Misc Topics II

“Some bells and whistles of C”

Prerequisite: None

Find more contents at
https://sites.google.com/view/cse105june18/home

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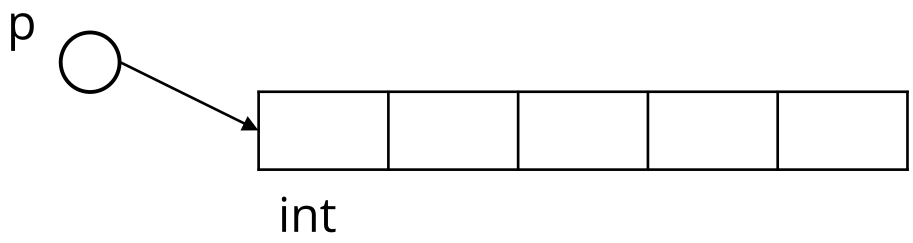
Topics to Discuss

- Mutable vs. Immutable String
- Variable Shadowing
- Pass by Reference vs. Pass by Value
- Pointer to struct and Arrow Operator (->)
- Double Pointer
- Array of String and Command Line Argument
- Comma Operator (,)
- Preprocessors

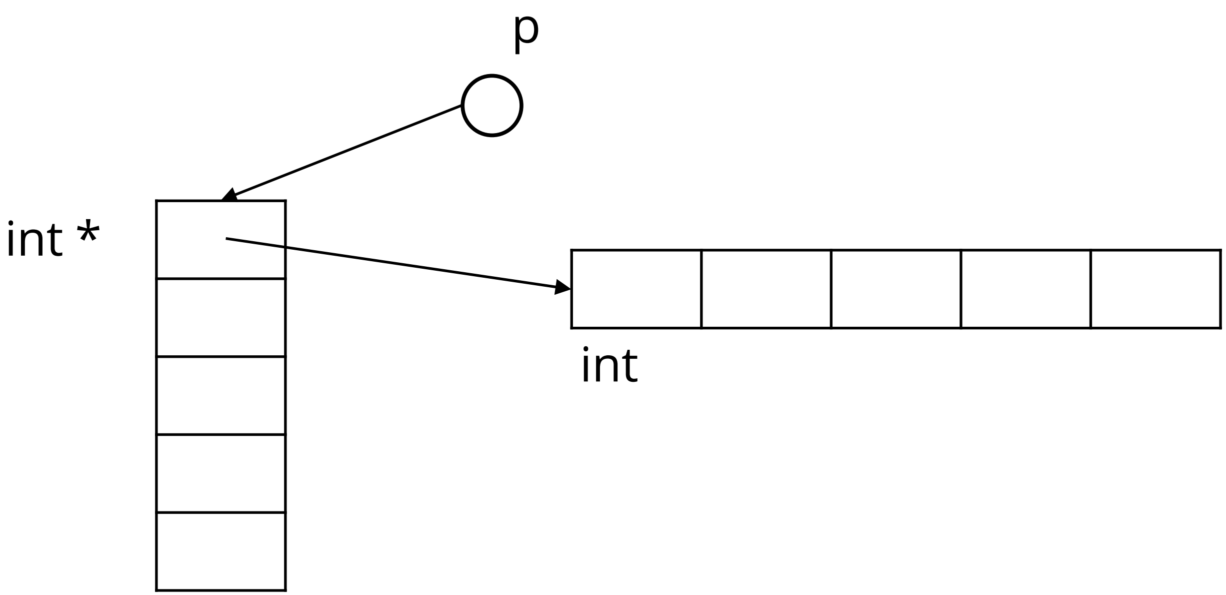
Understanding Double Pointer

int * p;



