1991.
- The internet society, a non-profit group was established in 1992.



Internet devices:

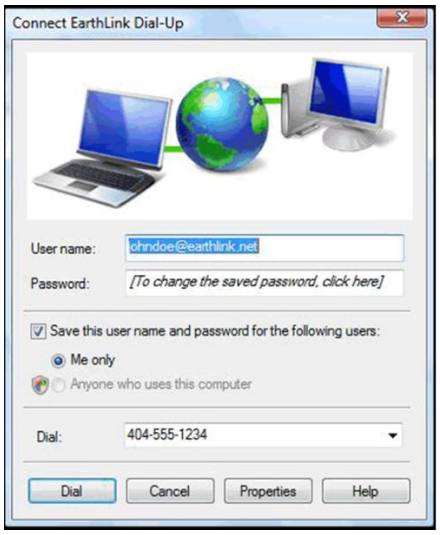
Common internet devices include Routers, Switches, Modems, Computers, Laptops and smaller lighter tablets. You can also access the web on internet-connected mobile phones and smartphones, on some game consoles, smart TVs, Cameras and even on Microphones.

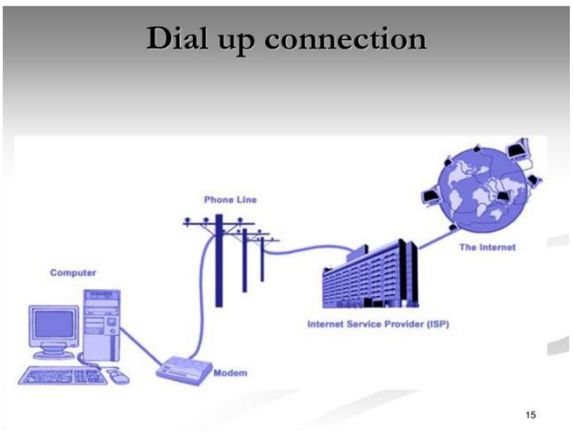
Internet access:

To access the internet, you'll need an internet connection. Internet Service Providers (ISP) provide Internet connections.

Internet connections can be **dial-up** or **broadband** (Direct connection). There are different ways to connect to the internet. **Dial-up** is an older, slower method that uses a phone line, while **broadband** encompasses various faster and modern methods that provide quicker and more reliable internet access, such as DSL, cable, fiber-optic, and satellite connections.

- **Dial-Up Connection:** Dial-up is an older type of internet connection that uses a telephone line to connect your computer to the internet. When you use dial-up, your computer dials a phone number using a modem (a modem is a device that translates digital signals from your computer into analog signals that can travel over phone lines). This connection is often slow and can tie up your phone line while you're online. It's not very common nowadays because of its slow speed and limited capabilities.
- **Broadband Connections:** Broadband, also known as a direct connection, is a faster and more modern way of connecting to the internet. It provides a higher data transfer rate, which means you can download and upload data much faster compared to dial-up. Broadband connections can come in various forms, such as Digital Subscriber Line (DSL), cable, fiber-optic, and satellite connections. These types of connections use different technologies and infrastructure to deliver faster and more reliable internet access.
  - **DSL:** DSL uses telephone lines but offers higher speeds than dial-up. It allows you to use the internet and make phone calls simultaneously.
  - **Cable:** Cable internet uses the same cables that provide cable television. It offers fast speeds and is widely available in urban and suburban areas.
  - **Fiber-Optic:** Fiber-optic connections use thin glass fibers to transmit data as pulses of light. This technology provides incredibly fast speeds and is becoming more popular in many areas.
  - **Satellite:** Satellite internet involves sending and receiving data to and from satellites in space. It's often used in rural or remote areas where other types of internet connections might not be available.





Fill in the blanks:

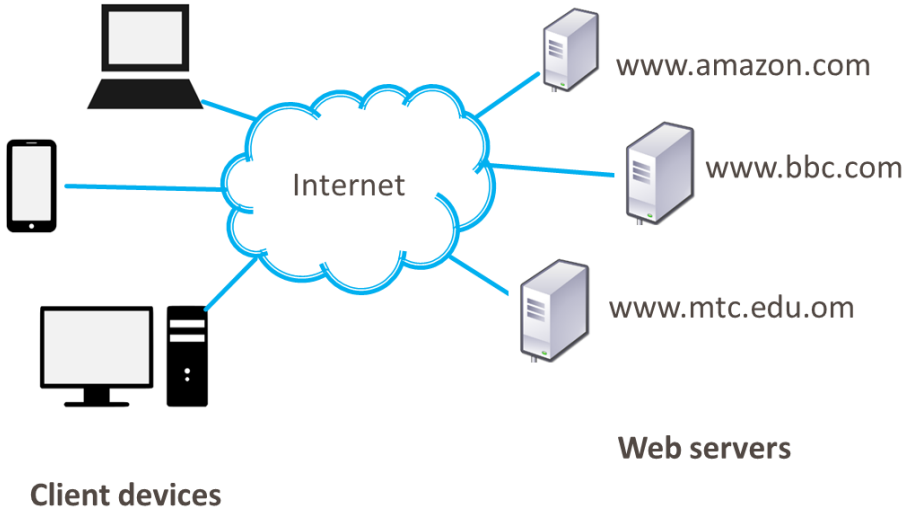
1. …….. Internet connection always uses only traditional telephone lines for connection.

2. Router is an example of …… (Internet device or Internet connection)

Internet Services:
Some major services are

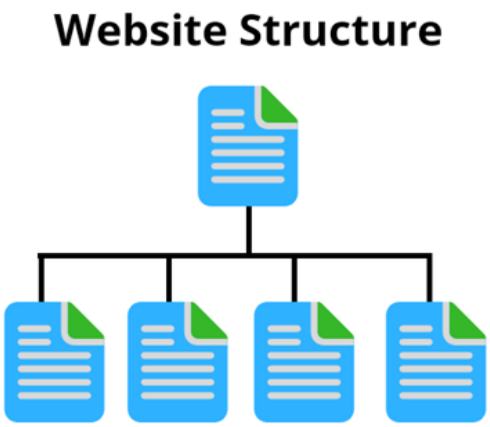
- World Wide Web (WWW)
- Electronic mail services
- Conferencing, VOIP, Instant messages, Blogs

WWW (World Wide Web):
WWW is a service delivered through the Internet. It consists of all the public websites connected to the Internet worldwide. It includes the client devices such as computers and cell phones that has access to web content.

