Biyani Institute of Science and Management

I Internal Examination 2019-20

MBA (I Semester)

Subject- IT for Managers (M-106)

Time: 1.30 Hrs. Set: A MM: 30

[I] Subjective Questions (Attempt any three questions) **(3*10=30)**

Q1. What is Computer? Write the characteristics and elements of computer.

Ans. an electronic device for storing and processing data, typically in binary form, according to instructions given to it in a variable program. A computer is a machine that can be instructed to carry out sequences of arithmetic or logical operations automatically via computer programming. Modern computers have the ability to follow generalized sets of operations, called programs. These programs enable computers to perform an extremely wide range of tasks. A "complete" computer including the hardware, the operating system (main software), and peripheral equipment required and used for "full" operation can be referred to as a computer system. This term may as well be used for a group of computers that are connected and work together, in particular a computer network or computer cluster.
Computers are used as control systems for a wide variety of industrial and consumer devices. This includes simple special purpose devices like microwave ovens and remote controls, factory devices such as industrial robots and computer-aided design, and also general purpose devices like personal computers and mobile devices such as smart phones. The Internet is run on computers and it connects hundreds of millions of other computers and their users.

Basic characteristics about computer are:
1. Speed: - As you know computer can work very fast. It takes only few seconds for calculations that we take hours to complete. You will be surprised to know that computer can perform millions (1,000,000) of instructions and even more per second.
Therefore, we determine the speed of computer in terms of microsecond (10-6 part of a second) or nanosecond (10 to the power -9 part of a second). From this you can imagine how fast your computer performs work.
2. Accuracy: - The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is **7.**
Determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.
3. Diligence: - A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.
4. Versatility: - It means the capacity to perform completely different type of work. You may use your computer to prepare payroll slips. Next moment you may use it for inventory management or to prepare electric bills.
5. Power of Remembering: - Computer has the power of storing any amount of information or data. Any information can be stored and recalled as long as you require it,

for any numbers of years. It depends entirely upon you how much data you want to store in a computer and when to lose or retrieve these data.
6. No IQ: - Computer is a dumb machine and it cannot do any work without instruction from the user. It performs the instructions at tremendous speed and with accuracy. It is you to decide what you want to do and in what sequence. So a computer cannot take its own decision as you can.
7. No Feeling: - It does not have feelings or emotion, taste, knowledge and experience. Thus it does not get tired even after long hours of work. It does not distinguish between users.
8. Storage: - The Computer has an in-built memory where it can store a large amount of data. You can also store data in secondary storage devices such as floppies, which can be kept outside your computer and can be carried to other computers.

Elements of a Computer System

There are six main elements that make up a computer system. They all interact with each other and perform the task at hand. Let us take a look at all of them.

1] Hardware

These are all the physical aspects of a computer system. They are tangible, i.e. you can see and touch them. Hardware components are the electronic or mechanical instruments, like keyboard, monitor, printer etc. They help the users interface with the software, and also display the result of the tasks being performed.

Hardware can actually be of four types, depending on which function they perform. The four types of hardware are,

- Input Hardware: For users to input data into the computer system. Examples: Keyboard, mouse, Scanner
- Output Hardware: To translate and display the result of the data processing =. Example: Monitor Screen, Printer etc
- Processing and Memory Hardware: Where data and information are processed and manipulated to perform the task at hand. It is also the workspace of the computer, where it temporarily stores data. Examples: Central Processing Unit (CPU), Read Only Memory (RAM)
- Secondary Storage Hardware: Where the computer system stores data permanently. Example: Harddisk, Pendrive etc

2] Software

Software is nothing but a set of programmes (computer instructions), which helps the user to do a set of specific tasks. It helps the user interact with the computer system with the help of hardware. Software, as you can imagine, is the intangible aspect of the computer system.

Basically, there are six main types of software, which are as follows,

- *Operating System*: These specialized programmes allow the communication between software and hardware. The operating systems run all the other computer programmes, and even regulate the startup process of the computer. Examples: Windows XP, Macintosh etc

- **Application Software**: These are designed to perform a specific task or a bunch of tasks. They can be user-designed (specific to the user's needs) or readymade application software. Example: PowerPoint, Tally etc.

