DAR ES SALAAM SCHOOL OF JOURNALISM

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- MODULE CODE: GST 040103
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OUR MOTTOR: MEDIA FOR DEMOCRACY

INTRODUCTION TO COMPUTER

- In today's world, we use computers for all our tasks. Our day-to-day activities: paying bills, buying groceries, using social media, seeking entertainment, working from home, communicating with a friend, etc., can all be done using a computer. So it is important not only to know how to use a computer, but also to understand the components of a computer and what they do.

What is A computer?

- A **computer** is an electronic device that accepts data from the user, processes it, produces results, displays them to the users, and stores the results for future usage.
- **Data** is a collection of unorganized facts & figures and does not provide any further information regarding patterns, context, etc. Hence data means "unstructured facts and figures".
- **Information** is a structured data i.e. organized meaningful and processed data. To process the data and convert into information, a computer is used.

Functions of Computers

A computer performs the following functions;

- **Receiving Input**

Data is fed into computer through various input devices like keyboard, mouse, digital pens, etc. Input can also be fed through devices like CD-ROM, pen drive, scanner, etc.

- **Processing the information**

Operations on the input data are carried out based on the instructions provided in the programs

- **Storing the information**

After processing, the information gets stored in the primary or secondary storage area.

- **Producing output**

The processed information and other details are communicated to the outside world through output devices like monitor, printer, etc.

THE HISTORY

The history of the computer dates back to several years. There are five prominent generations of computers. Each generation has witnessed several technological advances which change the functionality of the computers. This results in more compact, powerful, robust systems which are less expensive. The brief history of computers is discussed below −

- First Generation (1940-1956)

The first generation computers had the following features and components −

Hardware

The hardware used in the first generation of computers was: **Vacuum Tubes** and **Punch Cards**.

Features

Following are the features of first generation computers −

- It supported machine language.
- It had slow performance
- It occupied large size due to the use of vacuum tubes.
- It had a poor storage capacity.
- It consumed a lot of electricity and generated a lot of heat.

Memory

The memory was of 4000 bits.

Data Input

The input was only provided through hard-wired programs in the computer, mostly through punched cards and paper tapes.

The examples of first generation computers are ENIAC,

Second Generation (1956-1963)

Several advancements in the first-gen computers led to the development of second generation computers. Following are various changes in features and components of second generation computers −

Hardware

The hardware used in the second generation of computers were −

- Transistors
- Magnetic Tapes

Features

It had features like:

- Batch operating system
- Faster and smaller in size
- Reliable and energy efficient than the previous generation
- Less costly than the previous generation

Memory

The capacity of the memory was 32,000 bits.

Data Input

The input was provided through punched cards

Examples

The examples of second generation computers are −

- Honeywell 400
- CDC 1604
- IBM 7030

Third Generation (1964-1971)

Following are the various components and features of the third generation computers −

Hardware

The hardware used in the third generation of computers were −

- Integrated Circuits made from semi-conductor materials
- Large capacity disks and magnetic tapes

Features

The features of the third generation computers are −

- Supports time-sharing OS
- Faster, smaller, more reliable and cheaper than the previous generations
- Easy to access

Memory

The capacity of the memory was 128,000 bits.

Data Input

The input was provided through keyboards and monitors.

Examples

The examples of third generation computers are −

- IBM 360/370
- CDC 6600
- PDP 8/11

Fourth Generation (1972-2010)

Fourth generation computers have the following components and features −

Hardware

The Hardware used in the fourth generation of computers were −

- ICs with Very Large Scale Integration (VLSI) technology
- Semiconductor memory
- Magnetic tapes and Floppy

Features

It supports features like −

- Multiprocessing & distributed OS
- Object-oriented high level programs supported
- Small & easy to use; hand-held computers have evolved
- No external cooling required & affordable
- This generation saw the development of networks and the internet
- It saw the development of new trends in GUIs and mouse

Memory

The capacity of the memory was 100 million bits.

Data Input

The input was provided through improved hand held devices, keyboard and mouse.