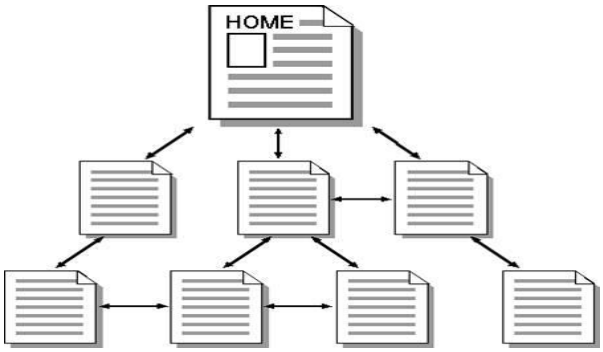


- The World Wide Web is based on these technologies:
    1. HTML - Hypertext Markup Language
    2. Web servers and Web browsers
    3. HTTP – Hypertext Transfer Protocol

Website:
A website is a collection of related web documents that are made available to the public.



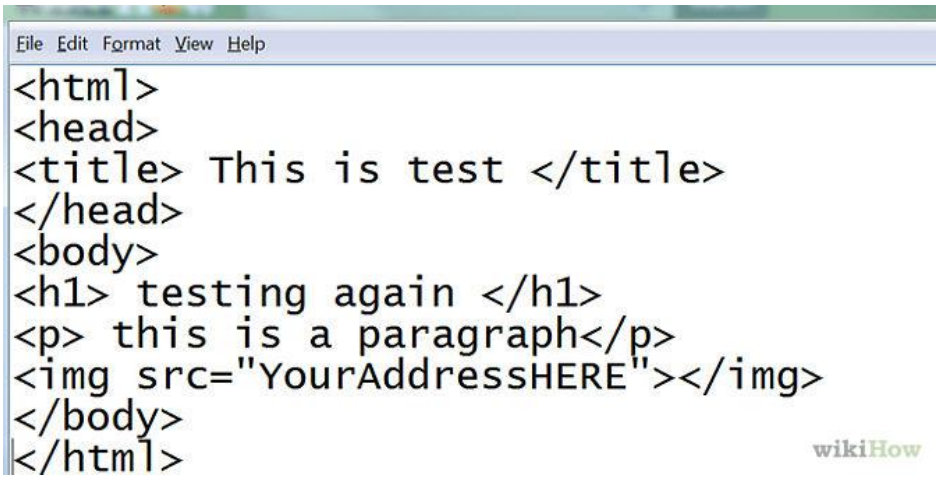
Home page:
Home page is the index page or beginning page of a website.



Hypertext:

- Hypertext is generally any text that contains links (hyperlinks) to other text.
- A **hyperlink** is a word, phrase, or image that you can click on to jump to a new page or a new section within the current webpage.

HTML (Hypertext Markup Language):
The coding language used to create documents (web pages) to use on the World Wide Web.



Fill in the blanks:

1. WWW consists of …… websites connected to the Internet. (public / private)
2. ……is a set of related web pages located under single domain name. (WWW / Website)
3. HTML stands for …….

Web Browsers:

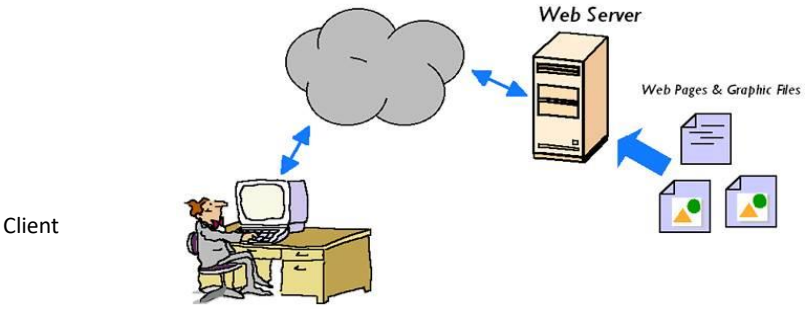
Browser is software you need in order to find, retrieve, view, and send information over the Internet. A user who uses WWW can access websites through a web browser.

Answer the following question:

1. Which of the following is a web browser?
   a. Windows Explorer
   b. Google Chrome
   c. MS Excel

Web Servers:

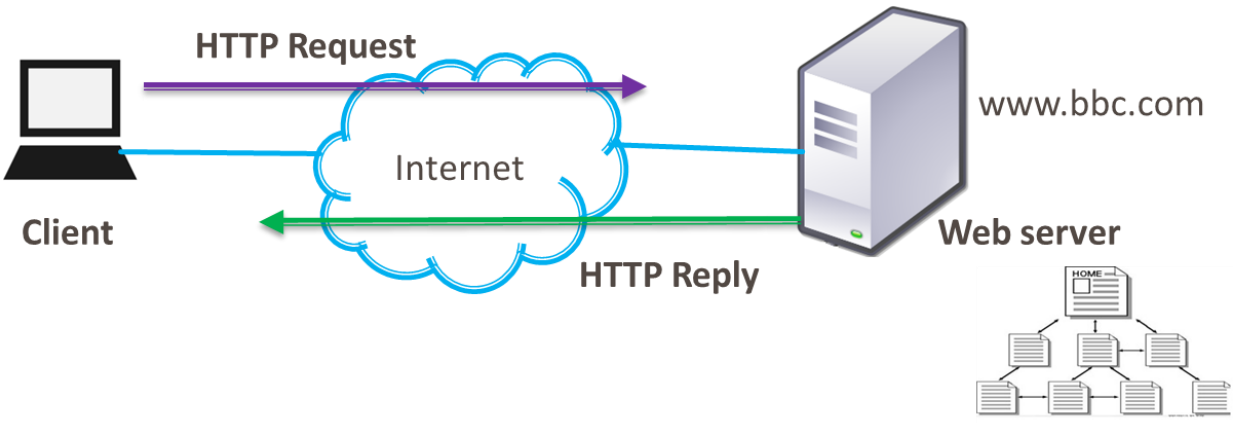
Web servers are computers that store and deliver (serves up) web pages. They respond to the requests of browsers (clients). Web servers find and send requested resources (web pages) back to the browsers.



Example: when the client requests the sports page of the BBC website (https://www.bbc.com/sport), the bbc.com webserver finds that page and sends it to the client.

