SOLVED QUESTIONS

Shahriar Anan
[COMPANY NAME] [Company address]

OPERATING SYSTEM

1. What is operating system? and its operation/function ?

=> operating system is the master controller of a computer. It controls the system's hardware and interacts with application software and user data. The operation of operating system.

1. It is the primary tool to control computer's hardware
2. It takes user input and convert it to machine readable code and then process the action
3. The results of a user's action is displayed on the screen by the OS.

2. What are the types of operating system? Description.

=> There are four types of Operating System. 1,Real time 2, single user-single task, 3. single user - Multitasks 4. Multiuser-multitask

Real-time : Real-time OS is a very fast and relatively small Operating system. It is built into the circuitry of the whole system and not loaded into the disk drive. Realtime OS runs real-time application which runs at fast rate. Real time OS are used in Medical diagonastic machines, scientific-equipment, industrial equipment etc.

Single-User/Single task : Single user single task operating system are those OS that perform one task at a time. A user can only perform a single task such as saving file, downloading form servers, printing a document etc. MS-DOS is an example of single user single task OS. The palm OS is another example of it. These OS's takes less memory and low configuaration computer system for execution.

Single user/ multi task : Single useer multitasking OS are those thatb can perform multiple tasks at the same time. They are greatly used on personal computers. Microsoft Windows , Macintosh are commomnly used SU/M Operating system. The productivity and job sectors are heavily increased for these kinds of advantages. Though the disadvantage is larger size and complexity for conducting multiple tasks.

Multiuser/Multitasking : Multitasking/multiuser operation system is a operation system that lets multiple user to perform tasks or programs. in a single network server called terminal server. It is different from accessing from single user OS's as it provides all the user a complete environment where they can use system and other applications. This is called terminal client. UNIX, VMS and mainframe operating system etc are MU/Mt operating system.

3. What is command line interface ?

=> Some old operating system like LINUX UNIX etc. provides command line interface that is usually typewritten command for performing various tasks rather than using GUI. Command line interface displays in character mode using equal sized alpha numeric characters. Users interact with the system by typing strings of characters and the computer reads them as command requested by the user.

4. Differentiate between DOS and windows.

=> Dos OS : 1. An Operating system can use a hard disk floppy disk optical disk.

2. It has only command line interface which is harder to use for beginners.
3. IS not widely used. specially It used in embedded softwere development .
4. Requires small storage, just a few megabytes to work.
5. PC-Dos, MS-DOS, OpenDOS, 86-DOS, DR-DOS etc.

windows: 1. A group of graphical operating system family which is marketed by Microsoft.

2. It covers both Command line interface and graphical user interface (GUI). Easy to learn for beginners.

3. It is widely used globally in personal computers.

4. Requires larger storage, Functionss in Gigabytes.

5. Windows-95, Windows-XP, Windows-vista, Windows-7, windows-10 etc.

5. What are utility software and describe some of their functions .

=> Utility softwares are designed to enhances or extends the OS's performance, capability or comes with new features which can not be provided with the operating system itself. Utility software varies from different categories and has a huge list of them. They maybe released singly or in bundle packages by developers sometimes costs money. The major aspects that utiltiy software are introduced are for network security, malware detection and customization. some mostly used categories are below.

Backup utility : Backup utilities can move large files or data form HDD to various medium such as CD floppy disk or cloud storage. Nowadays, backup system is already provided by the system itself. But the features of utilities are much handier than that. It can also restore data

manage files sort them and keep track of their sizes so that in terms of data loss they can restore them.

Antivirus-utility : Viruses are parasite that annonymusly comes into your system than delete replace and reproduce it self until the hardware is full. Antivirus utility can prevent virus from affecting your personal computer and even more like detecting and deleting virus programs and can also retrieve the corrupted data on the system. They scan through the RAM and hard-drive to detect such files.