Examples

The examples of fourth generation computers are −

- Apple II
- VAX 9000
- CRAY 1 (super computers)

Fifth Generation (2010-Present)

These are the modern and advanced computers. Significant changes in the components and operations have made fifth generation computers handy and more reliable than the previous generations.

Hardware

The Hardware used in the fifth generation of computers are −

- Integrated Circuits with VLSI and Nano technology
- Large capacity hard disk with RAID support
- Powerful servers, Internet, Cluster computing

Features

It supports features like −

- Powerful, cheap, reliable and easy to use.
- Portable and faster due to use of parallel processors and Super Large Scale Integrated Circuits.
- Rapid software development is possible.

Memory

The capacity of the memory is unlimited.

Data Input

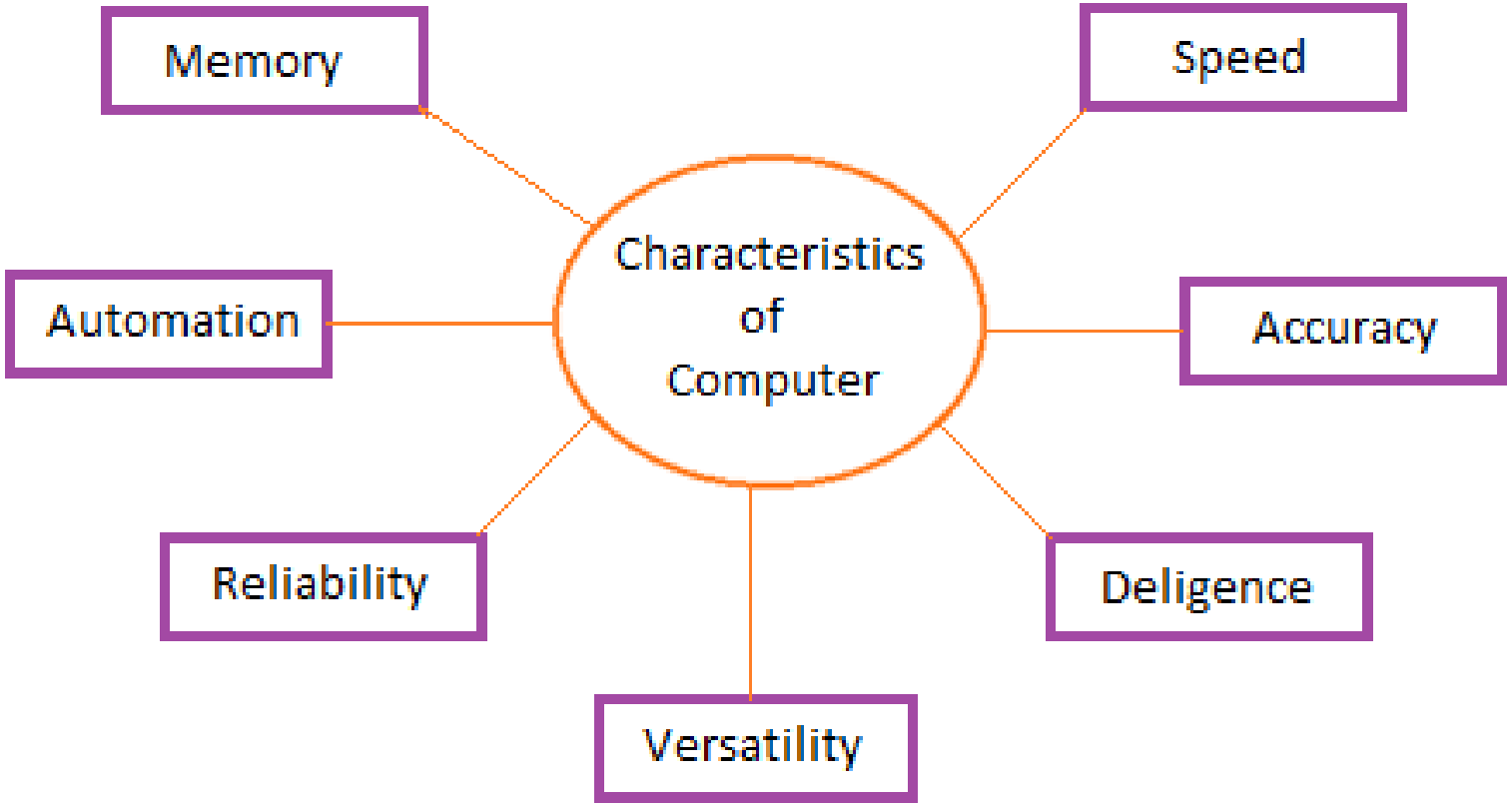
The input is provided through CDROM, Optical Disk and other touch and voice sensitive input devices.

