

Introduction to Computer



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Briefing

- What is Computer
- What is the use of Computer?
- Types of Computer.

What is Computer?



Computer is general purpose machine that manipulates raw fact, according to set of instructions that are fed into it.

It is actually a combination of both hardware and software that transforms data into information and performs calculation. So, one can say it is an electronic device which is used for storing and processing of data and information

A computer is a digital electronic device that accepts the data from user, processes it by performing a variety of operations and calculations by using software to generate the result (see Figure 1)

It needs both hardware and software in order to be useful.

Data: Raw facts or figure that need to be processed.

Information: Meaningful data which is processed, a organized and presented in an understandable form.

Instruction: Command that tells computer what to do.

Processing: Sequence of action taken on data to convert it into information.

Hardware: The physical components of computer.

Program: The instructions that tell the computer what to do, either in sequential or non-sequential manner

SPEAKERS

Used to produce audio output. \

MONITOR

An output device that lets you see your work as you go.

CD/DVD DRIVE

Reads CD/DVD discs. \

SYSTEM UNIT

The case that contains the CPU, memory, the power supply, disk drives, and all other hardware—such as a modem—that are in an internal format.

PRINTER

Produces printed copies of computer output.

MICROPHONE

Used to get spoken input.

FLOPPY DISKS

Used for storing small amounts of data for backup or to transport data to another PC.

KEYBOARD

The principal input device; used to type instructions into the computer.

CD/DVD DISCS

Commonly used to deliver programs and store large multimedia files.

MOUSE

A pointing device used to make on-screen selections.

FLOPPY DISK DRIVE

Reads from and writes to floppy disks.

HARD DRIVE

Located inside the system unit and used to store programs and most data.

