

Assignment 2-1

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Q1: Relocatable code is code whose execution address can be changed. A relocatable program might run at address 0 in one instance, and at 10000 in another. "Relocatable" means the assembler builds code chunks and specifies RAM needs that can be placed wherever the linker finds room for them. Relocatable machine code doesn't have a static memory address. Typically the code is divided into control sections and all memory addresses are expressed relative to the start of a control sections. A code generated by an assembler or compiler and in which all memory references needing relocation are either specially marked or relative to the current pgm-counter reading.

A2: Linkers can take objects from a collection called a library or runtime library. Most linkers do not include the whole library in the o/p, they include only the files that are referenced by the other object files or libraries. Library linking may thus be an iterative process, with some referenced modules requiring additional modules to be linked and so on.

⊛ Reduce the size of your class files.

⊛ cleaner API since you can't leak internal fields.

⊛ you can test your library independent of your application.

⊛ you can reuse a library in several projects.

⊛ Program are not relocated; they need to be assembled or compiled to execute at specific, predefined addresses.

The file contains no relocation or linkage information.

These files can be loaded into read/write memory,

or stored in read-only memory, DOS com files are more

recent example of absolute object files.

Ans 4 The main difference b/w compiler and cross compiler is that the compiler is a sw that transforms a computer program written in high-level programming lang. into machine lang. while the cross compiler is a type of a compiler that can create an executable code for platform other than the one on which the compiler is running. A compiler is a translator that is capable of transforming source code into a machine code. There are various type of compilers. The native code compilers convert the source code only for the same type of platform. Cross compiler is also a type of compiler. It is capable of creating executable code for various platforms.

Ans 5 Preprocessing directives are lines in your program that start with #. The # is followed by an identifier that is the directive name. Preprocessor is a macro processor that is used by the C compiler to transform your prog before actual compilation.

- #include - to paste code of given file into current file.
- #define - a macro is a segment of code which is replaced by the value of macro.
- #undef - To undefine a macro means to cancel its definition.
- #if - Evaluates the expression or condition.
- #else - Evaluates the exp or condition if condition of #if is false.
- #error - It indicates error.
- #pragma - Used to provide additional information to the compiler.
- #ifndef - checks if macro is not defined by #define.
- #ifdef - checks if macro is defined by #define.
- #elif - Evaluates the exp./cond if not if nor else.