- **Utility Software**: Like operating systems, it is a system software. It helps maintain and protect the computer system. For example, Anti-virus software is a utility software.

- **Language Processors**: Software that interprets computer language and translates it into machine language. It also checks for errors in language syntax and fixes the problems.

- **System Software**: This types of software control the hardware, the reading of the data and other such internal functions.

- **Connectivity Software**: The special software that facilitates the connection between the computer system and the server. This allows the computer to share information and communicate with each other.

3] People

The people interacting with the computer system are also an element of it. We call this element the Liveware. They are the ultimate "users" of the computer systems. There are three types of people that interact with the system, namely

- Programmers: Professionals who write the computer programs that allow users to interact with the computer. They must have technical knowledge of computers and computer languages.

- System Analyst: They mainly design data processing systems, and solve problems that arise in data processing

- End-Users: Also known as operators, they are the people who interact with the computer system.

4] Procedures

These are a set of instructions, written in code, to instruct a computer on how to perform a task, run a software, do calculations etc. There are three types of procedures in a computer They are,

- Hardware-Oriented Procedure: Instructs the hardware components of the system, ensures they work smoothly

- Software Oriented Procedure: Provides instructions to launch and run software programs

- Internal Procedures: Directs the flow of information and sequences the data

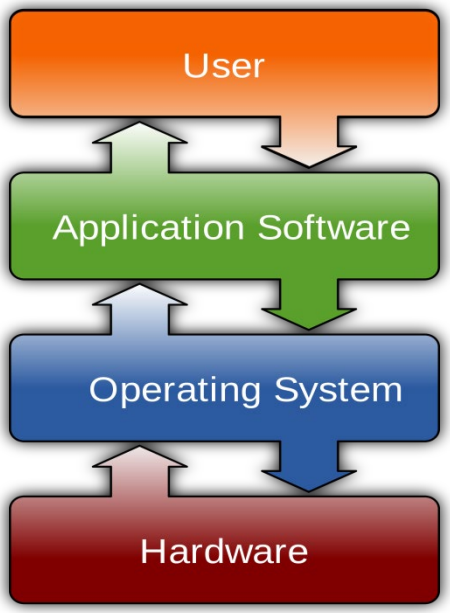
5] Data

Data is essentially the raw facts and figures that we input in the computer. The data gets processed via the computer system and becomes information, which is processed and organized data. Information can then be used for decision-making purposes.

The measurement of data is done in terms of "bytes". One kilobyte (KB) is approximately 1000 bytes, 1 megabyte (MB) is 1 million bytes and finally, 1 gigabyte (GB) is approximately 1 billion bytes.

6] Connectivity

This is when the computers are linked to a network. It facilitates sharing of information, files, and other facilities. Computers can connect to a network via LAN cables, Bluetooth, Wi-Fi, satellites etc. The internet is the most obvious example of connectivity in a computer system.



Q2. What is Operating System? Explain Types of OS.

Ans. An operating system is the most important software that runs on a computer. It manages the computer's memory and processes, as well as all of its software and hardware. It also allows you to communicate with the computer without knowing how to speak the computer's language. Without an operating system, a computer is useless.