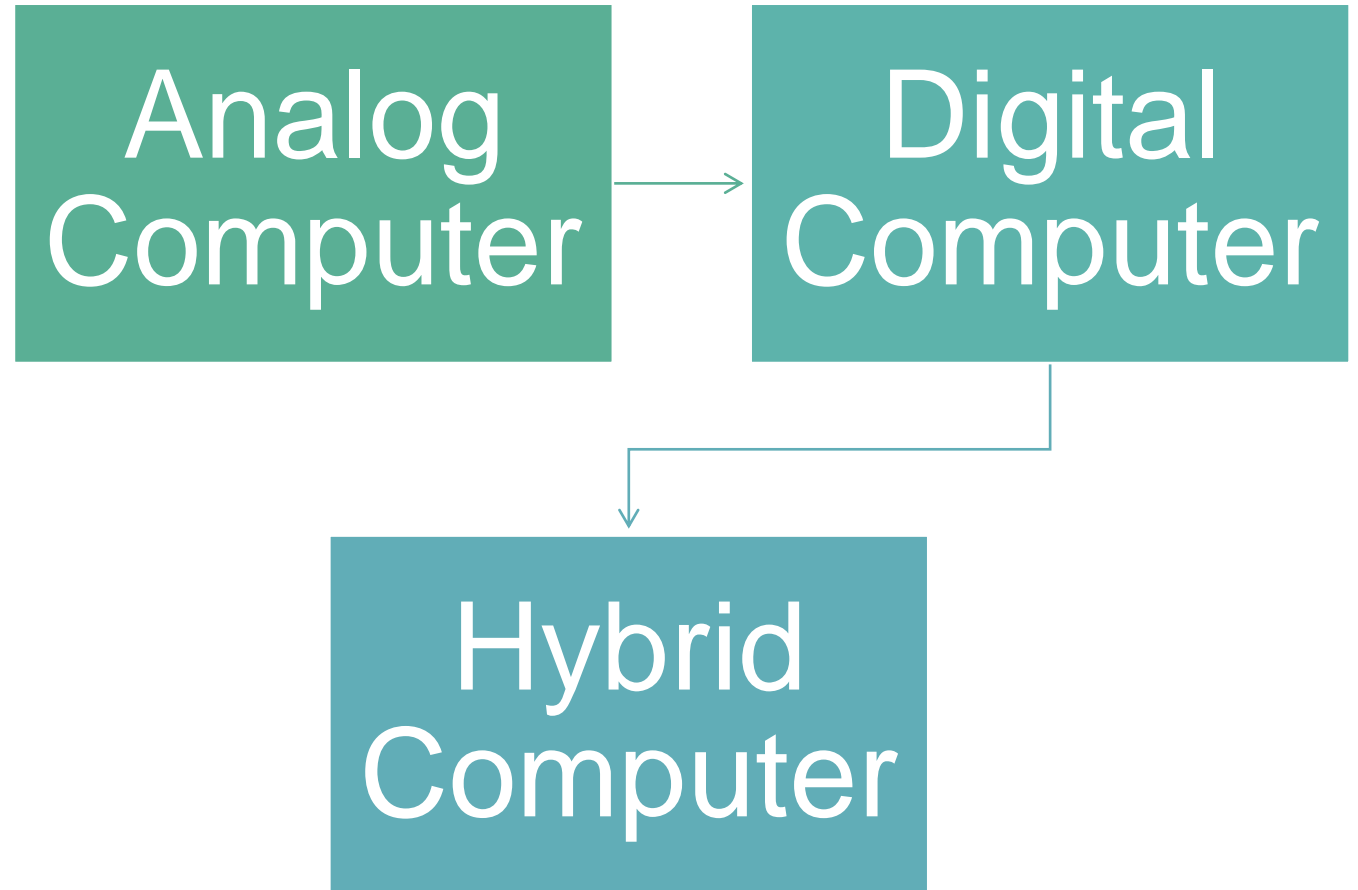
- FLASH MEMORY CARD READER

Used to read flash memory cards.

**FIGURE 1-7**

Typical computer hardware.

