

Examrace

Physical Addresses Computer Science YouTube Lecture Handouts

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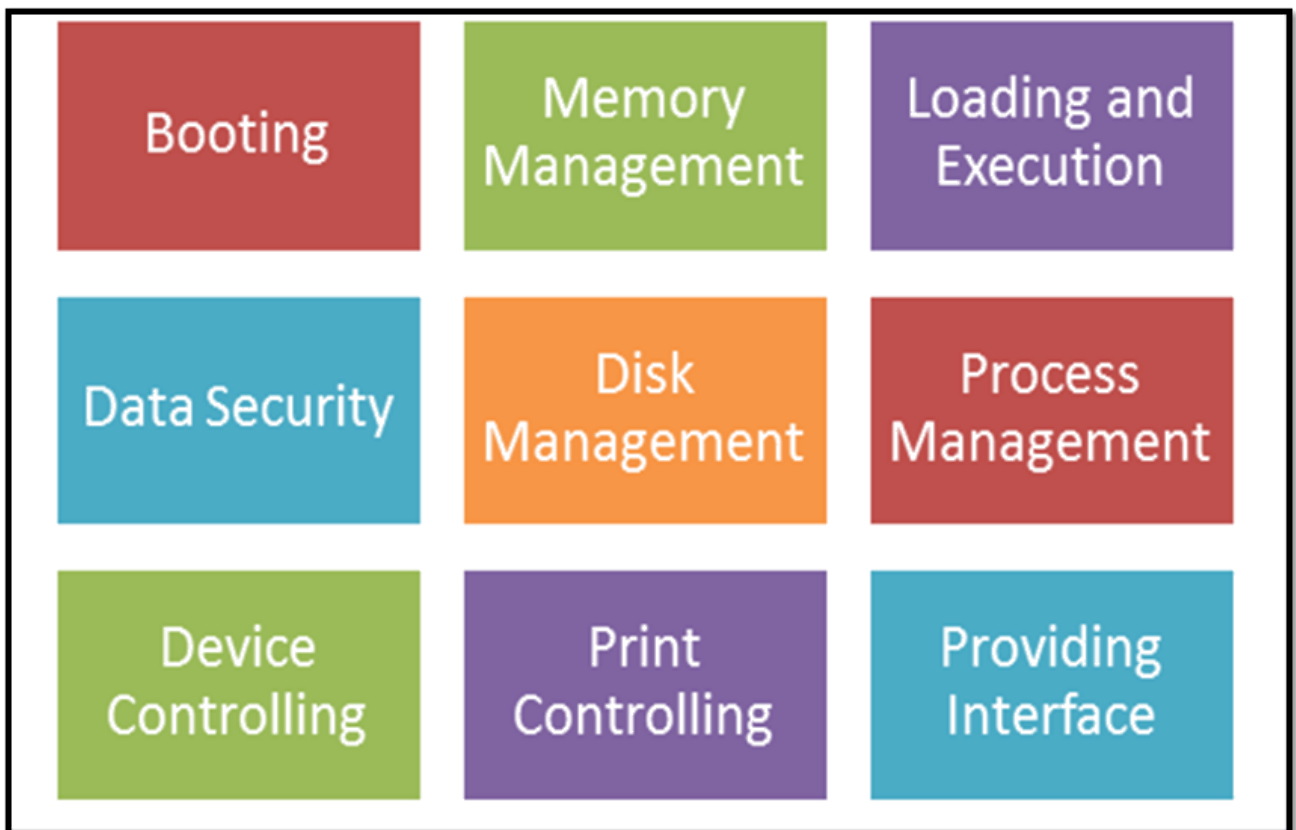
Topics:

1. Operating System
2. Memory Management
3. Logical Address
4. Physical Address
5. Comparison between logical address & physical address

Operating System

- An operating system is a program that manages the computer hardware.
- It also provides a basis for application programs.
- It also acts as an intermediary between a user of a computer and the computer hardware.
- CPU scheduling is the basis of multi-programmed operating systems.

