The Apple Macintosh, introduced in 1984, indeed had a significant impact on the computer industry and was considered a game-changer for several reasons. When compared to computers of earlier versions, the macintosh offered several notable features and performance improvements.

* Graphical user Interface (GUI):

The macintosh was one of the first computers to introduce a graphical user interface, which revolutionized how users interacted with computer. The GUI along with the use of a mouse made computing more intuitive and user-friendly compared to earlier command-like interface

* WYSIWYG (what you see is what you get) Editing:

The macintosh introduced WYSIWYG editing, allowing users to see on the screen exactly how the printed output would look. This was a significant departure from earlier systems where users had to rely on complex formatting codes and had limited visibility into the final output.

* Desktop publishing capabilities:

The macintosh, combined with software like Adobe pagemaker, revolutionized desktop publishing. It provided users with the ability to create professional looking documents, including advanced typography, graphics, and page layouts.

* All-in-one Design:

The Macintosh featured an all-in-one design, integrating the monitor, keyboard, and computer components into a single unit. This compact design made it more accessible and convenient for users compared to earlier systems that often consisted of separate components and required additional desk space.

* Mouse Input:

The Macintosh popularized the use of a mouse as a standard input devices. This allowed users to point, click and interact with graphical elements on the screen, providing a more intuitive and efficient way to navigate through applications and perform tasks.

* Built-in Fonts and Graphics:

The Macintosh came with a selection of built-in fonts and graphics, making it easier for users to create visually appealing documents and presentations. This eliminated the need for external hardware or additional software to enhance the visual aspects of computer-generated texts.

* Ease of use:

The Macintosh aimed to be user-friendly and accessible to a wider audience.

(2) Computers can be classified based on their functionality and computing power into several categories. Here are some common classifications along with their typical applications.

* Supercomputers:

⇒ Computing power: Supercomputers are the most powerful computers available, capable of performing massive calculations and handling complex simulations.

⇒ Applications: Supercomputers are used for scientific research, weather forecasting, molecular modeling, nuclear simulations, climate studies, and other computationally intensive tasks.

* Mainframe computer:

⇒ Computing power: Mainframes are powerful computers designed to handle large-scale data processing and support multiple users concurrently.

⇒ Applications: Mainframes are used in industries such as banking, finance, healthcare, and government for tasks like transaction processing, data storage, data analysis, and hosting critical applications.

* minicomputers.

⇒ Computing power: minicomputers have moderate computing power, falling between mainframes and personal computers.

⇒ Applications: minicomputers were commonly used for small-scale business applications, process control, scientific research, and educational institutions. However, they have largely been replaced by more powerful microcomputers.

* Microcomputers (Personal Computers):

⇒ Computing power: microcomputers, also known as personal computers (PCs) are designed for individual use and provide a wide range of computing power depending on the specific configuration.

⇒ Applications: Personal computers are used in various fields such as business, education, entertainment, research, programming, gaming and general productivity tasks like word processing, web browsing, and multimedia consumption.

* laptops and notebooks:

⇒ Computing power: laptops and notebooks offer computing power similar to desktop computers but in a portable form factor.

⇒ Applications: laptops are widely used for general computing tasks, mobile productivity, internet browsing, multimedia consumption, and on-the-go work.

(3)

(3) * Control unit (CU):

⇒ The Control unit manages and coordinates the activities of the CPU.

⇒ It interprets and decodes instructions, determines the sequence of operations, and controls data flow between different CPU components

* Arithmetic logic unit (ALU):

⇒ The ALU performs arithmetic operations (eg: addition, Subtraction) and logical operations (e.g. AND, OR) on data

⇒ It operates on binary data, manipulating bits and performing calculations based on the instructions provided by the control unit.

* Registers:

⇒ Registers are small, high-speed memory locations used for temporary storage within the CPU.

⇒ They hold data, instructions, and intermediate results during processing.

* Cache memory:

⇒ Cache memory is a small but fast memory located within the CPU.

⇒ It stores frequently accessed data and instructions to reduce the time needed to access information from the main memory.

* Instruction Fetch:

⇒ The CPU fetches instructions from memory based on the Program counter (PC) value.

⇒ The control unit fetches the instruction from memory and stores it in the instruction register (IR) for decoding

* Instruction Decode:

⇒ The control unit decodes the Instruction Stored in the Instruction register (IR)

It determines the operation to be performed and the data required for the instruction.

* Instruction Execution:

⇒ The control unit issues control signals to the ALU and other components to perform the required operations.

⇒ The ALU carries out arithmetic, logical, and data manipulation operations based on the instruction.

* Memory Access:

⇒ If required by the instruction, the CPU may access main memory or cache memory to fetch or store data.

⇒ The memory access stage involves reading or writing data from/to memory locations.

* Write Back:

⇒ The final stage involves storing the results of the executed instruction in a register or memory location.