Types of Computer



Types of Analogue Computers

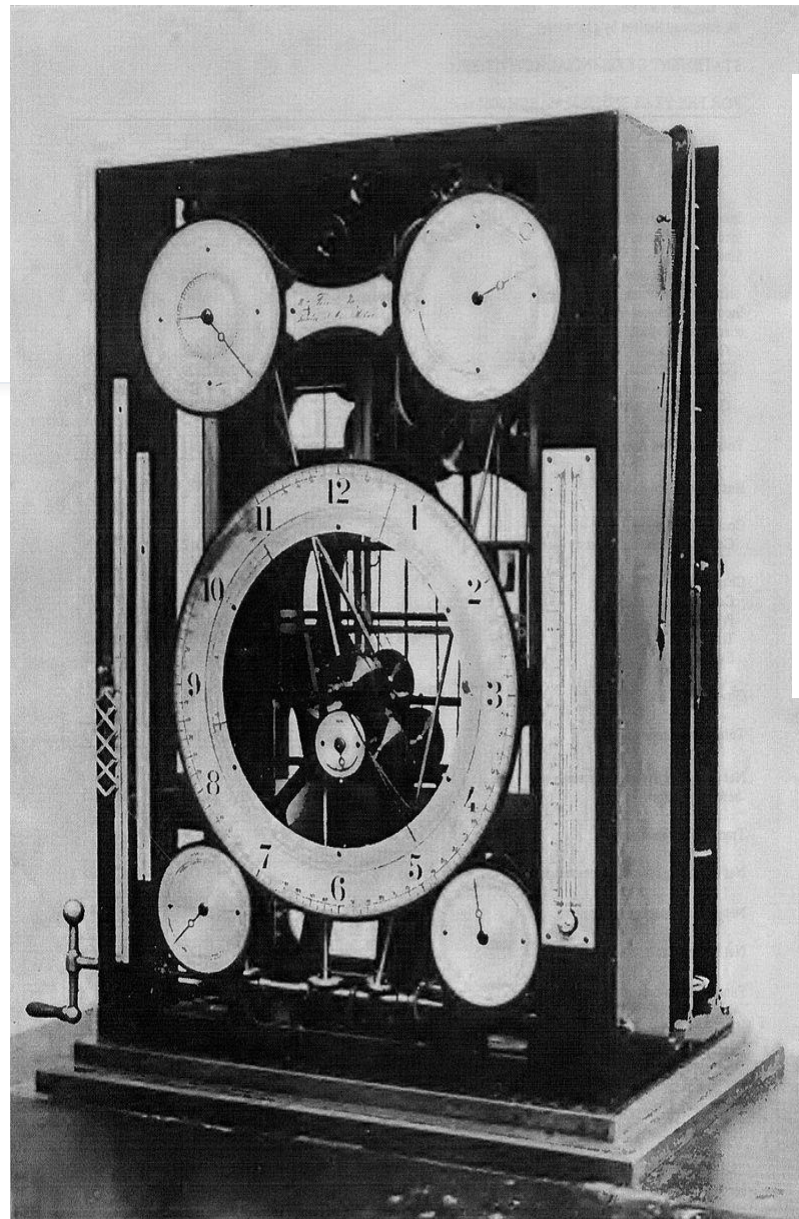
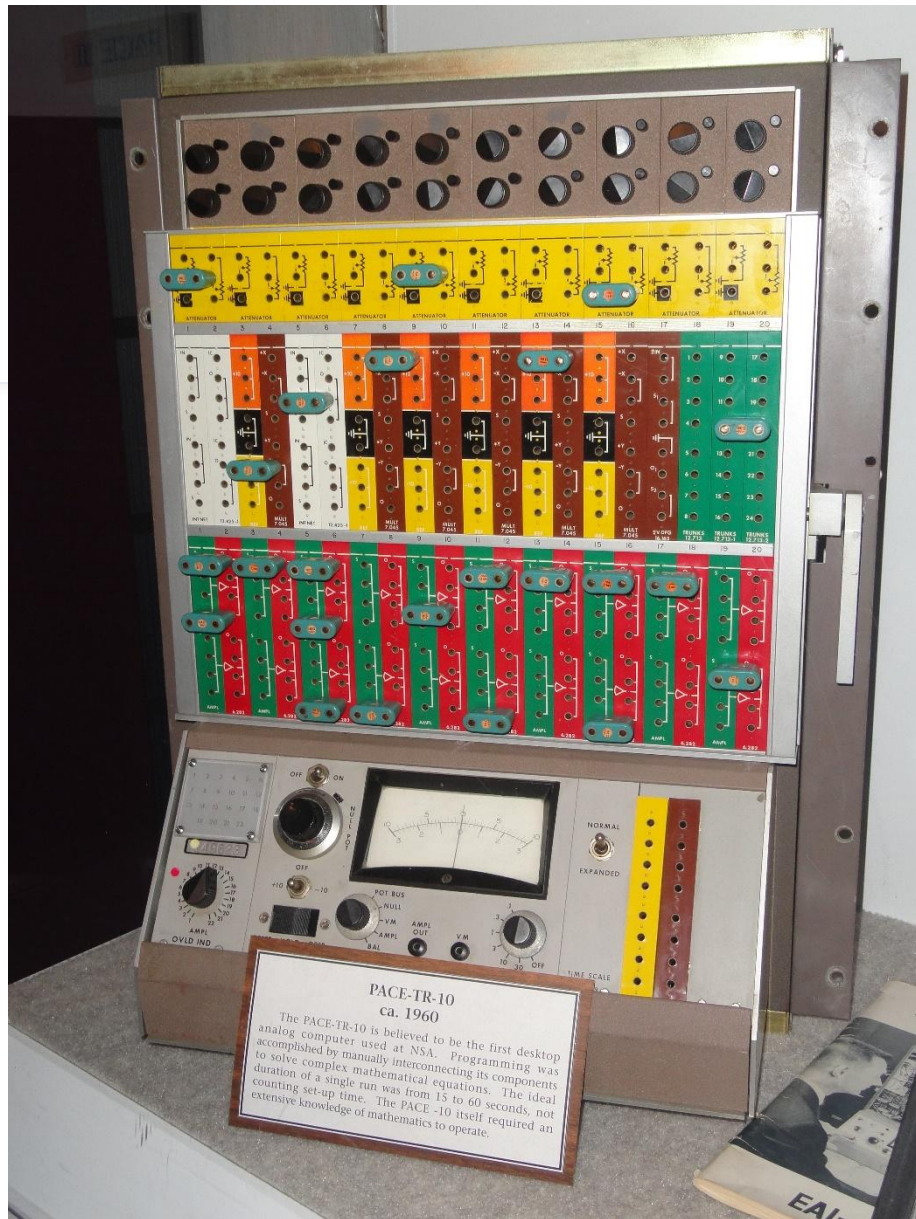
1. Slide Rules
2. Differential Analysers
3. Castle Clock
4. Electronic Analogue Computers
5. Mechanical Analogue Computers