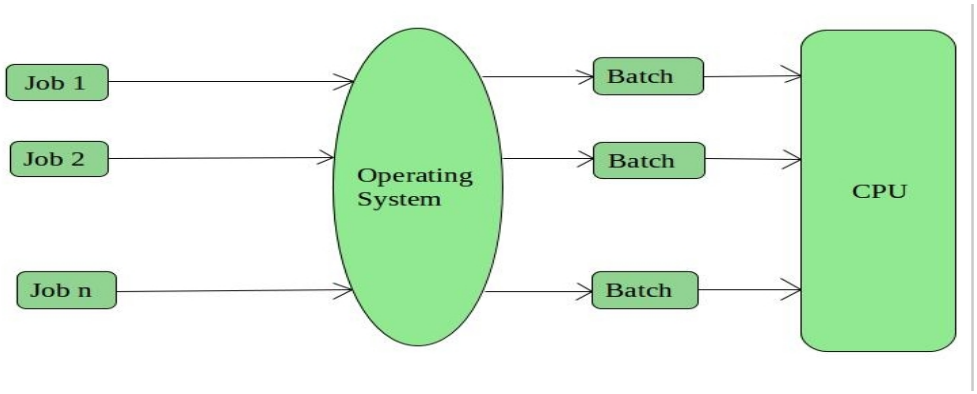
Types of Operating Systems

An Operating System performs all the basic tasks like managing file,process, and memory. Thus operating system acts as manager of all the resources, i.e. **resource manager**. Thus operating system becomes an interface between user and machine.

Types of Operating Systems: Some of the widely used operating systems are as follows-

1. Batch Operating System –

This type of operating system does not interact with the computer directly. There is an operator which takes similar jobs having same requirement and group them into batches. It is the responsibility of operator to sort the jobs with similar needs.



Advantages of Batch Operating System:

- It is very difficult to guess or know the time required by any job to complete. Processors of the batch systems know how long the job would be when it is in queue
- Multiple users can share the batch systems
- The idle time for batch system is very less
- It is easy to manage large work repeatedly in batch systems

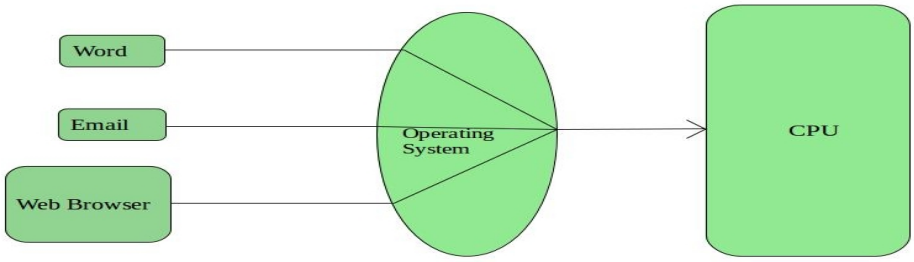
Disadvantages of Batch Operating System:

- The computer operators should be well known with batch systems
- Batch systems are hard to debug
- It is sometime costly
- The other jobs will have to wait for an unknown time if any job fails

Examples of Batch based Operating System: Payroll System, Bank Statements etc.

2. Time-Sharing Operating Systems –

Each task is given some time to execute, so that all the tasks work smoothly. Each user gets time of CPU as they use single system. These systems are also known as Multitasking Systems. The task can be from single user or from different users also. The time that each task gets to execute is called quantum. After this time interval is over OS switches over to next task.



Advantages of Time-Sharing OS:

- Each task gets an equal opportunity
- Less chances of duplication of software
- CPU idle time can be reduced

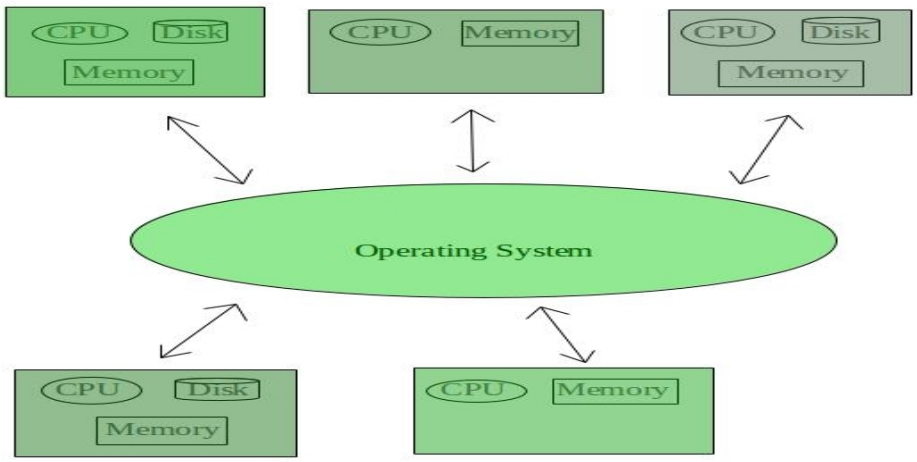
Disadvantages of Time-Sharing OS:

- Reliability problem
- One must have to take care of security and integrity of user programs and data
- Data communication problem

Examples of Time-Sharing OSs are: Multics, Unix etc.

