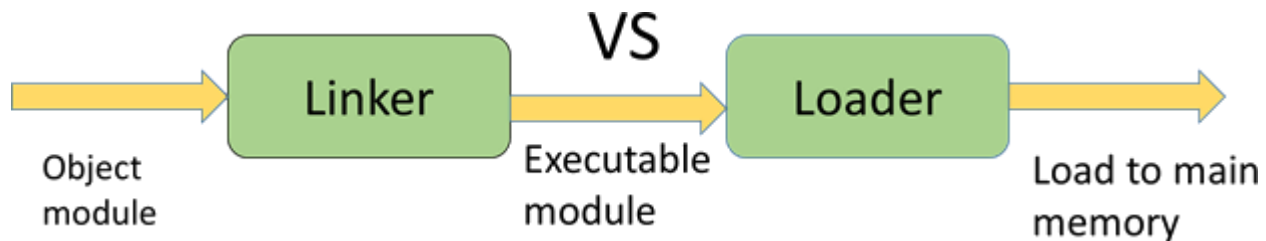


Types of Software and Operating system for Competitive Exams

Linker and Loader

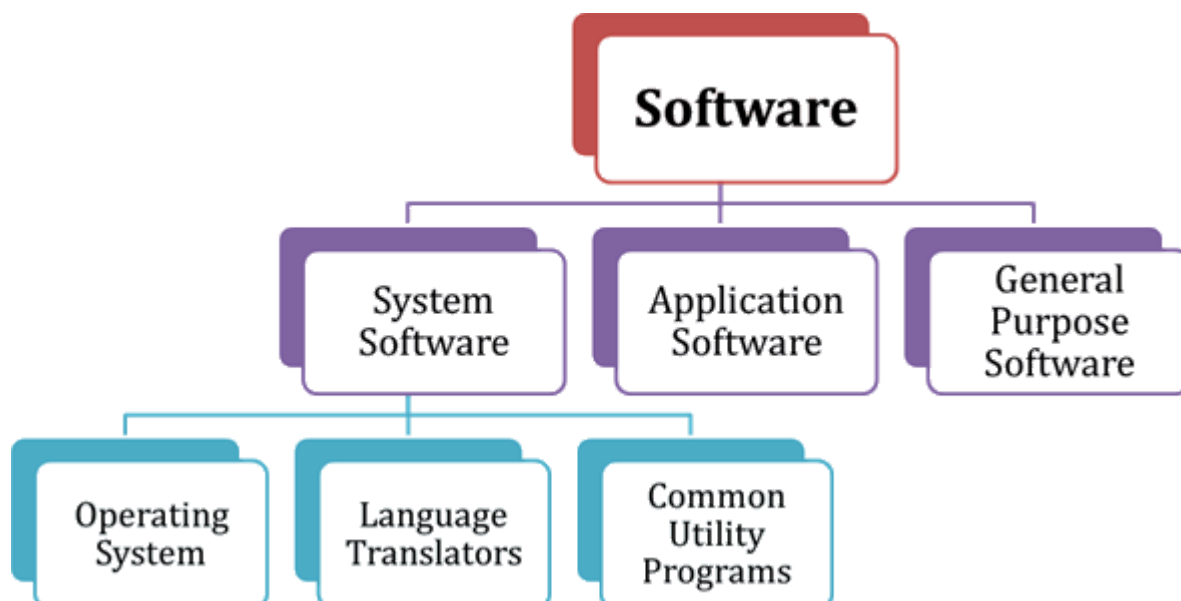


Linker and Loader

- Linker and Loader are the **utility program that plays** a major role in the execution of a program.
- The Source code of a program passes through compiler, assembler, linker, loader in the respective order, before execution.
- On the one hand, where the **linker intakes the object codes** generated by the assembler and combine them to generate the executable module.
- On the other hands, **the loader loads this executable module to the main memory** for execution.

Software refers to a set of programs which is capable of performing some specific tasks on a computer system.

They can be broadly classified into three categories –



Types of Software

- **System software**
- **Application software.**
- **General Purpose software**

System Software

- This software sync the work of hardware and other types of programs. It acts as a middle layer between hardware and user applications.
- System software includes programs like.
 1. **Operating system** - This software interacts with the hardware and provides the capability for running various types of programs. Desktop uses operating systems like Windows, Linux and MacOS, whereas Android and Windows are commonly used operating systems for mobiles. There are different types of operating systems like real time, distribute, embedded, etc.,
 2. **Language translators** - It includes assemblers, compilers, and interpreters. These programs have been designed for programming languages like C, COBOL, Pascal, etc. Machine language is translated into machine code with the help of an assembler. Compiler translates the code written in a high-level language to a lower one.
 3. **Common Utility Programs** - These programs are designed specifically for managing the computer device and its resources. It includes programs like communication tools and disk formatter. They are more focused on the operations of computer infrastructure. For example - Virus scanner is a kind of common utility programs, which provides protection to the system from unwanted guests like Trojans and viruses.

Types of Operating Systems

Following are some of the most widely used types of Operating system:

Types of Operating System

- Simple Batch System
- Multiprogramming Batch System
- Multiprocessor System
- Desktop System
- Distributed Operating System
- Clustered System
- Real-time Operating System
- Handheld System

Types of Operating System

Simple Batch System.

A batch system is a when a computer is programmed to batch together a number of for processing at a specific time.

Example a bank may run batch jobs to update all payments into customer accounts at midnight, 3am and 5am. Equally they could do the same for payments going out.

Multiprogramming Batch System.

In multi-programmed batch system, the operating system keeps multiple jobs in main memory at a time. Since in general, the main memory is too small to accommodate all jobs. So the jobs that enter the system to be executed are kept initially on the disk in the job pool.

Multiprocessor System.

A multiprocessor is a computer system having two or more processing units (multiple processors) each sharing main memory and peripherals, in order to simultaneously process programs. A 2009 textbook defined multiprocessor system similarly, but noting that the processors may share “some or all of the system’s memory and I/O facilities”; it also gave tightly coupled system as a synonymous term.

Desktop System.

Desktop operating system is a control program in a user’s machine (desktop or laptop). Also called a “client operating system,” Windows is the overwhelming majority while the Macintosh comes second. There are also several versions of Linux for the desktop.

Distributed Operating System.

Distributed systems use multiple central processors to serve multiple real-time applications and multiple users.

The processors communicate with one another through various communication lines (such as high-speed buses or telephone lines). Processors in a distributed system may vary in size and function. These processors are referred as sites, nodes, computers, and so on.

Clustered System.

In a typical clustered system, Unwired Server instances do not share host system resources with data tier servers.

You should choose a clustered system design to meet requirements for scalability, higher availability, and overall higher system performance.

Real-time Operating System.

A real-time system is defined as a data processing system in which the time interval required to process and respond to inputs is so small that it controls the environment. The time taken by the system to respond to an input and display of required updated information is termed as the **response time**.

Handheld System.

Hard real-time systems guarantee that critical tasks complete on time. In hard real-time systems, secondary storage is limited or missing and the data is stored in ROM. In these systems, virtual memory is almost never found.