Examples of Analogue Computers

1. Thermometer
2. Speedometer
3. Analogue Clock
4. Seismometer
5. Voltmeter
6. Flight Simulators
7. Tide Predictors

Analog Computer

- An **analog computer** or **analogue computer** is a type of [computer](#) that uses the continuous variation aspect of physical phenomena such as [electrical](#), [mechanical](#), or [hydraulic](#) quantities ([analog signals](#)) to [model](#) the problem being solved. In contrast, [digital computers](#) represent varying quantities symbolically and by discrete values of both time and amplitude ([digital signals](#)).
- Analog computers can have a very wide range of complexity. [Slide rules](#) and [nomograms](#) are the simplest, while naval gunfire control computers and large hybrid digital/analog computers were among the most complicated.^[1] Complex mechanisms for [process control](#) and [protective relays](#) used analog computation to perform control and protective functions.
- Analog computers were widely used in scientific and industrial applications even after the advent of digital computers, because at the time they were typically much faster, but they started to become obsolete as early as the 1950s and 1960s, although they remained in use in some specific applications, such as aircraft [flight simulators](#), the [flight computer](#) in [aircraft](#), and for teaching [control systems](#) in universities. Perhaps the most relatable example of analog computers are [mechanical watches](#) where the continuous and periodic rotation of interlinked gears drives the second, minute and hour needles in the clock. More complex applications, such as aircraft flight simulators and [synthetic-aperture radar](#), remained the domain of analog computing (and [hybrid computing](#)) well into the 1980s, since digital computers were insufficient for the task.^[2]



Digital Computer



- **Digital computer**, any of a class of devices capable of solving problems by processing information in discrete form. It operates on data, including magnitudes, letters, and symbols, that are expressed in binary code—i.e., using only the two digits 0 and 1. By counting, comparing, and manipulating these digits or their combinations according to a set of instructions held in its memory, a digital computer can perform such tasks as to control industrial processes and regulate the operations of machines; analyze and organize vast amounts of business data; and simulate the behaviour of dynamic systems (e.g., global weather patterns and chemical reactions) in scientific research.

Hybrid computers

- **Hybrid computers** are computers that exhibit features of analog computers and digital computers. The digital component normally serves as the controller and provides logical and numerical operations, while the analog component often serves as a solver of differential equations and other mathematically complex problems.