Examples

The examples of fifth generation computers are −

- IBM
- Pentium
- PARAM

THE CHARACTERISTICS



❑ Speed

A computer works with much higher speed and accuracy compared to humans while performing mathematical calculations. Computers can process millions (1,000,000) of instructions per second. The time taken by computers for their operations is microseconds and nanoseconds.

❑ Accuracy

Computers perform calculations with 100% accuracy. Errors may occur due to data inconsistency or inaccuracy.

❑ Diligence

A computer can perform millions of tasks or calculations with the same consistency and accuracy. It doesn't feel any fatigue or lack of concentration. Its memory also makes it superior to that of human beings.

❑ Versatility

Versatility refers to the capability of a computer to perform different kinds of works with same accuracy and efficiency

❑ Reliability

A computer is reliable as it gives consistent result for similar set of data i.e., if we give same set of input any number of times, we will get the same result.

❑ Automation

Computer performs all the tasks automatically i.e. it performs tasks without manual intervention

Basic Terminology

- Computer
  - A device that accepts input, processes data, stores data, and produces output, all according to a series of stored instructions.
- Hardware
  - Includes the electronic and mechanical devices that process the data; refers to the computer as well as peripheral devices.
- Software
  - A computer program that tells the computer how to perform particular tasks.
- Network
  - Two or more computers and other devices that are connected, for the purpose of sharing data and programs.
- Peripheral devices
  - Used to expand the computer's input, output and storage capabilities