HTTP (Hypertext Transfer Protocol):

HTTP is a set of rules (protocol) for exchanging (transmitting) files (text, graphic images, sound, video, and other multimedia files) in the World Wide Web.



Here HTTP protocol acts as a messenger for exchanging files between server and client. Client's request goes to the server as HTTP request and server sends requested data to the client as HTTP reply.

Answer the following questions:

1. The software used to access information on the **web (WWW)** is ……
   a. an operating system
   b. an office application
   c. a browser

2. …….. are computers that store and deliver web pages.

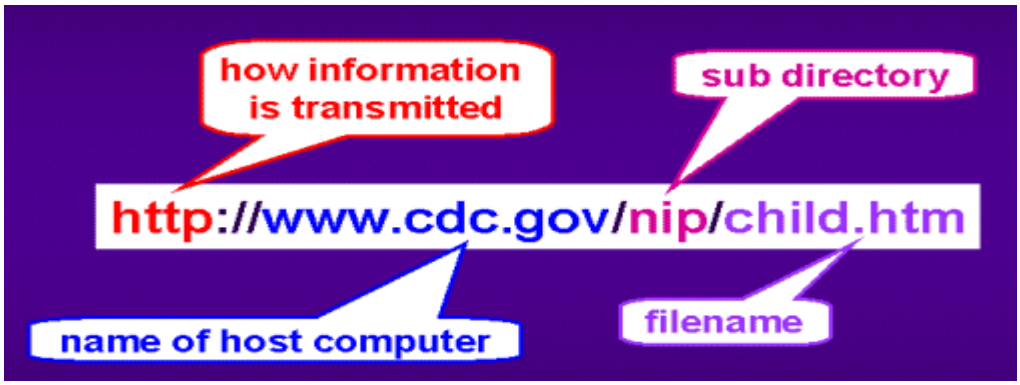
URL (Uniform Resource Locator):

The internet address that indicates which area of the Internet will be accessed depending on the Internet resource you are seeking. Internet resources can be webpages or other files.

http://www.microsoft.com/en-us/default.aspx

In the above given URL

- **http** is the protocol
- **www.microsoft.com** is the server
- **en-us/** is the path where the resource is located
- **default.aspx** is the filename of the page on the site



Examples of URLs:

https://www.mtc.edu.om/en/

https://mail.mtc.edu.om/owa/auth/logon.aspx

https://moodle.mtc.edu.om/

Fill in the blanks:

1. …… is termed as Web address. (VPN / URL)
2. ……. is a protocol used for transferring files on the Internet. (HTML / HTTP)

Domain:

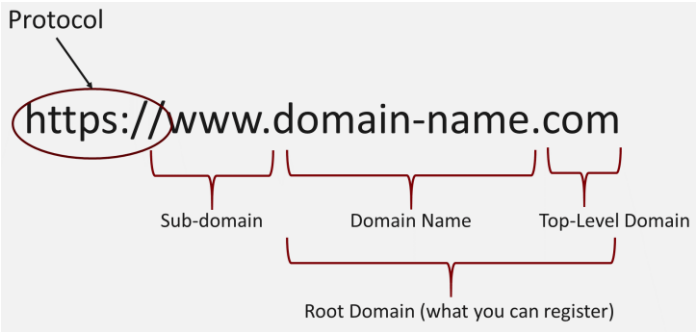
Domain names are used in URLs to identify particular web pages.

Example:

http://www.mtc.edu.om/index.html

In the above URL, the domain name is **mtc.edu.om.**

Here if you think about index.html name, you will realize the same name is available in the other websites too. But by using the domain name, which is unique to MTC, people on the Internet and other devices can quickly identify the index page belongs to MTC.



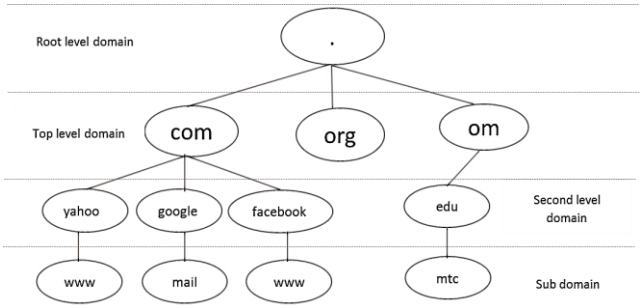
Every domain name has a suffix that indicates which top-level domain (TLD) it belongs to.

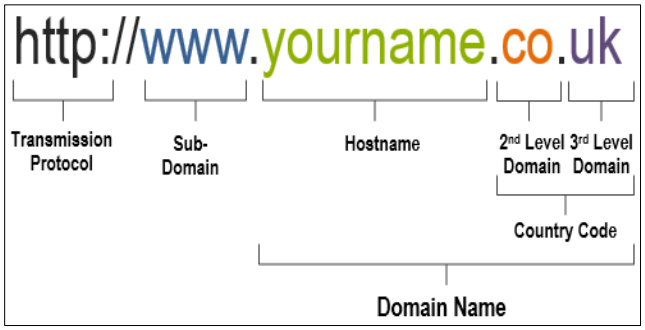
- .com—commercial enterprises
- .org—organisation site (non-profits, etc.)
- .int— organizations established by international treaty
- .net—network
- .biz—commercial and personal
- .edu—educational site (universities, schools, etc.)
- .info—commercial and personal
- .gov—government organizations

Fill in the blanks:

1. Domain name .edu is used for ……. sites.
2. Domain name .com is used for ……. enterprises.

Domain Tree:





Using web:

- **Browse** – Exploration of the web by following one interesting link to another. Just reading information on the web to find some information.
- **Search** – Exploration of the web definite in both objective and strategy. Search something specific (some information) on the web by using some method like search engine or other tool.
- **Download** – request a file from another computer (or from a web page on another computer) and to receive it.
- **Upload** – Send a file to another computer that is set up to receive it.

<u>Fill in the blanks:</u>

1. …… are used in URLs to identify particular web pages.
2. In 'www.mtc.edu.om' '.om' specifies …… (sub-domain / country code)

Search Engine:

Search engines are programs, which search documents for specified keywords and return a list of the documents where the keywords were found.