Example of Hybrid Computers

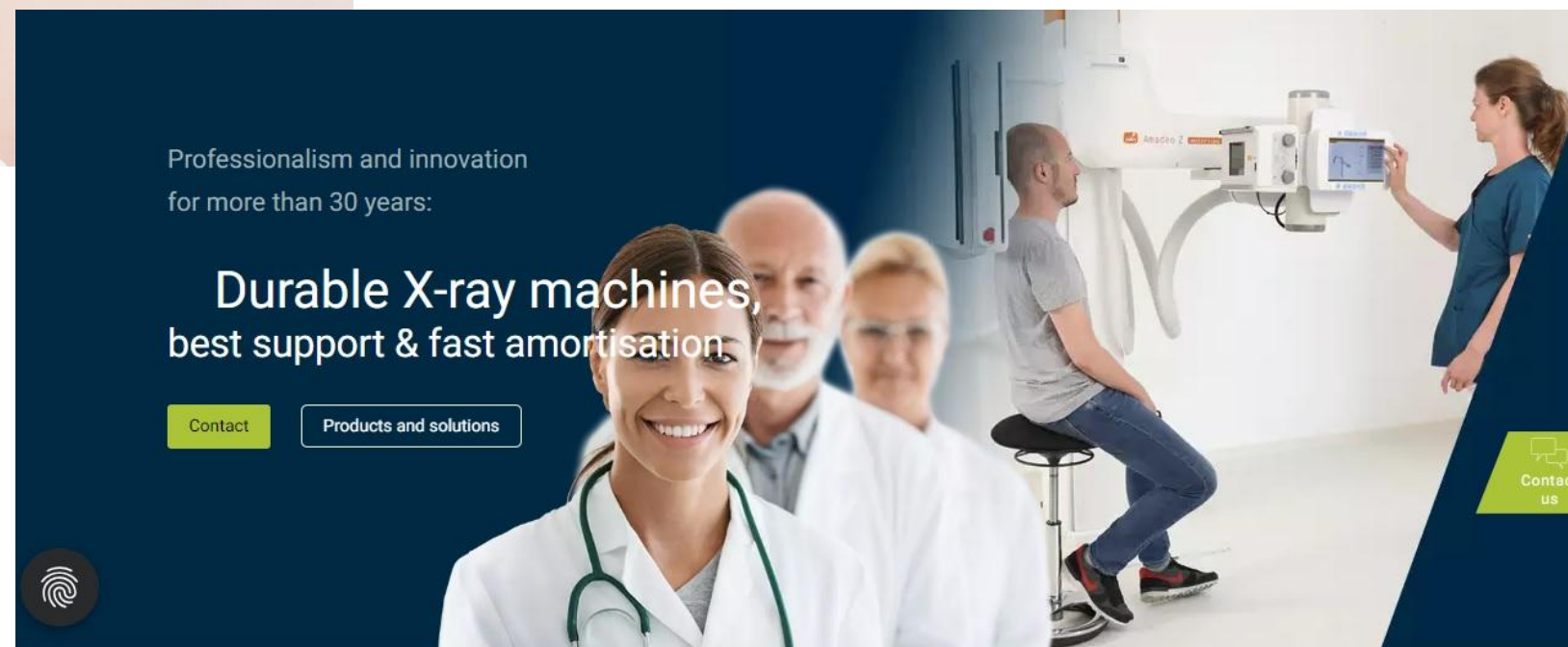




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CLASSIFICATION OF COMPUTER

BASED ON TYPE



**ANALOG
COMPUTER**



**DIGITAL
COMPUTER**



**HYBRID
COMPUTER**

BASED ON PURPOSE



**GENERAL-PURPOSE
COMPUTER**



**SPECIAL-PURPOSE
COMPUTER**

BASED ON SIZE



**MICRO
COMPUTER**



**MINI
COMPUTER**



**MAIN FRAME
COMPUTER**



**SUPER
COMPUTER**

Super computer



The IBM Blue Gene/P supercomputer "Intrepid" at Argonne National Laboratory runs 164,000 processor cores using normal data center air conditioning, grouped in 40 racks/cabinets connected by a high-speed 3D torus network.^{[1][2]}