3. Distributed Operating System –

These types of operating system is a recent advancement in the world of computer technology and are being widely accepted all-over the world and, that too, with a great pace. Various autonomous interconnected computers communicate each other using a shared communication network. Independent systems possess their own memory unit and CPU. These are referred as loosely coupled systems or distributed systems. These system's processors differ in size and function. The major benefit of working with these types of operating system is that it is always possible that one user can access the files or software which are not actually present on his system but on some other system connected within this network i.e., remote access is enabled within the devices connected in that network.



Advantages of Distributed Operating System:

- Failure of one will not affect the other network communication, as all systems are independent from each other
- Electronic mail increases the data exchange speed

- Since resources are being shared, computation is highly fast and durable
- Load on host computer reduces
- These systems are easily scalable as many systems can be easily added to the network
- Delay in data processing reduces

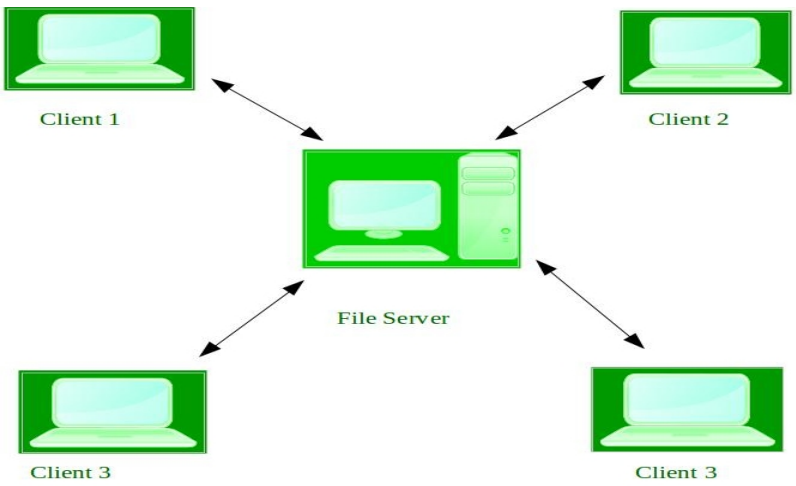
Disadvantages of Distributed Operating System:

- Failure of the main network will stop the entire communication
- To establish distributed systems the language which are used are not well defined yet
- These types of systems are not readily available as they are very expensive. Not only that the underlying software is highly complex and not understood well yet

Examples of Distributed Operating System are- LOCUS etc.

4. Network Operating System –

These systems run on a server and provide the capability to manage data, users, groups, security, applications, and other networking functions. These type of operating systems allow shared access of files, printers, security, applications, and other networking functions over a small private network. One more important aspect of Network Operating Systems is that all the users are well aware of the underlying configuration, of all other users within the network, their individual connections etc. and that's why these computers are popularly known as tightly coupled systems.



Advantages of Network Operating System:

- Highly stable centralized servers
- Security concerns are handled through servers
- New technologies and hardware up-gradation are easily integrated to the system
- Server access are possible remotely from different locations and types of systems

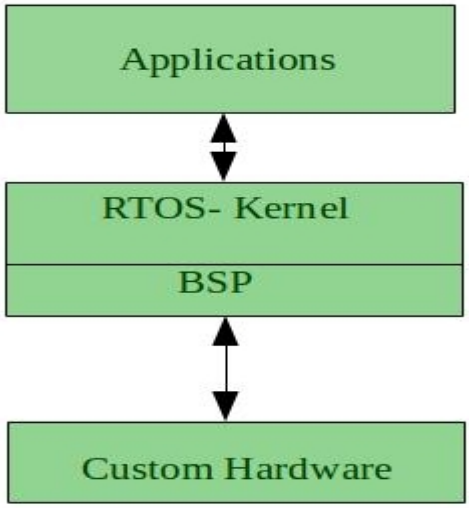
Disadvantages of Network Operating System:

- Servers are costly
- User has to depend on central location for most operations
- Maintenance and updates are required regularly

Examples of Network Operating System are: Microsoft Windows Server 2003, Microsoft Windows Server 2008, UNIX, Linux, Mac OS X, Novell NetWare, and BSD etc.