Some popular search engines:

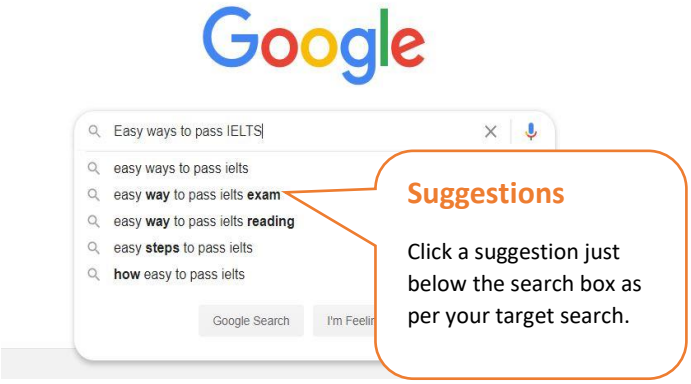
- Google
- Yahoo
- Ask
- MSN

Answer the following question:

1. Which of the following are examples of search engines?
    a. Safari, opera, Google chrome
    b. Gmail, Yahoo, Hotmail
    c. Bing, Yahoo, Google

Use Google search engine to find some information.

Step1: Go to google by typing www.google.com
Step2: Type what you're interested in finding into the search box on the Google web site.



Step 3: You will see a list of websites related to your key words and you can click the links and read the information.

Electronic mail (E-mail):

E-mail (short for electronic mail) is a way to transmit messages and files via a computer network or Internet. Files such as text, videos and pictures can be transmitted over the Internet as e-mail attachments.

In order to use email, you must have an E-mail account.

A user utilizes an email program to create, send, receive, forward, store, print and delete email messages.

An E-mail account can be provided by:

- ISP – Internet Service Provider
- School or organization
- Web based E-mail providers such as Gmail, Hotmail, Yahoo, Outlook

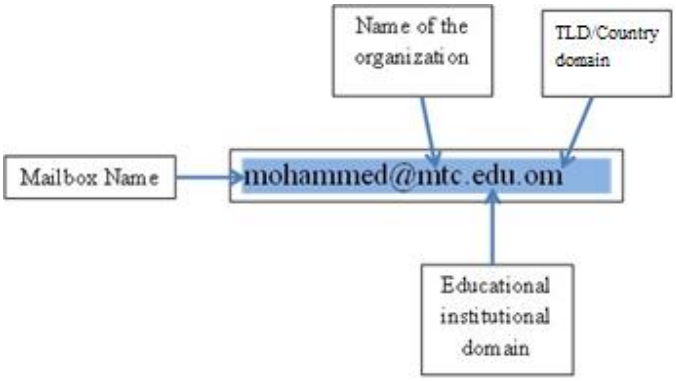
Advantages of E-mail:

- Speed
- Sharing information
- Easy access
- Collaborating with others
- Cost saving

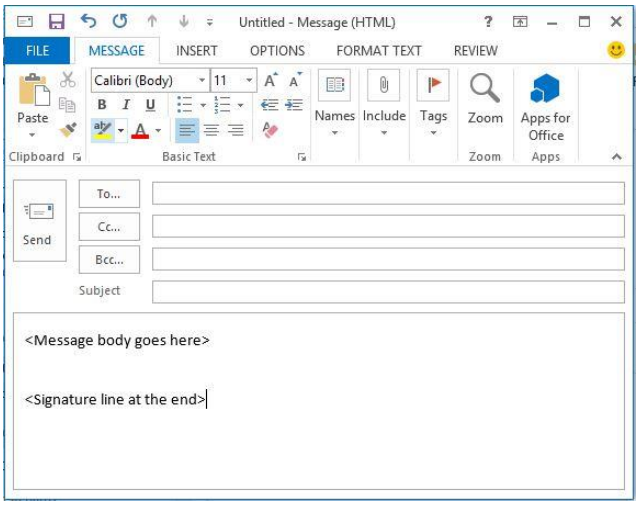
Answer the following question:

1. Which of the following is NOT true about e-mails?
    a. speed - quick delivery of messages
    b. can include pictures
    c. cannot spell check the message

E-mail address structure:



Parts of an E-mail message:

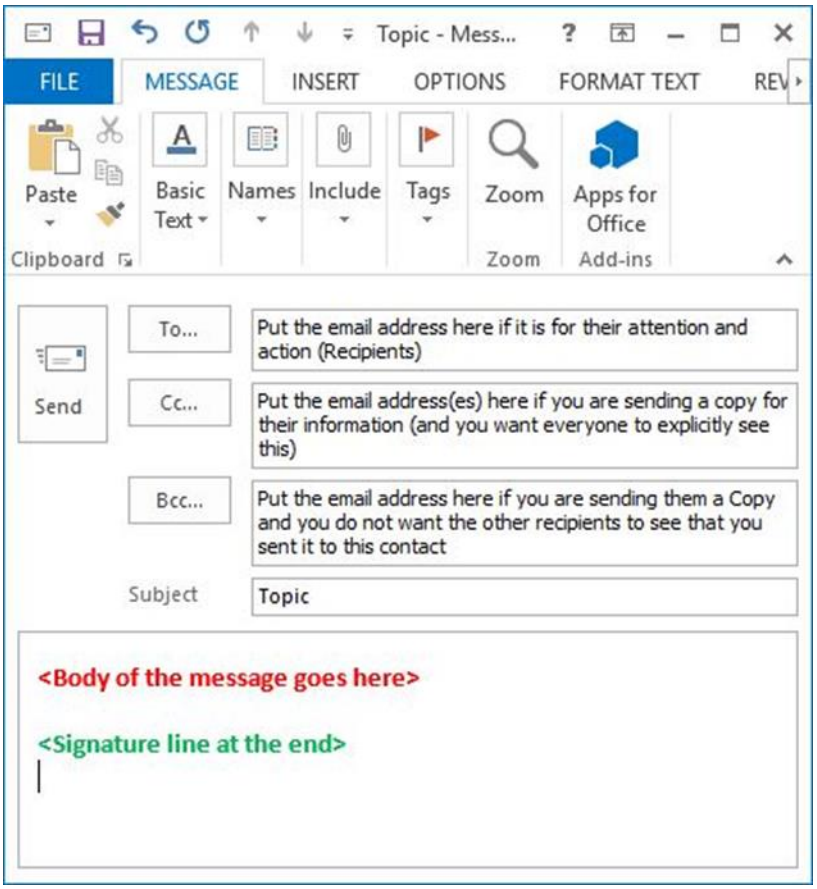


To: This identifies the primary recipients of the e-mail.

Subject line: Subject identifies the topic of the message.

Message body: This is where you type the body of the message.

Signature line: It is a block of text that is automatically added to the end of your messages whenever you create a new message.



