Module-1

Overview of System Software

What is Software???

Software is a set of instructions, data or programs used to operate computers and execute specific tasks

Program: A set of instructions that directs a computer's hardware to perform a task

Hardware: physical elements of a computer. Examples of hardware in a computer are the keyboard, the monitor, the mouse and the processing unit

Firmware is low-level software that stands between the hardware and the operating system.

Types of Software

Types of Languages

HLL

AL

ML

Difference between Application software and System Software

Application Software	System Software
Application software is build for specific task	System software used for application software to run
HLL are used to write the application software	LLL are used to write the System software
Without application software, system always run	Without system software, system can't run
Application software run as per user request	System software runs when the system is turned ON and stop when the system is turned OFF
Specific purpose software	General purpose software
Example: Adobe reader, Photoshop, VLC media player etc	OS, Assembler, Compiler, Macro Processor, Loader, linker etc.

Types of System Software's
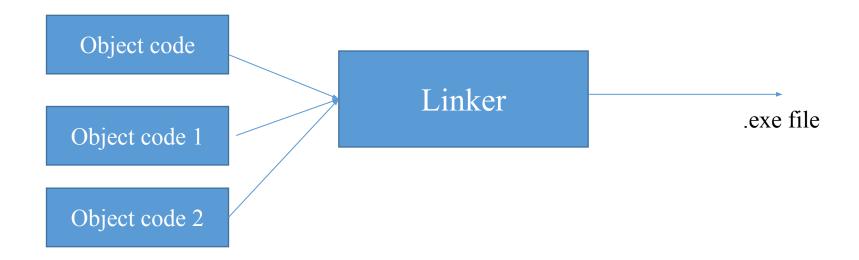
1) Assembler:

ALP → **Assembler** → ML (Object Code)

Types of System Software's

2) Macro Processor:

Types of System Software's

3) Compiler:

Source Language (HLL) → | Compiler | → Target Program (ML)

Types of System Software's

4) Translator:

Program 1 (Language1) → **Translator** → Program 2 (Language2)

Types of System Software's

5) Linker:

Types of System Software's

5) Linker:

A program that combines object files generated by compiler/assembler and other pieces of codes to create an executable file with .exe extension.

Types of System Software's

6) Loader:

.exe file → Loader → Load it in MM

Types of System Software's

6) Loader:

A program that takes .exe file from linker and load it into main memory and prepare it for execution by computer

Types of System Software's

7) Device Drivers:

Types of System Software's

7) Device Drivers:

A system software that allows the OS and other applications to communicate with specific hardware device.

Every hardware device can understand only its LL commands; a device driver translate HL commands from OS or other applications and translates it into hardware specific machine code.

Types of System Software's

8) Editors: it is a tool which is used to write a particular code

Types of System Software's

9) Debugger:

It is used to present compiler generated errors in a human readable format and helps programmer in finding the errors in source code.

Sequence from developing a program up to it's execution

The order in which the system programs are used, from developing program up to its execution.

SYSTEM PROGRAM ⟶

Editor

↓

Macro processor

↓

Compiler

Assembly level language

↓

Assembler

↓

Linker

↓

Loader

↓

TARGET PROGRAM ⟶ Executable file