OS STRUCTURE
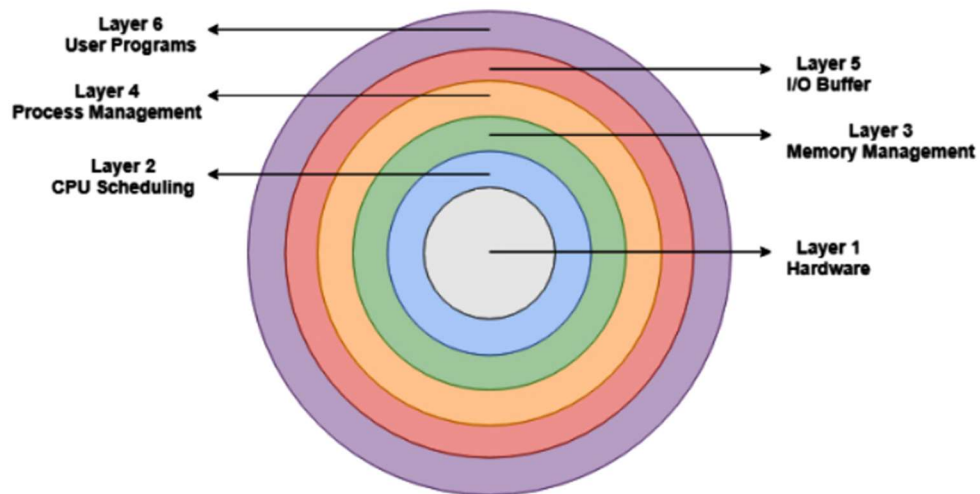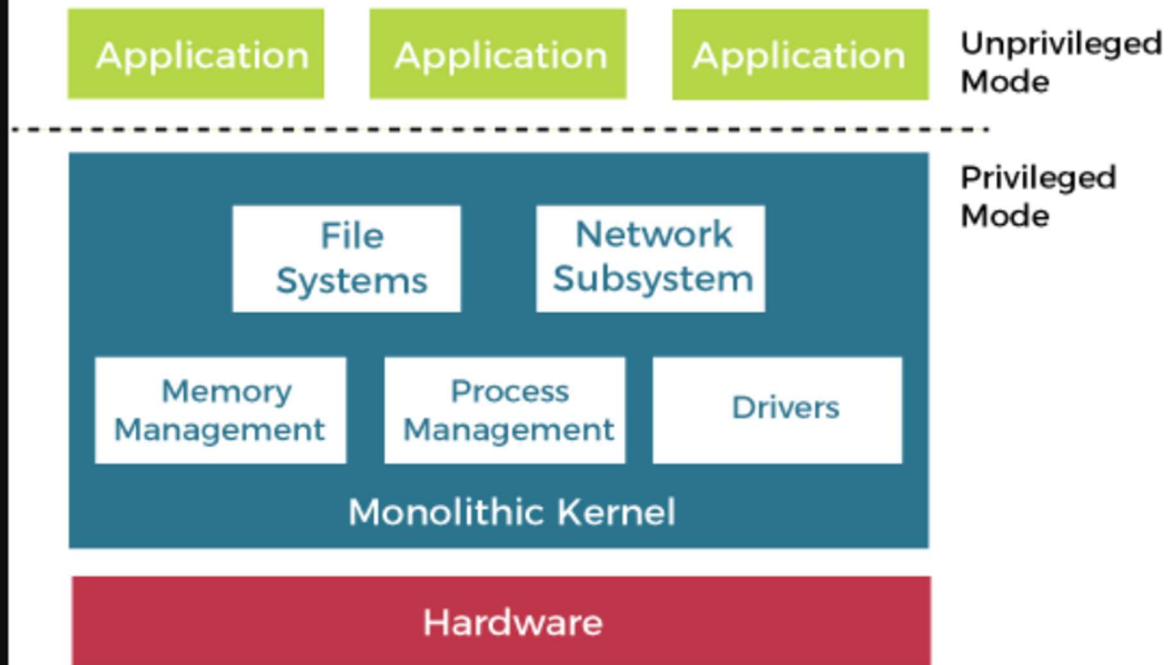
Sure, here is the answer:

There are three main types of operating system structures: monolithic, layered, and microkernel.

1. Monolithic Structure: This structure has a single static binary image that contains all the necessary operating system components. In this structure, the operating system is a single large program that runs entirely in kernel mode. All services provided by the operating system are within the kernel, which means that any error in any part of the kernel can potentially crash the entire system. Examples of monolithic operating systems include Linux and UNIX.

2. Layered Structure: This structure divides the operating system into smaller, more manageable pieces, with each layer providing services to the layer above it. Each layer communicates with the layers above and below it through a well-defined set of interfaces. This structure enables developers to replace or modify one layer without affecting the others. Examples of layered operating systems include the THE and the V operating system.

3. Microkernel Structure: This structure is based on the idea of running only the most basic functionality in the kernel and implementing most other services as user-level processes. The microkernel provides only the essential services, such as interprocess communication and basic memory management. This structure offers better protection and fault tolerance because user-level processes are isolated from each other and from the kernel. Examples of microkernel-based operating systems include MINIX and L4.

Monolithic Kernel System

Layers of operating system

Microkernal Operating System

Application

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(Application IPC) (Device Driver) (Unix Server) (File Server)

Basic IPC, Virtual Memory Scheduling

Hardware