5. Real-Time Operating System –

These types of OSs serves the real-time systems. The time interval required to process and respond to inputs is very small. This time interval is called response time.



Real-time systems are used when there are time requirements are very strict like missile systems, air traffic control systems, robots etc.
Two types of Real-Time Operating System which are as follows:

- Hard Real-Time Systems:
  These OSs are meant for the applications where time constraints are very strict and even the shortest possible delay is not acceptable. These systems are built for saving life like automatic parachutes or air bags which are required to be readily available in case of any accident. Virtual memory is almost never found in these systems.
- Soft Real-Time Systems:
  These OSs are for applications where for time-constraint is less strict.

Advantages of RTOS:

- Maximum Consumption: Maximum utilization of devices and system,thus more output from all the resources
- Task Shifting: Time assigned for shifting tasks in these systems are very less. For example in older systems it takes about 10 micro seconds in shifting one task to another and in latest systems it takes 3 micro seconds.
- Focus on Application: Focus on running applications and less importance to applications which are in queue.
- Real time operating system in embedded system: Since size of programs are small, RTOS can also be used in embedded systems like in transport and others.
- Error Free: These types of systems are error free.
- Memory Allocation: Memory allocation is best managed in these type of systems.

Disadvantages of RTOS:

- Limited Tasks: Very few tasks run at the same time and their concentration is very less on few applications to avoid errors.
- Use heavy system resources: Sometimes the system resources are not so good and they are expensive as well.
- Complex Algorithms: The algorithms are very complex and difficult for the designer to write on.
- Device driver and interrupt signals: It needs specific device drivers and interrupt signals to response earliest to interrupts.

- Thread Priority: It is not good to set thread priority as these systems are very less prone to switching tasks.

Examples of Real-Time Operating Systems are: Scientific experiments, medical imaging systems, industrial control systems, weapon systems, robots, air traffic control systems, etc.

Q3. Write a Short Notes:

a. Input Devices

Following are some of the important input devices which are used in a computer −

- Keyboard
- Mouse
- Joy Stick
- Light pen
- Track Ball
- Scanner
- Graphic Tablet
- Microphone
- Magnetic Ink Card Reader(MICR)
- Optical Character Reader(OCR)
- Bar Code Reader
- Optical Mark Reader(OMR)

Keyboard

Keyboard is the most common and very popular input device which helps to input data to the computer. The layout of the keyboard is like that of traditional typewriter, although there are some additional keys provided for performing additional functions.

Keyboards are of two sizes 84 keys or 101/102 keys, but now keyboards with 104 keys or 108 keys are also available for Windows and Internet.

Mouse

Mouse is the most popular pointing device. It is a very famous cursor-control device having a small palm size box with a round ball at its base, which senses the movement of the mouse and sends corresponding signals to the CPU when the mouse buttons are pressed.

Generally, it has two buttons called the left and the right button and a wheel is present between the buttons. A mouse can be used to control the position of the cursor on the screen, but it cannot be used to enter text into the computer.

Advantages

- Easy to use
- Not very expensive
- Moves the cursor faster than the arrow keys of the keyboard.

Joystick

Joystick is also a pointing device, which is used to move the cursor position on a monitor screen. It is a stick having a spherical ball at its both lower and upper ends. The lower spherical ball moves in a socket. The joystick can be moved in all four directions.

The function of the joystick is similar to that of a mouse. It is mainly used in Computer Aided Designing (CAD) and playing computer games.

Light Pen

Light pen is a pointing device similar to a pen. It is used to select a displayed menu item or draw pictures on the monitor screen. It consists of a photocell and an optical system placed in a small tube.