Basic operations:

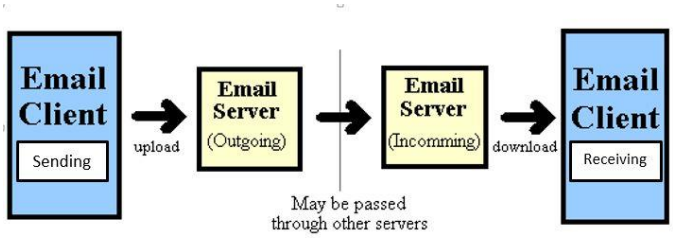
- Send
- Forward
- Reply
- Cc
- Bcc
- Attach

<u>Fill in the blanks:</u>

1. ……. identifies the topic of the message. (Subject line / Signature line)

2. …….is used to reply every person listed in email from To to cc. (Reply / Reply all)

How E-mail works:



When a message is sent, your email program will send the message to an outgoing mail server, which will then try to communicate with the incoming mail server specified in second half of the recipient's email address.

Once the message has arrived at incoming server, the message sits in a recipient's Inbox (Mailbox) until that person logs on and checks for messages.

Spam:

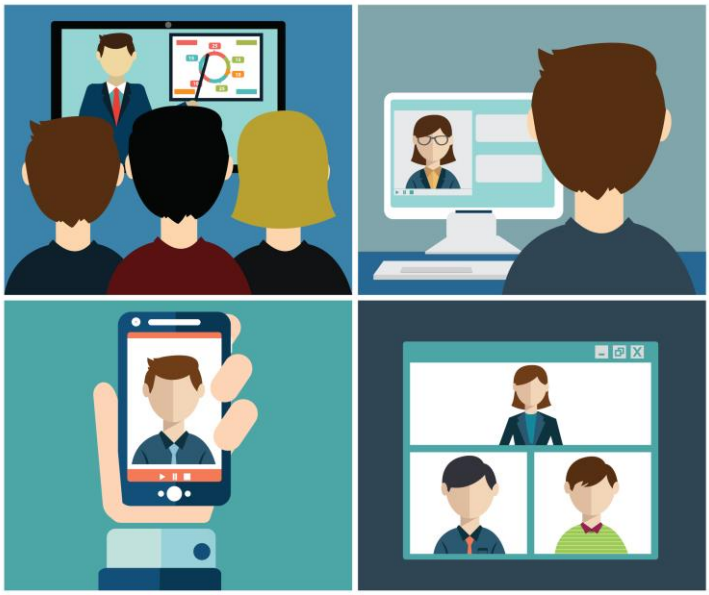
Spam is any kind of unwanted, unsolicited digital communication that is sent out in bulk. Often spam is sent via email, but it can also be distributed via text messages, phone calls, or social media.

Answer the following question:

1. Which of the following is NOT a true statement about e-mail?
    a) Viruses can be distributed as email attachments
    b) You can send email without getting connected to network
    c) Email can be used to send a message to groups of people

Conferencing:

1. Audio conferencing
2. Video conferencing
3. Web conferencing



Audio conferencing:
Audio Conferencing is also known as ATC – Audio Tele-Conference. It enables audio communication between two different places through the Internet without use of phones.

Video conferencing:
Video conferencing is most frequently used for meetings between two different locations over the Internet. The video conference consisted of two-way video and audio transmission.

Example software:
Skype, MS Teams, Zoom, Anymeeting, WebEx.

Web conferencing:

This is often used for lectures, presentations and pass messages for larger groups of people. People can join with the meeting from their computer. Depending on the setup it can have either two-way audio-video or only the presenter can talk. In addition to video and audio communication, web conferencing tools usually offer features like screen sharing, document sharing, real-time chat, polls, and whiteboarding.

Example software: MS Teams, Adobe Connect, GoToMeeting.

Question: What type of conference do we use in our online lessons?

VoIP (Voice over Internet Protocol):

Method of telephone communication using computer networks.

IM apps (Instant messaging):

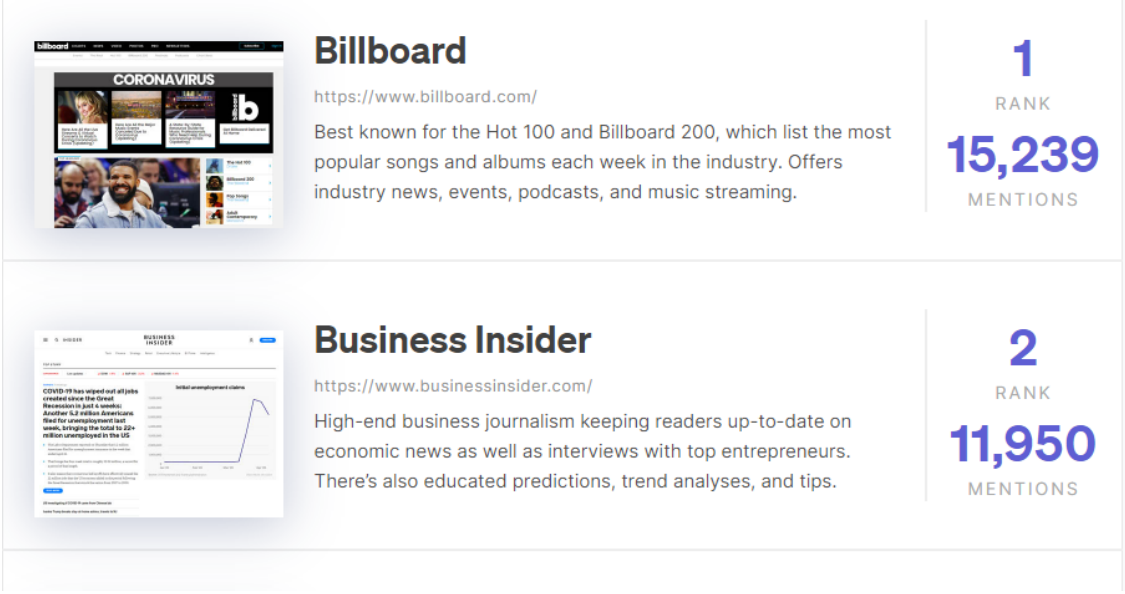
Mainly IM apps are the chatting applications over the Internet. Most of these applications can be utilized to share text, video and picture files. Examples: Messenger, WhatsApp, etc.