Types of Computers

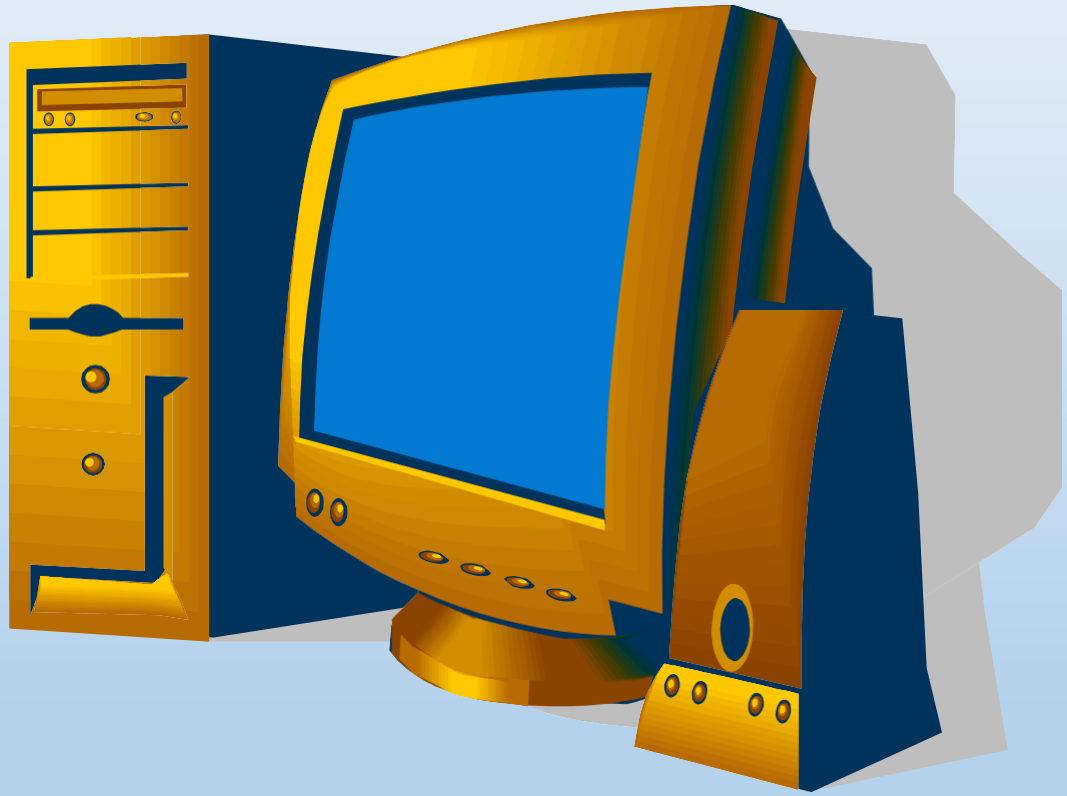
Microcomputer

- A personal computer; designed to meet the computer needs of an individual.
- Provides access to a wide variety of computing applications, such as word processing, photo editing, e-mail, and internet.

• Microcomputer

Desktop Microcomputer

- A microcomputer that fits on a desk and runs on power from an electrical wall outlet.
- The CPU can be housed in either a vertical or a horizontal case.
- Has separate components (keyboard, mouse, etc.) that are each plugged into the computer.



Laptop Computer

- A portable, compact computer that can run on an electrical wall outlet or a battery unit.
- All components (keyboard, mouse, etc.) are in one compact unit.
- Usually more expensive than a comparable desktop.
- Sometimes called a Notebook.

- Laptop Computer

Workstation

- Powerful desktop computer designed for specialized tasks.
- Can tackle tasks that require a lot of processing speed.

- Can also be an ordinary personal computer attached to a LAN (local area network).

Supercomputer

- A computer that was the fastest in the world at the time it was constructed.
- Can tackle tasks that would not be practical for other computers.
  - Typical uses
    - Breaking codes
    - Modeling weather systems

Mainframe

- Large expensive computer capable of simultaneously processing data for hundreds or thousands of users.
- Used to store, manage, and process large amounts of data that need to be reliable, secure, and centralized.
- Usually housed in a closet sized cabinet.

Server

- server

- Purpose is to “serve.”
- A computer that has the purpose of supplying its users with data; usually through the use of a LAN (local area network).

Advantages and disadvantages of using computers

Advantages of using computers

- Reliability
- Speed
- Consistency
- Storage
- communication

Disadvantages of using computers

- Health risks
- Violation of privacy
- Public safety
- Impact on labor force
- Impact on environment

Applications of Computer

Computers play a role in every field of life. They are used in homes, business, educational institutions, research organizations, medical field, government offices, entertainment, etc.

- **Home**

Computers are used at homes for several purposes like online bill payment, watching movies or shows at home, home tutoring, social media access, playing games, internet access, etc. They provide communication through electronic mail. They help to avail work from home facility for corporate employees. Computers help the student community to avail online educational support.

Medical Field

Computers are used in hospitals to maintain a database of patients' history, diagnosis, X-rays, live monitoring of patients, etc. Surgeons nowadays use robotic surgical devices to perform delicate operations, and conduct surgeries remotely. Virtual reality technologies are also used for training purposes. It also helps to monitor the fetus inside the mother's womb.

Entertainment

Computers help to watch movies online, play games online; act as a virtual entertainer in playing games, listening to music, etc. MIDI instruments greatly help people in the entertainment industry in recording music with artificial instruments. Videos can be fed from computers to full screen televisions. Photo editors are available with fabulous features.

Industry

Computers are used to perform several tasks in industries like managing inventory, designing purpose, creating virtual sample products, interior designing, video conferencing, etc. Online marketing has seen a great revolution in its ability to sell various products to inaccessible corners like interior or rural areas. Stock markets have seen phenomenal participation from different levels of people through the use of computers.