A **supercomputer** is a computer with a high level of performance as compared to a general-purpose computer. The performance of a supercomputer is commonly measured in floating-point operations per second (FLOPS) instead of million instructions per second (MIPS). Since 2017, there have existed supercomputers which can perform over 10^{17} FLOPS (a hundred quadrillion FLOPS, 100 petaFLOPS or 100 PFLOPS).^[3] For comparison, a desktop computer has performance in the range of hundreds of gigaFLOPS (10^{11}) to tens of teraFLOPS (10^{13}).^{[4][5]} Since November 2017, all of the world's fastest 500 supercomputers run on Linux-based operating systems.^[6] Additional research is being conducted in the United States, the European Union, Taiwan, Japan, and China to build faster, more powerful and technologically superior exascale

supercomputers.^[7]

Mainframe computer



A **mainframe computer**, informally called a **mainframe** or **big iron**,^[1] is a computer used primarily by large organizations for critical applications like bulk data processing for tasks such as censuses, industry and consumer statistics, enterprise resource planning, and large-scale transaction processing. A mainframe computer is large but not as large as a supercomputer and has more processing power than some other classes of computers, such as minicomputers, servers, workstations, and personal computers. Most large-scale computer-system architectures were established in the 1960s, but they continue to evolve. Mainframe computers are often used as servers.

The term *mainframe* was derived from the large cabinet, called a *main frame*,^[2] that housed the central processing unit and main memory of early computers.^{[3][4]} Later, the term *mainframe* was used to distinguish high-end commercial computers from less powerful machines.^[5]

Need for Computer



Provide suitable optimal
Solution in problem
solving



Correct and efficient Work
and Calculations.



Improve productivity
And reduce the time
complexity



Increase the utilization of
data and information over
the network Organization

Characteristics of computer

The major characteristics of computers, due to which it is proved out to be useful are:

Speed: Billions of complex arithmetic operations can be performed in a second. **Accuracy:** Every calculation is performed with almost complete accuracy.

Diligence: Computer is free from tiredness, and can work for 24 hours without creating an error.

Automatic: Job can be performed without human intervention..

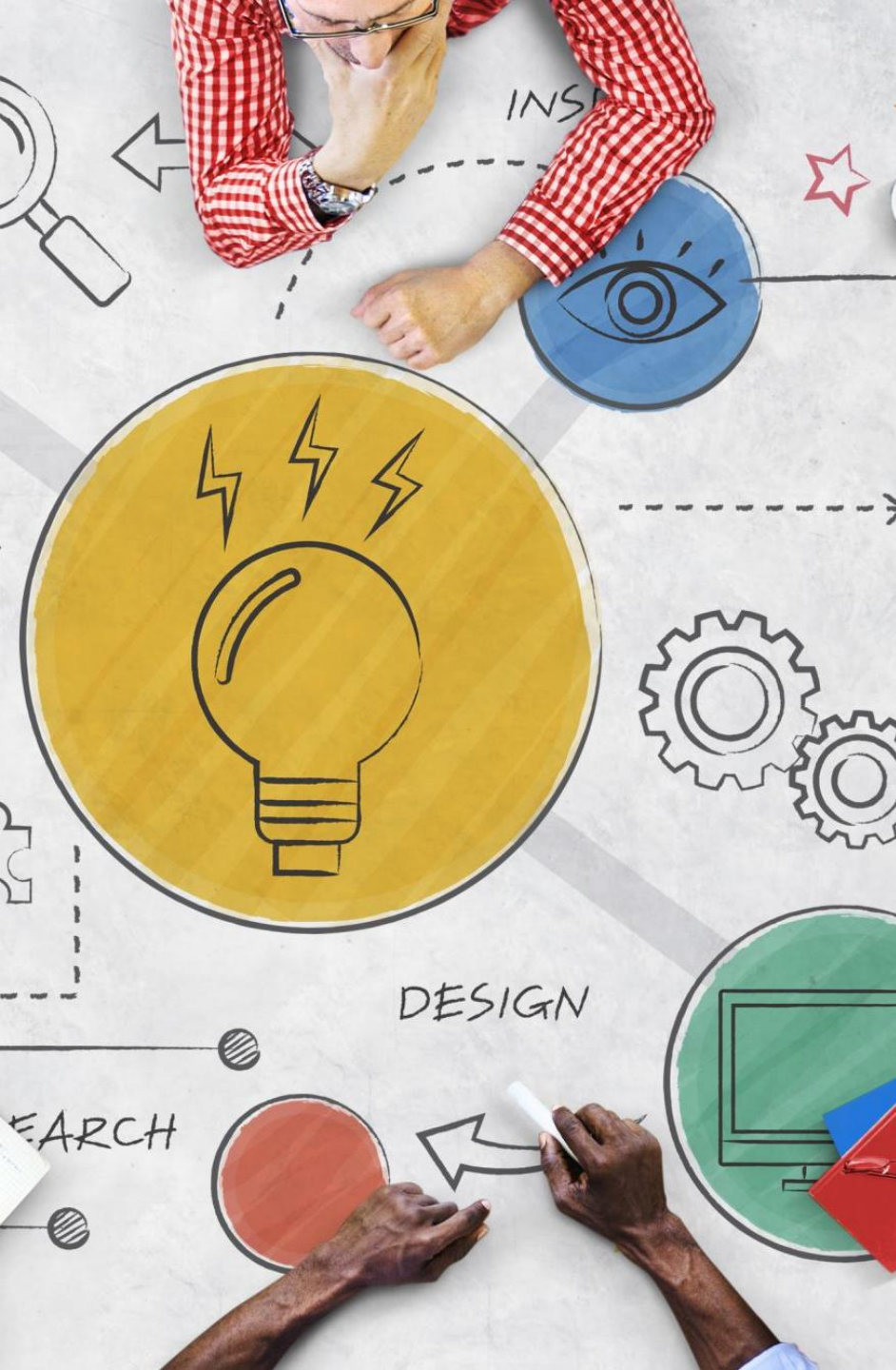
Storage capacity: It can store huge amount of data, photos and videos.