Blogs:

A blog is a website or online platform where an individual, group, or organization regularly publishes written content in a chronological format. These posts, known as blog posts, are typically displayed in reverse chronological order, with the most recent post appearing at the top. Blogs cover a wide range of topics, from personal experiences and opinions to news, reviews, tutorials, and more. Blogs often allow readers to engage through comments and discussions, fostering a sense of community around the content.

Visit a set of famous blogs below:

https://detailed.com/50/



Answer the following questions:

1. …… is method for telephone communication using network.
2. IM apps doesn't allow users to share pdf documents. (True / false)
3. Which of the following is an online tool in which you can write information on a topic similar to a journal?
   a. VoIP
   b. Blogs
   c. IMs

Vlogs:

A vlog (video blog) is a type of online content where bloggers or creators utilize videos to convey their ideas, experiences, or facts with viewers. Vlogs often include recording yourself or the environment, frequently in a relaxed and informal manner. Like blogs, vlogs can cover a wide range of subjects and are frequently used to record daily life, vacation experiences, instructional, product reviews, and much more. Compared to typical written blogs, vlogs frequently offer a more dynamic and visual approach to communicate with readers.

Things to be cautious about on internet:

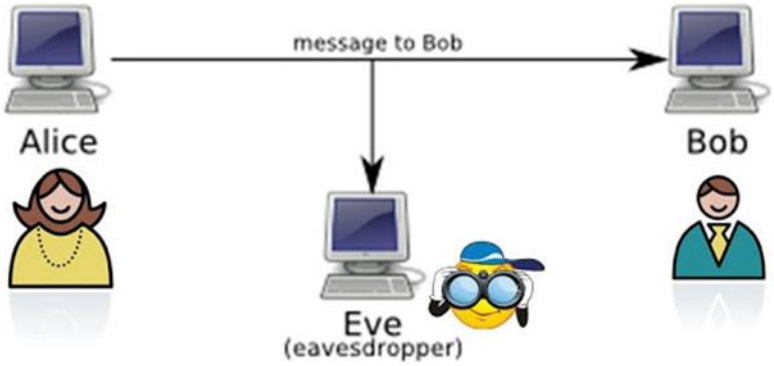
- Accuracy
- Security
- Copyright
- Malware
- Phishing
- Hacking

Accuracy:

Be cautious not to believe everything on the Internet. Almost anyone can publish information on the Internet, and some of it may be false.

Security:

There are ways to gain access to anything that you send to anyone over the Internet, including e-mail. Be extremely cautious when sending confidential information to anyone.



Copyright:

Always give credit to the author of any information (including graphics) found on the Internet.

Answer the following questions:

1. Everything given on Internet is always correct. (True / False)
2. We must be cautious while sending confidential email on Internet, there are ways by which others can access information in your mail. (True / False)
3. Any material on internet can be copied without giving credit to the author. (True / False)

Malware:

Malware includes computer viruses, worms, Trojan, root kits, key loggers, spyware, adware, and many more. These are harmful to the computers.

Phishing:

Phishing is a fraudulent attempt, usually made through emails, to steal your personal information.

As an example, phishing uses disguised email as a weapon. The goal is to trick the email recipient into believing that the message is something they want or need, a request from their bank, or a note from someone in their company and to click a link or download an attachment.

Hacking:

Computer hacking is the practice of modifying computer hardware and software to gain access to the computer systems and accomplish a goal outside of the creator's original purpose.

Hacker:

People who engage in computer hacking activities are typically referred to as "hackers". A hacker seeks and exploits weaknesses in a computer system or computer network. Hackers may be motivated by a multitude of reasons, such as profit, protest, or challenge.

Answer the following question:

1. Method used by criminals to get personal and financial information from unsuspecting victims.
    a. Browsing
    b. Phishing
    c. Blogging

Risks to personal and organizational data:
Confidential data can be exposed to the outside world due to negligence and insecure practice.
The consequence is any of the following:

- Theft
- Loss

Answer the following question:

1. To protect data from loss:
    a. Always keep a Backup
    b. Always Cc your mail
    c. Don’t keep information on USB

How to protect data:

There are ways to minimize or lessen risks associated with data. Some of them are as follows.

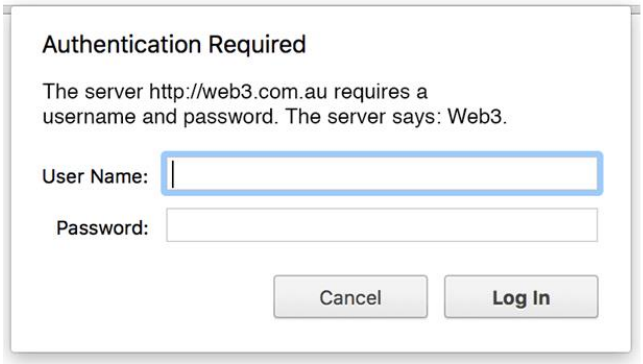
- Install latest Patches.
- Install Antivirus
- Choose strong passwords.
- Backup files!
- Control access to your machine.
- Safely use email and the Internet with precautions, strong passwords, and avoid suspicious links
- Use secure connections, using encryption and trusted networks when browsing.
- Use desktop firewalls.
- Most importantly, stay informed.

Techniques to improve data security:

1. Secure Websites
2. Digital certificates
3. Encryption and decryption
4. Firewalls
5. VPN

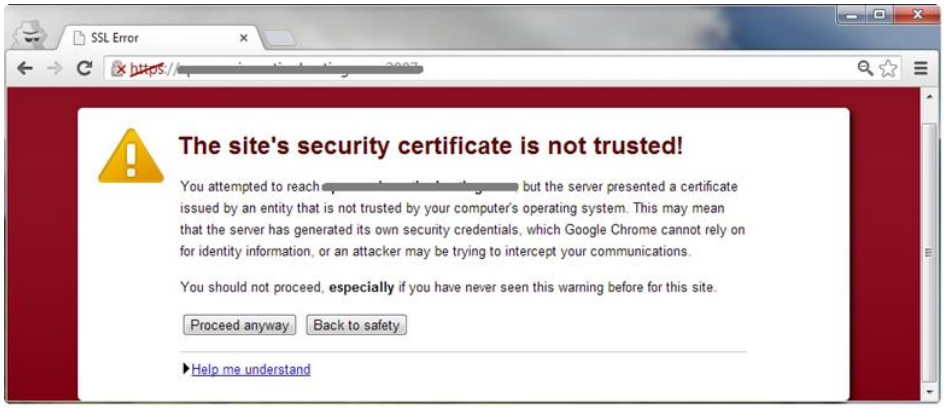
Secure Websites:

A secure website uses authentication and encryption to protect interactions and transactions conducted through the Web.