Firewall : ISP and most corporation that employ specialized computers to examine and block unwanted traffics from a network system are called firewall computer. Such fire wall protection can prevent you form hackers and scammers. some manufacturers like cisco, 3COM are expensive utilities which are suitable for corporate offices to keep their data in safe hands. There are some inexpensive firewall type utility that can be used for personal computers and they may also come with The operating system itself.

DBMS

1. Define data base management system. Explain the limitations of file based management system and write the advantages of DBMS.

=> DBMS is a software programmed tool that can allow people to store, access, manage, and process data or facts into useful information. DBMS can be programmed specifically for a perticuler company to use and precess data according to their needs.

ADVANTAGES of DBMS : Using DBMS software can convert tedious and time consuming work and make them useful and make them easy to use and practical. for example :

>> DBMS can sort data by their zip code, time or any other criteria.

>> DBMS can go through thousands of data and print users desired one's and show all the details about it.

>> DBMS can make relation between various data and present them in a logical way.

>> A user can also process, add, delete, and backup segments of database or the whole database if he wishes to.

LIMITATIONS of FILE-BASED SYSTEM :

1. Data Redundancy : Redundancy occors when a data is stored repeatedly. Redundancy causes extra storage space .and inconsistency.

2. Data Inconsistancy : In file based system, datas are managed differently in different places which creates inconsistancy and leads unreliable information.

3. Data Isolation : In file system, datas are kept isolately thus making relations among them and creating useful information is difficult.

4. Data Dependance : In file system, structure and format of the file controls the data and where it would store so changes in structure may lead to chaos.

2. What do you mean by database and DBMS ? are they same or different? and how ?

=> A data base is a collection of related data or facts. Whereas, DBMS is a software programmed tool which makes people to store, access, manage and process data into information.

Having said that, data base and DBMS are different. Because, database is just a list of related data but DBMS is a software which is programmed to create and manipulate-datato process information or simply use the data from the list.

3. What are the advantages of DBMS ?

=> DBMS is a software programmed tool that can allow people to access, manage, process, store data or facts into useful information.

Advantages of DBMS : 1. DBMS can sort data by their zipcode, time or any other criteria 2. DBMS can go through millions of data and present the desired data for the user and show all the details about it. 3. DBMS can make relations among data and present them in a logical way making them information. 4. A user can make changes, add, delete or backup data on the database using DBMS. 5. DBMS can be programmed particularly for a company according to their needs. 6. A DBMS can provide multiple users to share the same database by a networked computer system

4. Explain different field types of a database table with example.

=> DBMS provides various field types for an user and has also predefined field types to work with. Some of them are discussed below :

1. Numeric Filed : Numeric fields stores purely numeric data which can be currencies, statistics, quantities etc they also have some character using capabilities like showing a dollar sign or percentage signs. They can be used as the amount of purchase history form customers or in banks

2. Date filed/time field : Date and time field as the name suggests stores date and times. This field can convert time and date and store them numerically. They can be used in elapsed time periods such as finding records for invoices of 31 days etc.

3. Logical fields: Also known as bolean filed stores one of only two possible values according to the function. One can apply any description for example, if a subscribed user has requested a magazine from a company then the representative can easily find it using this field.

4. Index field : In DBMS records can be numbered or indexed using integers as some records can have exactly same data.

COMPUTER NETWORK

1. What is a computer network ? Illustrate the advantages of computer network? / major purpose of computer network?

=> A computer network is a set of technologies - including hardware software media etc that can be used to connect multiple computers together for sharing data, information, resources among them in real time. The advantage or major purpose of computer network is that it enables an organization or an individual to access desired information and run programs form a remote location. It can also do these task instantly. When a data and programs are stored on a network the individual user can use them without installing that programme on his own computer. Network open up new ways to communicate such as e-mail, instant massenging they also allow users to use expensive hard ware equipment without buying those themselves and it saves a lot of money.

2. Discuss the types of computer networks.

=> There are two main type of computer networks. 1. Local Area Network (LAN) 2. Wide Area Network (WAN).