When the tip of a light pen is moved over the monitor screen and the pen button is pressed, its photocell sensing element detects the screen location and sends the corresponding signal to the CPU.

Track Ball

Track ball is an input device that is mostly used in notebook or laptop computer, instead of a mouse. This is a ball which is half inserted and by moving fingers on the ball, the pointer can be moved.

Since the whole device is not moved, a track ball requires less space than a mouse. A track ball comes in various shapes like a ball, a button, or a square.

Scanner

Scanner is an input device, which works more like a photocopy machine. It is used when some information is available on paper and it is to be transferred to the hard disk of the computer for further manipulation.

Scanner captures images from the source which are then converted into a digital form that can be stored on the disk. These images can be edited before they are printed.

Digitizer

Digitizer is an input device which converts analog information into digital form. Digitizer can convert a signal from the television or camera into a series of numbers that could be stored in a computer. They can be used by the computer to create a picture of whatever the camera had been pointed at.

Digitizer is also known as Tablet or Graphics Tablet as it converts graphics and pictorial data into binary inputs. A graphic tablet as digitizer is used for fine works of drawing and image manipulation applications.

Microphone

Microphone is an input device to input sound that is then stored in a digital form.

The microphone is used for various applications such as adding sound to a multimedia presentation or for mixing music.

Magnetic Ink Card Reader (MICR)

MICR input device is generally used in banks as there are large number of cheques to be processed every day. The bank's code number and cheque number are printed on the cheques with a special type of ink that contains particles of magnetic material that are machine readable.

This reading process is called Magnetic Ink Character Recognition (MICR). The main advantages of MICR is that it is fast and less error prone.

Optical Character Reader (OCR)

OCR is an input device used to read a printed text.

OCR scans the text optically, character by character, converts them into a machine readable code, and stores the text on the system memory.

Bar Code Readers

Bar Code Reader is a device used for reading bar coded data (data in the form of light and dark lines). Bar coded data is generally used in labelling goods, numbering the books, etc. It may be a handheld scanner or may be embedded in a stationary scanner.

Bar Code Reader scans a bar code image, converts it into an alphanumeric value, which is then fed to the computer that the bar code reader is connected to.

Optical Mark Reader (OMR)

OMR is a special type of optical scanner used to recognize the type of mark made by pen or pencil. It is used where one out of a few alternatives is to be selected and marked.