Digital certificates:

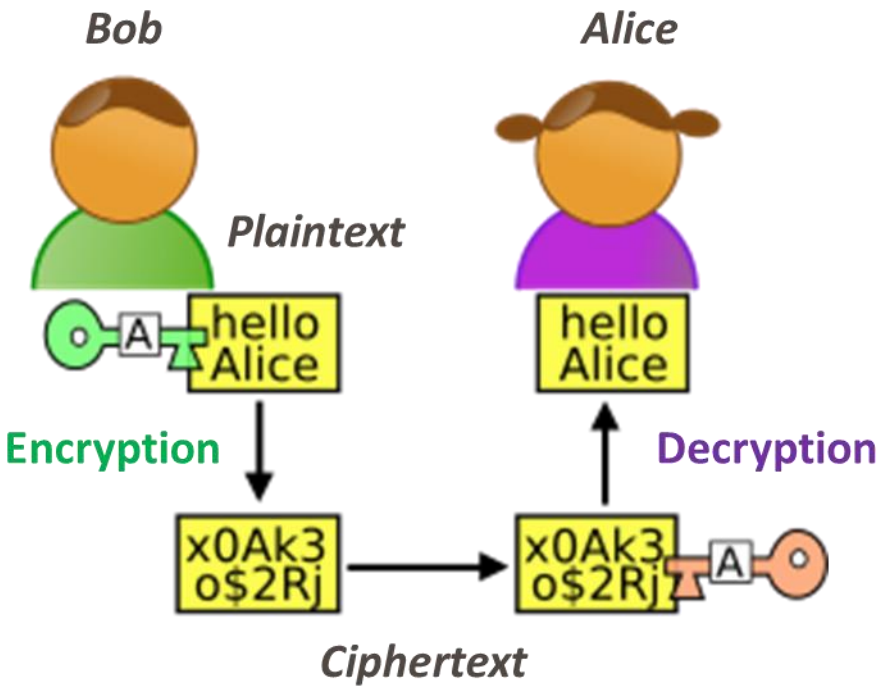
A digital certificate is a digital form of identification especially for websites, much like a passport or driver's license. A digital certificate provides information about the identity of an entity (owner of the website) as well as other supporting information. A digital certificate is issued by an authority, referred to as a certification authority (CA).



Encryption and decryption:

Encryption is the process of translating plain text data (plaintext) into something that appears to be random and meaningless (ciphertext).

Decryption is the process of converting ciphertext back to plaintext. This is one of the most important methods for providing data security, especially for end-to-end protection of data transmitted across networks and Internet.

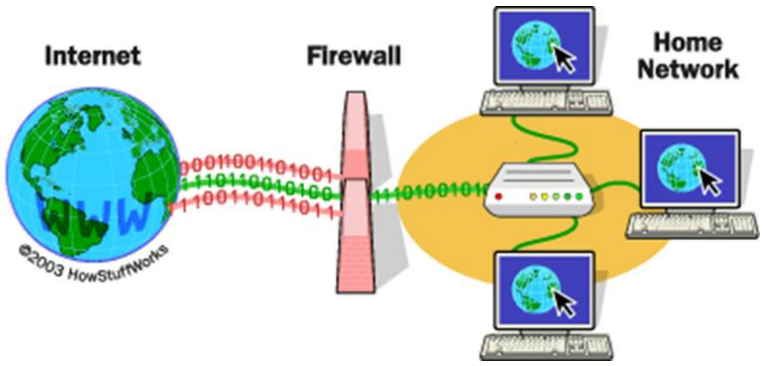


Firewalls:

A firewall is a system designed to prevent unauthorized access to or from a private network. You can implement a firewall in either hardware or software form, or a combination of both.

Firewalls provide protection against outside cyber attackers (hackers) by shielding your computer or network from malicious or unnecessary network traffic. Firewalls can also prevent Malware from accessing a computer or network via the internet.

On the other hand, firewalls can block or allow specific websites or any other services accessing from your network. As an example, you can block unwanted websites through the network firewall. So, nobody in the network could be able to see those websites or use those blocked services.

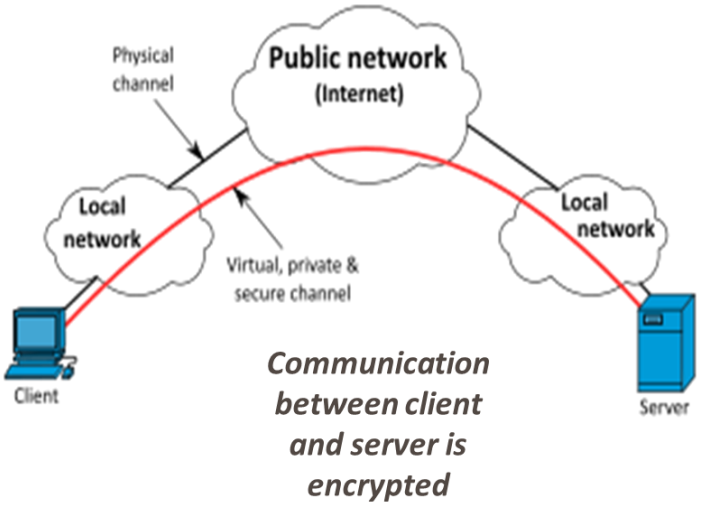


<u>Answer the following question:</u>

1. What is the purpose of a firewall?
    a. To provide secure off-site data storage for a computer or network
    b. To provide a computer or network with wireless access to the Internet
    c. To protect a computer or network against unauthorized intrusion

Virtual Private Network (VPN):

A VPN allows you to create a secure connection to another network over the Internet.



VPNs can be used to access region-restricted websites.

It shields your browsing activity from prying eyes on public Wi-Fi, and more.