LAN : A local area network is a data communication system consisting several devices that are connected via wire, infrared links, wireless .This type of network consists of computer relatively nearer to each other and is hardly a public accessible network. It can consist of two-three or 100's of computers connected with each other. Mostly large business stations and organizations use LAN as their communication for business purpose.

WAN : A WAN is two or more LAN connected together generally across a large geographical area. A WAN may be used in larage industrial companies where the main headquarters and other workstation located in different places, has a need of continuous communication between them. For example two distant mainframe computers can communicate through WAN.

besides these two catagories there are hybrid type of networks like CAN (campus area network), MAN (metropoliton are network), HAN (house area network) etc.

3. Explain advantages and disadvantages of client/server and peer to peer networks.

=> client/server advantages - disadvantages:

1.All files are stored in a central location	1.A specialist network operating system is needed
2.Network peripherals are controlled centrally	2.The server is expensive to purchase
3.Backups and network security is controlled centrally	3.Specialist staff such as a network manager is needed
4.Users can access shared data which is centrally controlled	4.If any part of the network fails a lot of disruption can occur.

Virus and Malware

1. Define computer virus. How does it work? Mention some notable computer virus with example.

=> A virus is a parasitic program that infects another legitimate program(host) and is able to make copy of itself on various places on the computer

Function: To infect the host program the virus modifies the host to store a copy of the program. after successful infiltration the virus copies itself on the storage devices of the computer such as RAM, hard-disk etc. untill the storage is full. Some notable virus are discussed below:

Boot sector virus : Regarded as one of the most hostile type of virus boot sector virus infects the boot sector of the hard-disk or floppy disk allowing itself to run as soon as the computer starts. The virus moves the boot sector's data in a different part of the disk and occupy the boot sector completely. When computer is started the virus copies itr self on RAM where it can affect other disks and programs but it allows to start the computer properly as if nothing happend. example: Cloner, brain, stone.

Bombs : The most prevalent type of bombs are time bomb and logical bombs. The time bomb starts its operation on a specific date/time and effects the computer. The logical bomb maybe activated by a certain action. Many scientists do not classify bombs as virus. However bombs are classified viruses by majority as they can cause harm on computers. example: Chernobyl

E-mail viruses: E-mail viruses are transmtted via email with an attachment file/document/program. If the reciever of this email clicks the attachment, the virus then attacks his/her pc and cause damage. Not only that, these virus es can send e-mail form that reciever to his contacts and target them as well. example: Mydoom.

File-infecting Virus : This type of virus infects programme files such as .exe or .com when an infected code is ran the virus is also executed example: cascade

Trojan-Horses : A trojan horse is a malicsius program that acts friendly but gives access to the computer to others. Trojan horses may appear as games or other applications when the program is ran and connected to the internet another person form remote location can use the victims computer and hijack his/her data. example: storm-worm.

Worms: A worm is a program whose purpose is to duplicate itself. An effective worm will copy itself tilthe whole hardisk is full. Many worms are programmed to effect other computers via LAN, e-mail etc. example: The 'ILOVEYOU', msBlast etc.

2. Differentiate virus with malware, spyware and spam.

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Virus:

1. programs that infects legitimate programs,make copy of themselves and affect the whole system.

2virus can remain dormant for specific time and execute it self after a date/time or an action taken by the computer

example: worm, bombs, trojan, email-virus etc.

Spyware :

1.software that enables a user to obtain covert information about another's computer activities by

transmitting data covertly from their hard drive.

2.Spyware can install other software automatically without users acceptance, display advertisements

or redirect the web browser activity. example: adware,system monitors, tracking etc.

malware:

1.software that is specifically designed to disrupt, damage, or gain unauthorized access to a computer system.

2.malware can alter data or erase them accross victims computer.

example: ransomware.

spam :

1. Spam is any kind of unwanted digital communication that gets sent out in bulk.

2. Spam can be in form of text massages, email and others.

3. They are not harmful for the pc but may contain scams.