Functions of Operating System

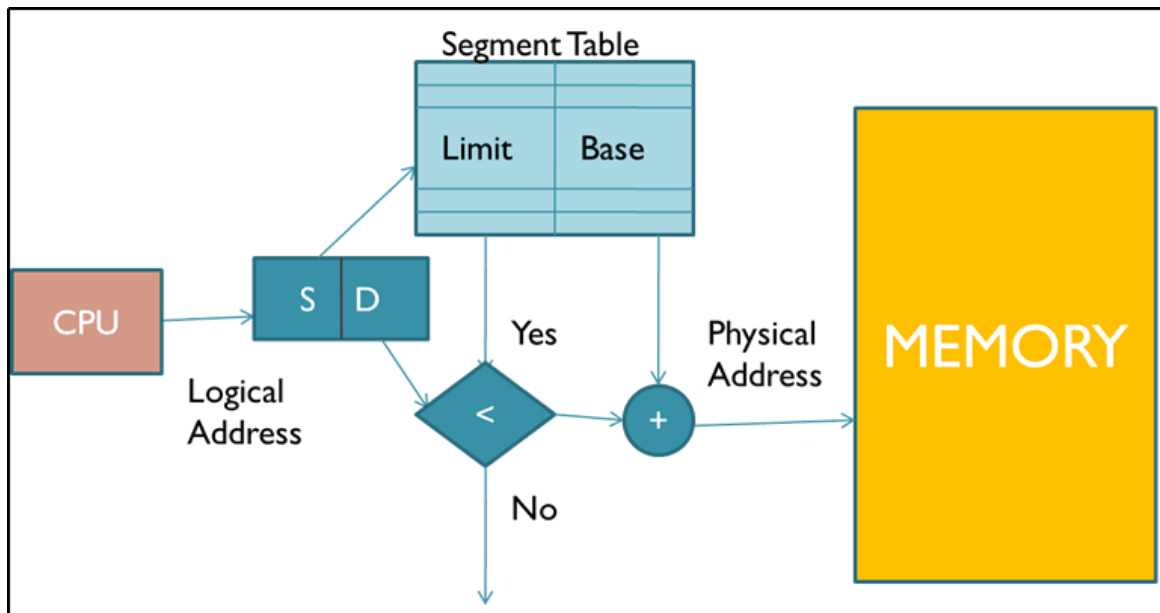


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Memory Management

- By **memory management**, we can improve both the utilization of the CPU and the speed of the computer's response to its users.
- Memory consists of a large array of words or bytes, each with its own address.
- The CPU fetches instructions from memory according to the value of the program counter.
- Instruction may cause loading from & storing to specific memory addresses.

- Address uniquely identifies a location in the memory.
- There are two types of addresses that are logical address and physical address.



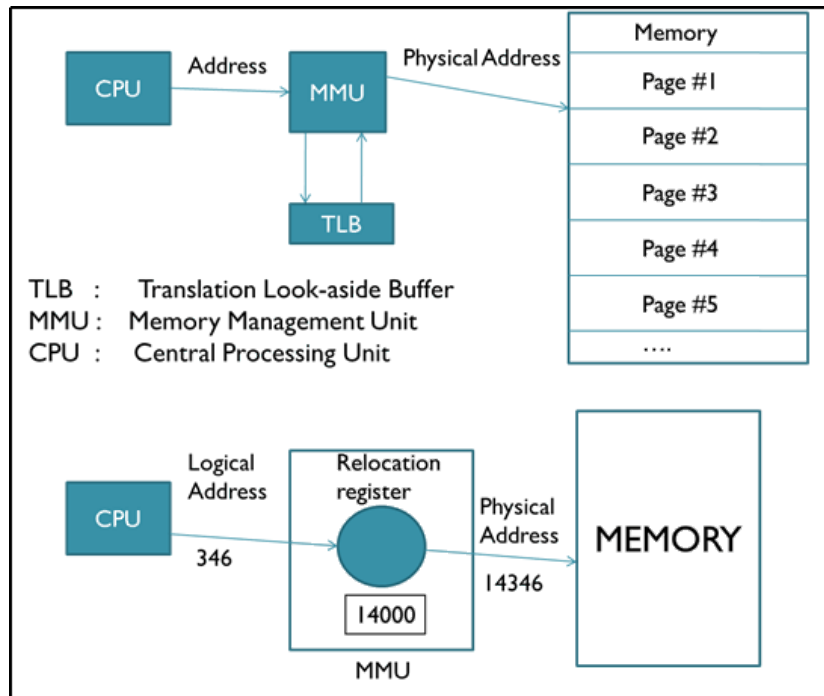
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Logical Address

- Address of something generated by the central processing unit while a program is running is referred to as a Logical Address.
- The address is also referred to as a virtual address and can be viewed by the user.
- The logical address is used like a reference, to access the physical address.

Physical Address

- Refers to either a memory location, identified in the form of a binary number, or media access control (MAC) address.
- A physical address is also known as a binary address or a real address.
- In networking, physical address refers to a computer's MAC address, which is a unique identifier associated with a network adapter that is used for identifying a computer in a network.
- The user can't view the physical address directly.
- Physical addresses usually range $R + \text{Zero}$ ($R + 0$) to $R + \text{maximum}$ ($R + \text{max}$) for a base or relocation register value 'R'.



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Difference between Logical Address & Physical Address

| Basic of Comparison | Logical Address | Physical Address |
|---------------------|---|--|
| Basic | It is the virtual address generated by CPU | The physical address is a location in a memory unit. |
| Visibility | Viewable | Not viewable |
| Address Space | Logical address space | Physical address space |
| Access | The user uses the logical address to access the physical address. | The user can not directly access physical address. |
| Generation | The Logical Address is generated by the CPU | Physical Address is Computed by MMU |

Difference between Logical Address & Physical Address

MCQs

Q1. What do you understand by Logical Addressing?

Options:

1. Address on RAM (Random Access Memory)
2. Virtual address generated by CPU
3. Virtual address generated by System
4. None of the above

Answer: 2

Q2. What is the acronym for TLB?

Options:

1. Translation Look-aside Buffer
2. Translation Look Buffer
3. Translation Location Buffer
4. Translation Look-aside Buffering

Answer: 1

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✉ Mayank

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