Underline the correct answer:

1. …… masks your IP address. (VPN / Antivirus)

Chapter3 Exercises

A. <u>Circle the right Answer:</u>

1. Local Area Network (LAN) …….....
   (a) is in a potentially large geographical area
   (b) cannot share resources
   (c) is a network that connects a relatively small number of computers

2. The field required to alert the message destination in an e-mail message is …….
   (a) Body of message
   (b) To
   (c) Signature line

3. Which of the following are examples of search engines?
   (a) Safari, opera, Google chrome
   (b) Gmail, Yahoo, Hotmail
   (c) Bing, Yahoo, Google

4. To protect data from loss:
   (a) Always keep a Backup
   (b) Always Cc your mail
   (c) Don't keep information on USB

5. The Internet is …….
   (a) a global network of interconnected computers
   (b) a global protocol
   (c) a global operating system

6. The software used to access information on the web is ……
   (a) a browser
   (b) an office application
   (c) an operating system

7. Which of the following is a web browser?
   (a) Windows Explorer
   (b) Google Chrome
   (c) MS Excel

8. Which of the following is NOT a true statement about e-mail?
   (a) Viruses can be distributed as email attachments
   (b) You can send email without getting connected to network
   (c) Email can be used to send a message to groups of people

9. Which of the following is NOT true about e-mails.
   (a) speed - quick delivery of messages
   (b) can include pictures
   (c) cannot spell check the message

10. What is “Spam”?
    (a) Emails from friends who stay far away
    (b) Unsolicited email which includes advertisements and promotions
    (c) Malware

11. In the address Hamdan@abc.co.de what does the **.de** part represent?
    (a) Username
    (b) Top Level Domain
    (c) Name of the Organization

12. Which one of the following describes the software that is created and distributed for malicious purposes?
    (a) Freeware
    (b) Shareware
    (c) Malware

13. What is the purpose of a firewall?
    (a) To provide secure off-site data storage for a computer or network
    (b) To provide a computer or network with wireless access to the Internet
    (c) To protect a computer or network against unauthorized intrusion

14. …… … is a means of producing internet content through frequent posts on a variety of subjects.
    (a) Browsing
    (b) Phishing
    (c) Blogging

15. ……is a collection of computing devices that are connected in various ways in order to communicate and share resources.
    (a) Computer network
    (b) Software
    (c) Malware

16. Which of the following are the **advantages** of using a computer **network**?

    ii. Sharing printer ii. Access internet iii. Phishing

    (a) ii and iii only

    (b) i and ii only

    (c) All i, ii and iii

B. Write the full form of the following:

1. LAN:
2. WAN:
3. MAN
4. HTML:
5. HTTP:
6. URL:

C. Answer the following question in the space provided:

1. What is a computer network?

2. What are the types of area networks you have learnt? Define them.

3. Write three benefits of networks.

4. Give few risks associated with network computing.

5. What is a dial-up connection?

6. Define the following term: -

    (a) Website:

    (b) Homepage:

    (c) Hypertext:

    (d) Webservers:

    (e) Domain:

7. Give two examples of popular search engines.

8. Give two examples of web-based e-mail providers.

9. Give three advantages of emails.

10. What is Phishing?

11. What is Hacking?

12. Give two techniques to improve data security.

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English Term	Arabic Term
Antivirus Software	برامج مكافحة الفيروسات
Application Software	برامج تطبيقية
Arithmetic Logic Unit - ALU	وحدة الحساب المنطقية
Attachment	مرفق
Audio	سماعي
Backup Files	ملفات احتياطية
Bit (in computer memory)	وحدة (في ذاكرة الحاسوب)
Blog	مدونة
Broadband Internet Connection	وصلة الإنترنت ذات النطاق العريض
Byte	جزيئ
Central Processing Unit (Processor)	وحدة المعالجة المركزية
Circuit Board	لوحة دائرة كهربائية
Click (mouse click)	ينقر / نقرة بفأرة الحاسوب
Client Devices	أجهزة العميل
Compact Disk - CD	قرص مضغوط
Compressed Files	ملفات مضغوطة
Computer Application	تطبيق الحاسوب
Computer Ergonomics	بيئة عمل الحاسوب
Computer File	ملف حاسوب
Computer Hardware	أجزاء الحاسوب

English Term	Arabic Term
Data Storage Device	ادوات تخزين البيانات
Data Transfer Rate	معدل تحويل البيانات
Decompress Files	تحويل الملفات المضغوطة الى ملفات غير مضغوطة
Decryption	فك التشفير
Dial-Up Internet Connection	الاتصال الهاتفي من خلال الإنترنت
Digital Certificate	شهادة رقمية
Digital Versatile Disk - DVD	القرص الرقمي المتنوع
Domain Name	اسم النطاق
Download	تحميل
Dual Core Processor	معالج رئيسي ثنائي
E-Learning	تعلم الكتروني
Electronic Device	جهاز الكتروني
E-Mail	بريد الكتروني
E-Mail Account	حساب بريد الكتروني
Email Attachment	مرفق بريد الكتروني
E-Mail Message	رسالة بريد الكتروني
Encryption	التشفير
Execute (in computer program)	تنفيذ (في برنامج كمبيوتر)
Exploit Weakness	استغلال الضعف
Extension	وصلة

Computer Monitor	شاشة حاسوب
Computer Mouse	فأرة حاسوب
Computer Network	شبكة حاسوب
Computer Network Switch	مفتاح شبكة الكمبيوتر
Computer Operating System	نظام تشغيل الحاسوب
Computer Port	منفذ الحاسوب
Computer Program	برنامج حاسوب
Computer Screen	شاشة حاسوب
Computer Security	أمن الحاسوب
Computer System	نظام الحاسوب
Confidential Data	معلومات سرية
Connection	توصيل/ربط
Connector	وصلة
Control Panel	لوحة التحكم
Copy	ينسخ/نسخة
CT Scanner {Computed Tomography (CT) Scan}	التصوير المقطعي المحوسب
Data	بيانات

Extract	يسخرج
Extranet	الشبكة الخارجية
Fiber Optic Cable	سلك الألياف الضوئية
File Explorer	باحث الملفات
File Name Extension	اسم ملف اضافي
Firewall	نظام الحماية
Flash Memory	ذاكرة خارجية متنقلة
Floppy Disk Drive	محرك الأقراص المرنة
Folder	ملف
Formatting Storage Media	شطب الملفات من وحدة التخزين
Glass Anti-Glare Filter	فلتر مضاد للوهج
Hacker	قرصان
Hacking	قرصنة (عمليات اختراق للحصول على معلومات الاخرين)
Hard Disk Drive	محرك القرص الصلب
Hardware Device	اجهزة وادوات
Home Page (in websites)	الصفحة الرئيسية
Hypertext Markup Language (HTML)	لغة ترميز النص التشعبي