Education

Computers are used in education sector through online classes, online examinations, referring e-books, online tutoring, etc. They help in increased use of audio-visual aids in the education field.

Government

In government sectors, computers are used in data processing, maintaining a database of citizens and supporting a paperless environment. The country's defense organizations have greatly benefitted from computers in their use for missile development, satellites, rocket launches, etc.

Banking

In the banking sector, computers are used to store details of customers and conduct transactions, such as withdrawal and deposit of money through ATMs. Banks have reduced manual errors and expenses to a great extent through extensive use of computers.

Business

Nowadays, computers are totally integrated into business. The main objective of business is transaction processing, which involves transactions with suppliers, employees or customers. Computers can make these transactions easy and accurate. People can analyze investments, sales, expenses, markets and other aspects of business using computers

Introduction to GUI based Operating System

- Basics of Operating System
- Operating System

▪Operating system is a software that controls system's hardware and interacts with user and application software.

- In short, an operating system is computer's chief control program

Functions of Operating System

The operating system performs the following functions −

- It offers a user interface.
- Loads program into computer’s memory.
- Coordinates how program works with hardware and other software.
- Manages how information is stored and retrieved from the disk.
- Saves contents of file on to disk.
- Reads contents of file from disk to memory.
- Sends document to the printer and activates the printer.
- Provides resources that copy or move data from one document to another, or from one program to another.
- Allocates RAM among the running programs.
- Recognizes keystrokes or mouse clicks and displayes characters or graphics on the screen.

Basics of Popular Operating Systems

- Basics of Popular Operating Systems (Windows, LINUX)
- We shall discuss about the basic of Operating Systems in this section –
- Windows Operating System

•Windows operating system is developed by Microsoft Corporation. It provides Graphical User Interface (GUI), multitasking capability to users. It also provides virtual memory management and several peripheral devices. According to statistics, about 90% of computers have migrated to Windows operating system.


Recycle Bin
Opera Browser
Recently added
Configure Java
Java Mission Control
Readme.txt
Expand
A
Acrobat.com
Adobe Reader 9
Alarms & Clock
New
Android Studio
B
Bloodshed Dev-C++
C
Calculator
New
Calendar
New
Camera
New
Connect
Create
See all your mail in one place
And more...
Calendar
Mail
Get Office
Notes to go
Read and edit on any device
OneNote
Explore
Microsoft Store
Microsoft Edge
Skype
Play
Xbox
Photos
Type here to search
3:58 AM
4/23/2015

While working with a computer, we use a set of items on screen called "user interface". In simple terms, it acts as an interface between user and

pts inputs from input devices

ut to computer monitor.

Task Bar

- Task bar appears at bottom of the Windows desktop.
- It is used to launch and manage programs.
- It also shows icons of currently running program


Recycle Bin
Opera Browser
Acrobat.com
TeamViewer 11
Adobe Reader 9
Turbo C++
Google Chrome
Unity 2017.1.0...
Winamp
VLC media player
IObit Uninstaller
Mozilla Firefox
Type here to search
Microsoft Edge
4:00 AM
4/23/2018
Task bar

Component of task bar

- A task bar consists of following three components –

. Start menu

. Quick launch bar

. Notification area

- Start Menu

•Start menu contains shortcuts for launching programs and opening folders on computer.


Recycle Bin
Opera Browser
Acrobat.com
TeamViewer 13
Adobe Reader 9
Turbo C++
Google Chrome
Unity 2017.1.0...
Winamp
VLC media player
IObit Uninstaller
Mozilla Firefox
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4:02 AM
4/23/2018
Start menu

Quick Launch Bar

It is a special section at left end of task bar where we can add icons to quickly start programs.

Icons

A small pictogram displayed on the desktop is called an "icon". It represents links to the resources on PC or network. Icons actually are tiny graphical symbols that represent programs, files, folders, printers, documents, etc. Icons are also called as "shortcuts". Using mouse pointer, we can click the icon and then corresponding resource will be launched.

