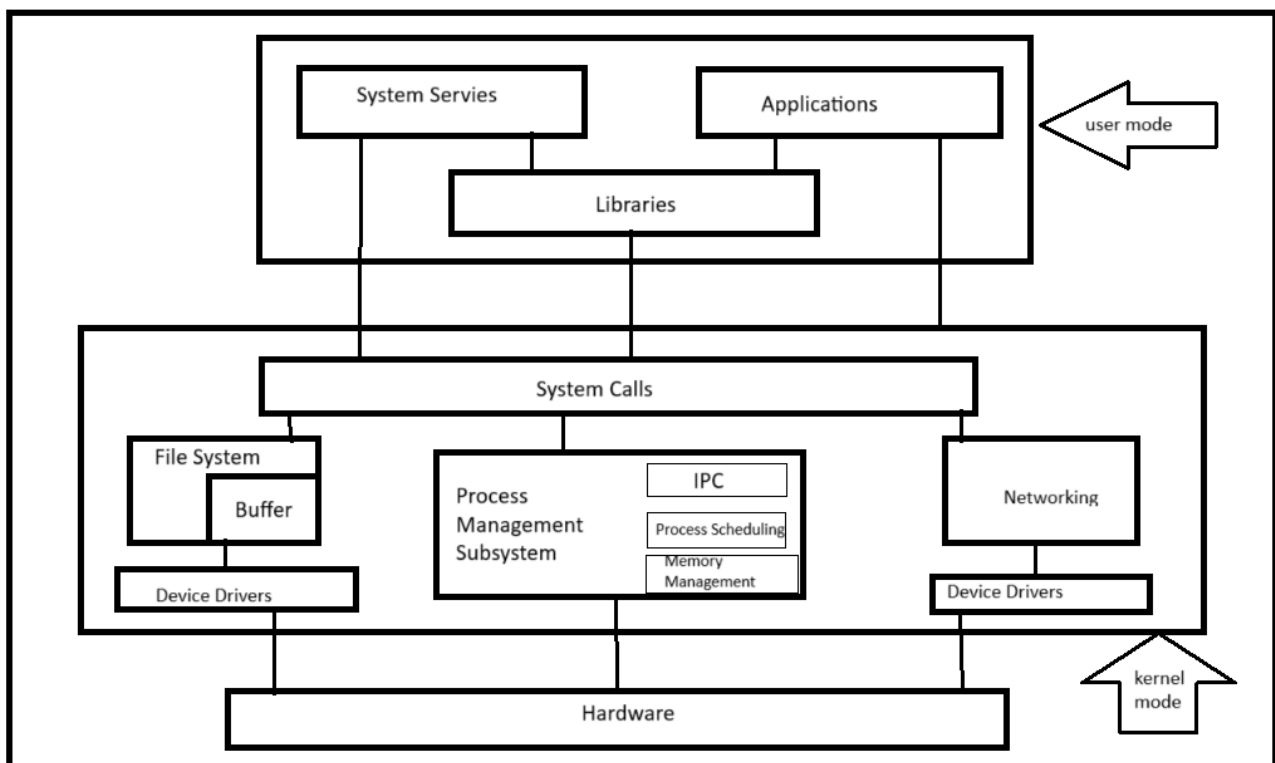


## Task 01

Question : Kernel Architecture Diagram - Draw a detailed diagram of the Linux kernel architecture. Label and write a short description (2-3 sentences) for each major component like Scheduler, File System, Network Stack, etc.

### *Kernel Architecture Diagram*



Above Diagram created by me in windows paint .

**User Application :** A user application is an interface that allows users to interact with a computer and perform various functions. Without a user application, it becomes very difficult to interact with the computer.

**GNU C Library :** Full form of Gnu's Not Unix. It providing low-level functionality to the operating system and other system software.

**System call Interface :** Application programs use system calls to request services and functionalities from the operating system's kernel. A system call serves as an interface between a program running in user space and the OS.

**Kernel :** It is central part of kernel. It manages and controls the computer's hardware, resources, and processes, enabling users to interact with the system and its applications .

**Architecture dependent kernel code :** It is important to make sure kernel functions correctly and efficiently on a specific hardware platform.

**Hardware platform :** Hardware is the physical component of a computer system. It includes the CPU, memory, storage, input devices, and output devices. Software runs on the hardware platform to perform tasks and operations.

**Scheduler:** The scheduler decides which job the computer should do next. It helps the computer do many things at once, in a fair and smart way.

**File System:** The file system helps the computer keep files in order. It lets you open, save, and organize your work and remembers who can see or change each file.

**Network Stack:** The network stack helps computers talk to each other through the internet. It sends messages, makes sure they go the right way, and fixes problems if they happen.

**Memory Management:** This part controls how the computer uses its memory. It gives memory to each job and keeps everything running smoothly.

**Device Drivers:** Drivers are like translators. They help the computer understand how to use things like a printer, mouse, or keyboard.

**Process Management:** This part looks after all the jobs that the computer is doing. It starts, runs, and stops jobs, and helps them share computer parts.

**Security and Access Control:** This keeps the computer safe. It checks who is allowed to use it and stops bad people or programs from hurting it.

**User Interface :** The UI is what you see and use on the screen. It can be pictures and buttons , or just text you type.