LECTURE #2

The following help us to translate the human understandable source code into machine understandable and executable object code.

**Application Program:**

Refers to all those programs with which the user directly interacts including text editors, IDEs ,etc

**System Software:**

 These include back end soft wares like compiler, linker, loaders, etc with which the user does not interact directly.

**Hardware Processor:**

These include the hardware on which the program is actually executed at the end.

Following depicts how system soft wares work execute a source code.

Linker links the file externally. For instance addresses of external variables are resolved as below:

Here the linker links the address of variable ALP in test1.c to the instructions in test2.c.

Linker can be of the following types:

* Static : Linking done just after compilation but before execution
* Dynamic : Linking is done at the time of execution

Dynamic Linked libraries are used to achieve dynamic linking.

**Dynamic Linking:**

**PROs**:

In dynamic linking the size of the executable code will be almost same as the source code but statically linked executables will be larger in size.

**CONs:**

Execution time increases.

**Absolute Loader:**

 The address allocation is absolute or fixed. This leads to address relocation problems.

**Dynamic Loader:**

Loads only the code required for execution.

**Relocate able Loader:**

 They can relocate memory locations.

Example:

In the above case, the dynamic loader will load only one of these files depending upon the conditional at the run time. Other loaders load both file1 and file2

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