Reliability: Computers never make mistakes of their own accord.

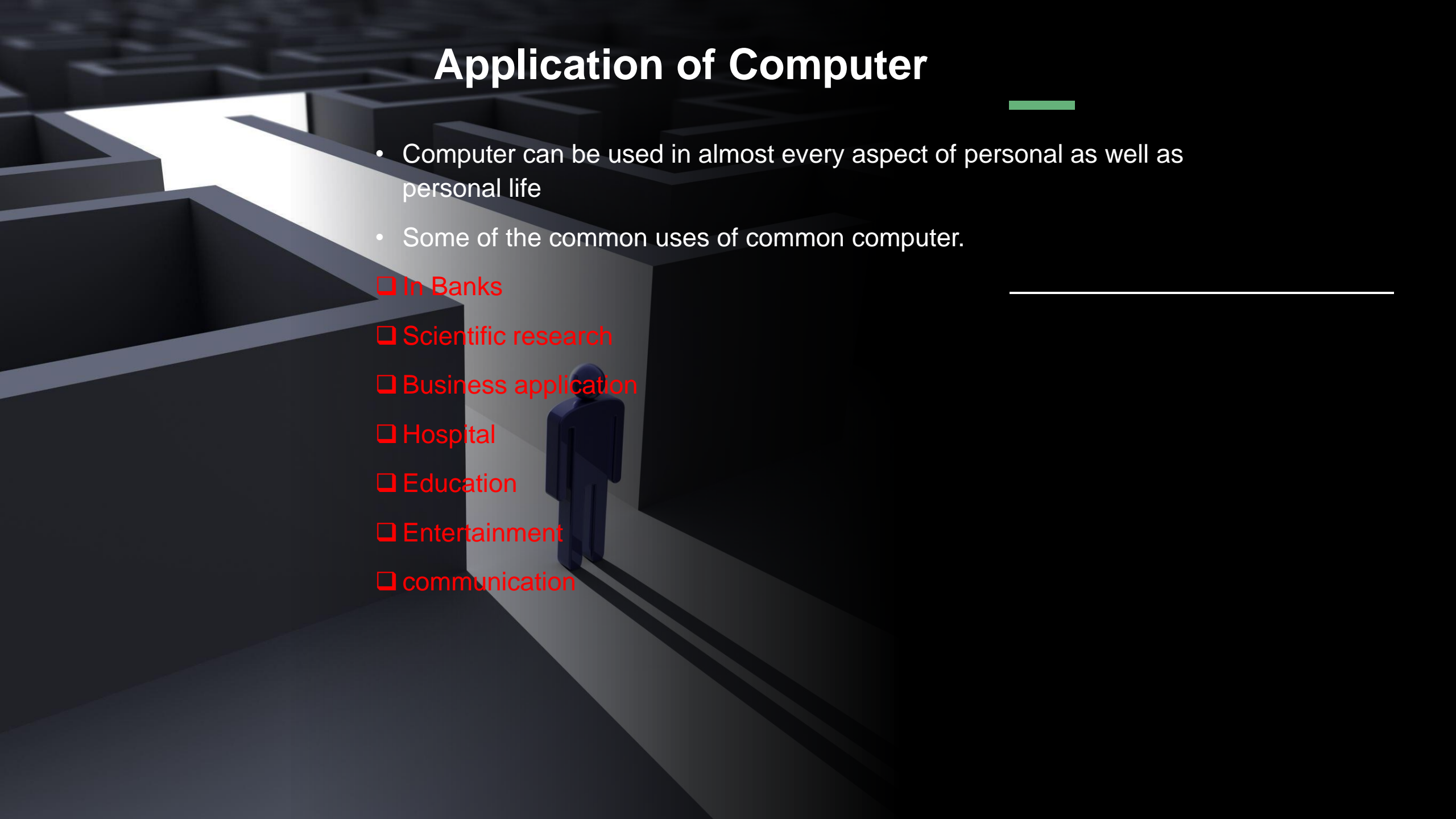
Versatility: It can perform multiple tasks at the same time.