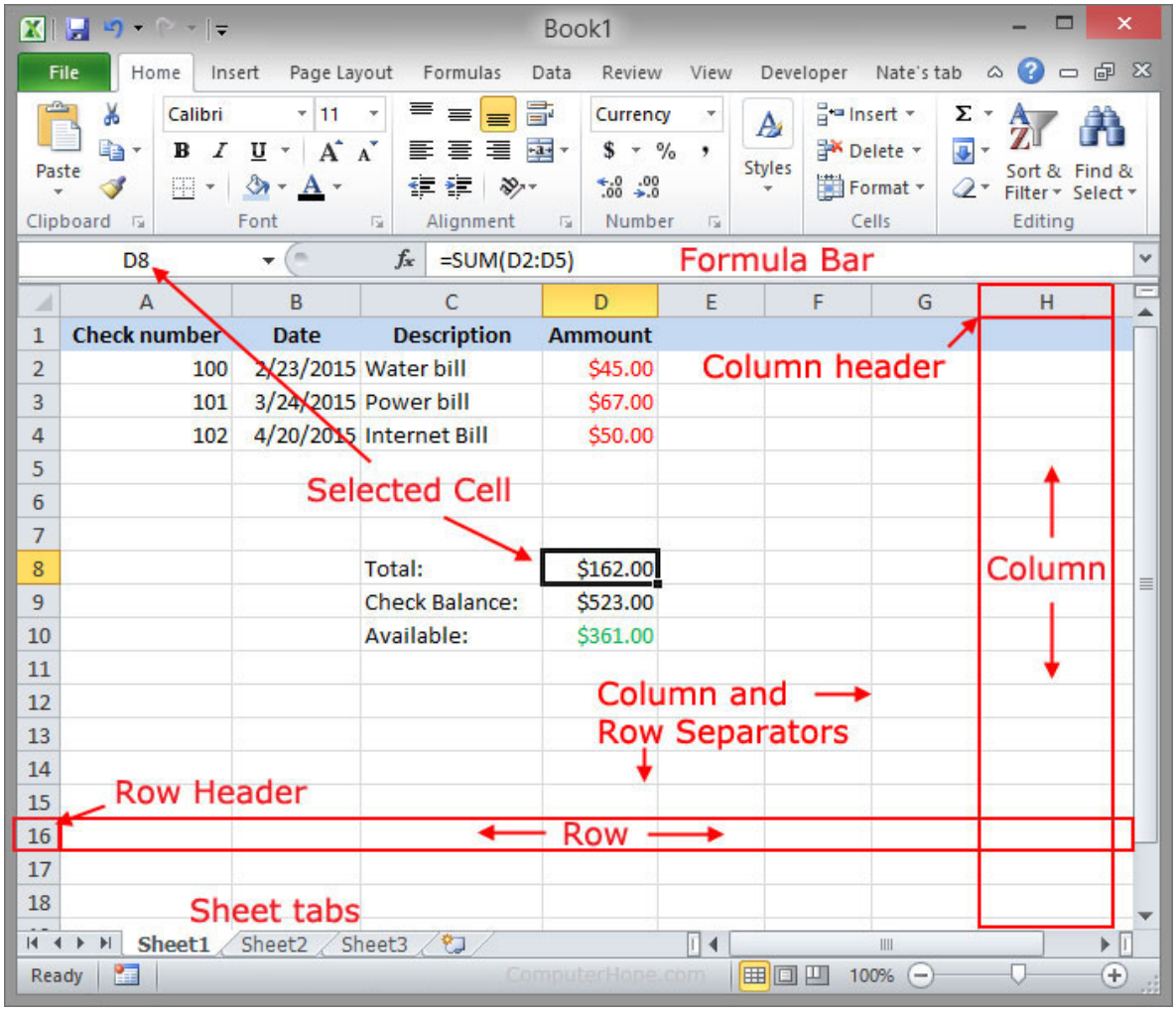
It is specially used for checking the answer sheets of examinations having multiple choice questions.

b. MS Excel

Code-named Odyssey, Excel is a software program from Microsoft that is part of the Microsoft Office suite of productivity software developed by Microsoft. Released on September 30, 1985, Excel is capable of creating and editing spreadsheets that are saved with a .xls or .xlsx file extension. General uses of Excel include cell-based calculation, pivot

tables, and various graphing tools. For instance, with an Excel spreadsheet, you could create a monthly budget, track business expenses, or sort and organize large amounts of data.
Unlike a word processor, such as Microsoft Word, the Excel documents consist of columns and rows of data, made up of individual cells. Each of these cells can contain either text or numerical values that can be calculated using formulas.

Excel overview
Below is an example of Microsoft Excel with each of its major sections highlighted. See the formula bar, cell, column, row, or sheet tab links for further information about each of these sections.



How can Excel be formatted?
Each of the rows, columns, and cells can be modified in many ways, including the background color, number or date format, size, text font, layout, etc. In our above example, you can see that the first row (row 1) has a blue background, bold text, and each cell has its text centered.
Download an example of a spreadsheet file
We've created a Microsoft Excel spreadsheet that can be downloaded and opened in any spreadsheet program including Microsoft Excel. This spreadsheet helps illustrate some of the capabilities of a spreadsheet, formulas, and functions used in a spreadsheet and allows you to experiment more with a spreadsheet.

Why do people use Excel?

There are many reasons people may use Excel (a spreadsheet program). For example, someone might use Excel to keep track of their expenses. For a full list of reason and examples of how people use a spreadsheet, see our spreadsheet definition.

Why would someone use Excel over a different spreadsheet program?

Today, there are many different free spreadsheet options that someone could use instead of Excel. However, even with the available free options, Excel remains the most used spreadsheet because of all its available options, features, and because many businesses still use the program.