Start Menu

Start menu consists of shortcuts for launching programs and folders. It also consists a list of most recently used documents and provides ‘search’ option and supports ‘help’ feature

Launching Start Menu

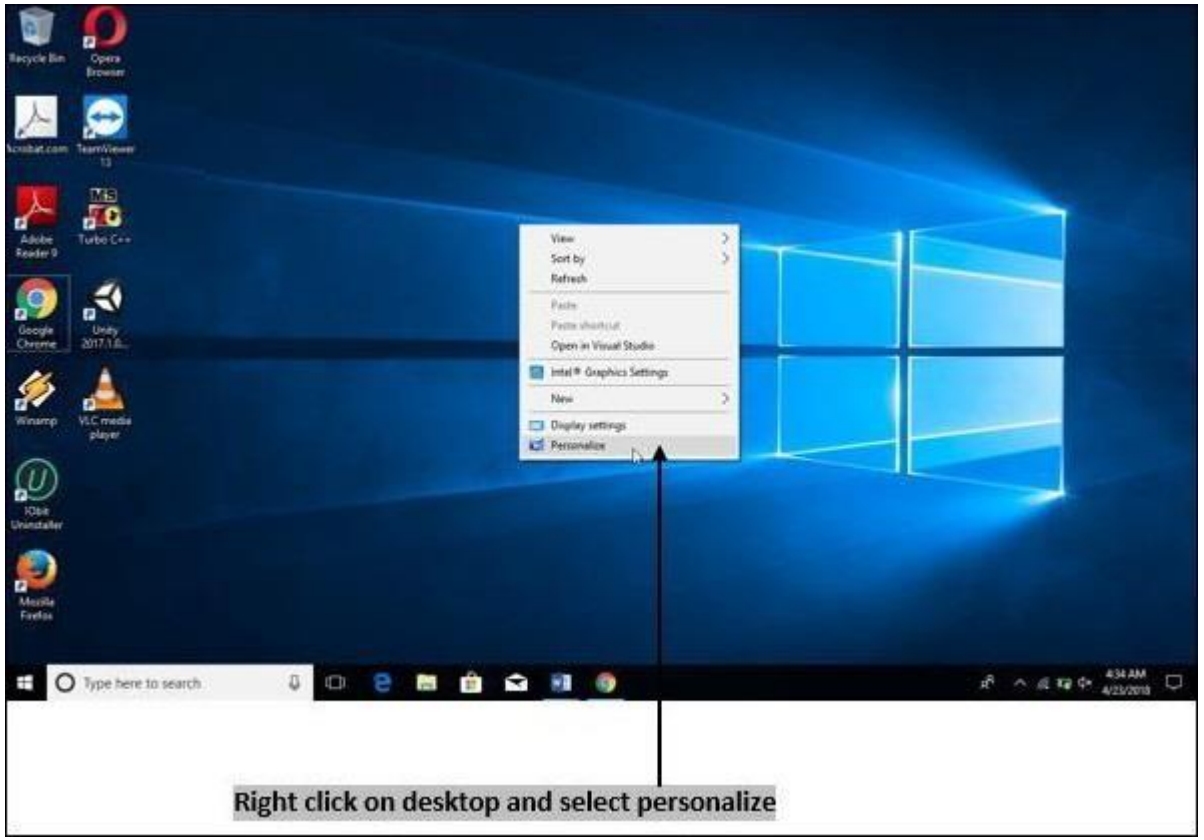
Start menu can be set in motion by clicking (⊞ Win) windows button on a keyboard.
It can also be launched by pressing CTRL+ESC on a keyboard.
By clicking on the visual Start button, it can be launched