Plug and play: It can automatically configure new hardware and software components.

Benefits of Computer



Application of Computer

A 3D maze with a person standing in a path, symbolizing the application of computers in various fields. The maze is made of dark grey blocks, and the path is illuminated by a bright light source from the top left, creating strong shadows. A small, dark blue 3D human figure stands in the middle of the path, looking towards the right. The background is a solid dark blue.

- Computer can be used in almost every aspect of personal as well as personal life
- Some of the common uses of common computer.

☐ In Banks

☐ Scientific research

☐ Business application

☐ Hospital

☐ Education

☐ Entertainment

☐ communication

Computers play an important role in our everyday life. Let's see the uses of computers in various fields and why the computer is important in our life.

- **Today, the computer is indispensable, and its presence has become very important and necessary in our daily life, and it has become easier for us to do many operations and activities.**
- **A computer is an electronic device that receives information and data, automatically stores it and retrieves it at any time, and uses it in a useful manner. The computer converts different types of numbers and solves intractable mathematical equations very quickly and with high accuracy. That is why we need a clean PC build.**

- The computer has been able to invade the lives of individuals in a large way, and it is used in all areas of their lives, and based on this great position that it has enjoyed, the manufacturers have been interested in producing many shapes and types for it in line with the user's need, including the mobile device, office devices, and others.
- The more advanced the device is, the more benefits will be gained from it. There are many things to consider before buying an All in One Computers for everyday use.
- Computer use is common in homes, institutions, businesses, and education, it is also an integral part of the services, entertainment, and other sectors.

An aerial photograph of a long, multi-lane highway bridge spanning a body of green water. The bridge has several lanes in each direction, with white dashed lines marking the lanes. Several vehicles, including cars and trucks, are visible traveling across the bridge. The water is a vibrant green color with visible ripples. The text "Thank You" is overlaid in a white, italicized font, centered horizontally across the middle of the image. A thin white horizontal line is positioned below the text.

Thank You