Visual start button

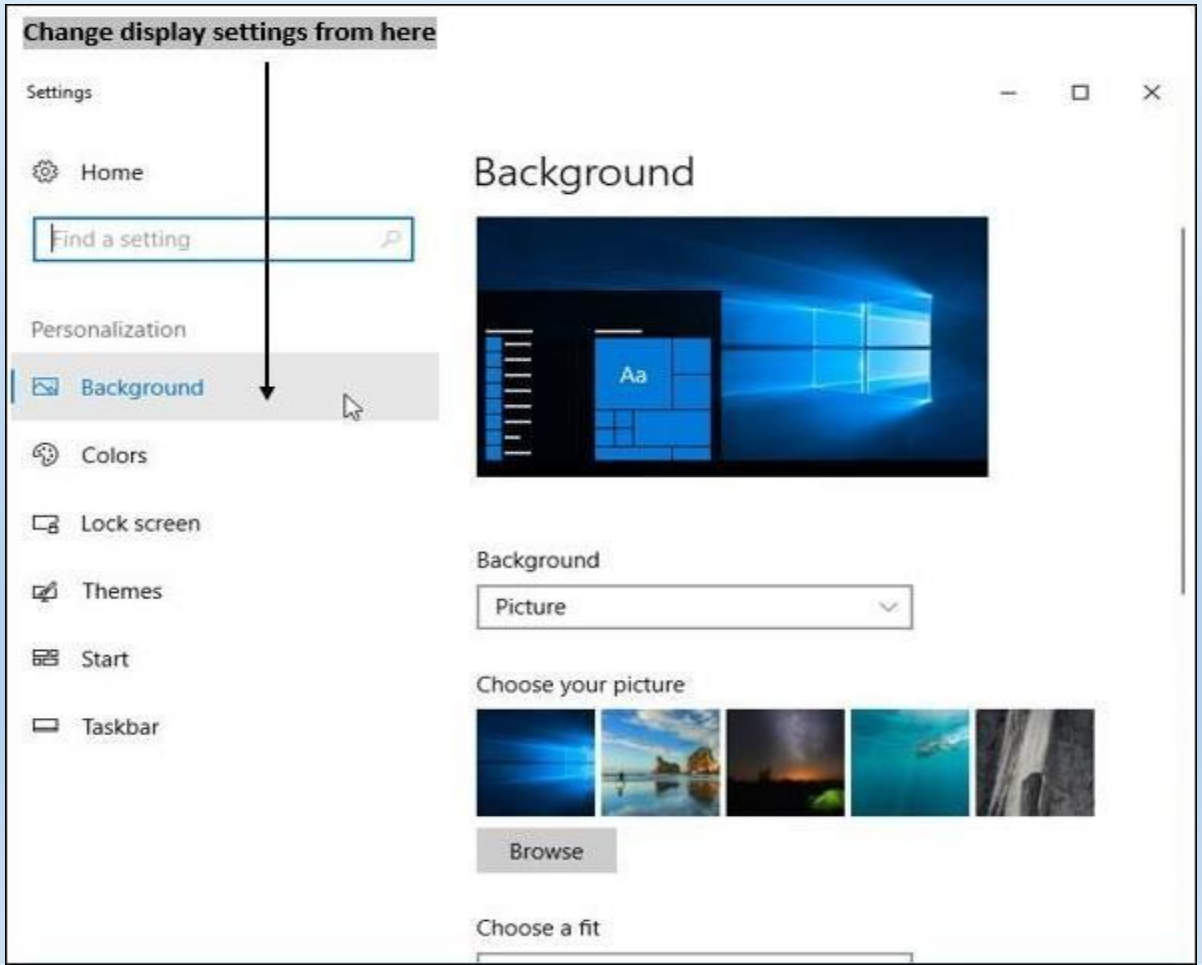
Changing Display Properties

Display properties include Desktop Background, Text, Window Color, Sounds, Screensaver, etc. To change these display properties, we have to perform the following steps.

Step 1 – Right click on desktop and select "**Personalize**" from displaying options.



Step 2 − From the displayed window, select desired action, like changing the background/themes/resolution, and press "**Save Changes**" button.



Step 3 − Alternate way is to go to the **"Control Panel"** from Start menu and select **"Appearance and Personalization"** and select display you want from the listed options and save changes