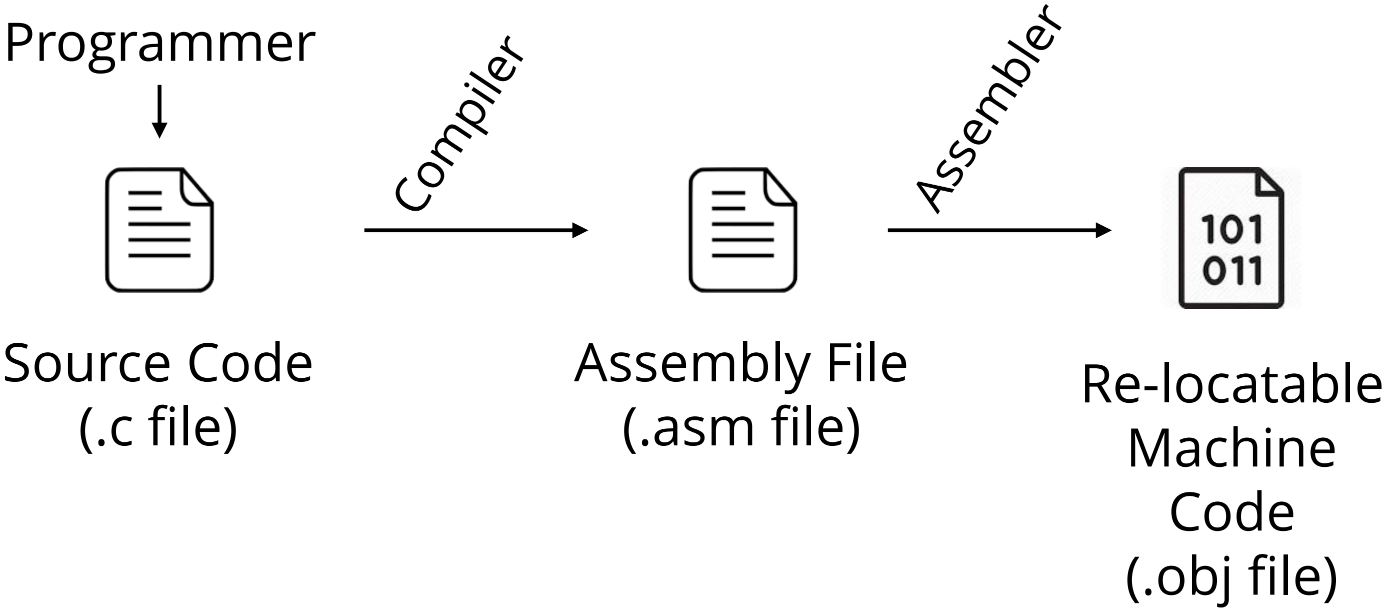
Understanding Double Pointer

int ** p; //or int *(*p)



The Compilation Process – 1 of 3

How our code is understood by computers



Programmer

Compiler

Assembler

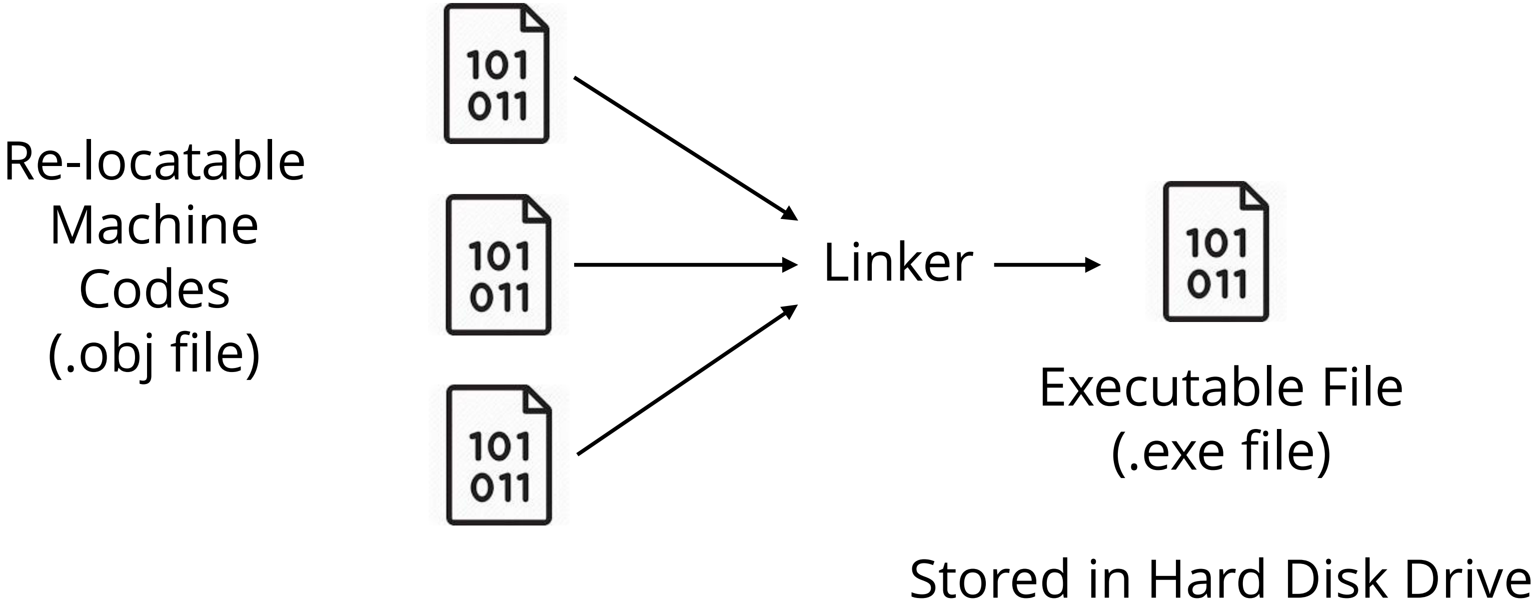
Source Code
(.c file)

Assembly File
(.asm file)

Re-locatable
Machine
Code
(.obj file)

The Compilation Process – 2 of 3

How our code is understood by computers



Re-locatable Machine Codes (.obj file)

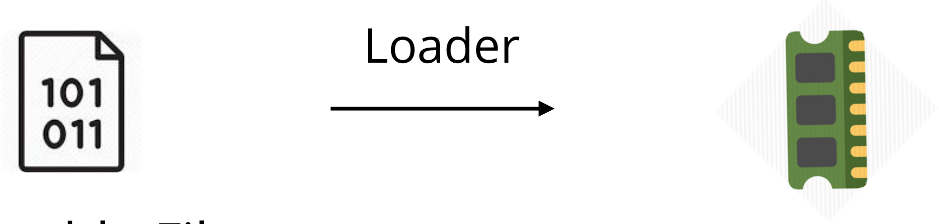
Linker

Executable File (.exe file)

Stored in Hard Disk Drive

The Compilation Process – 3 of 3

How our code is understood by computers



Loader

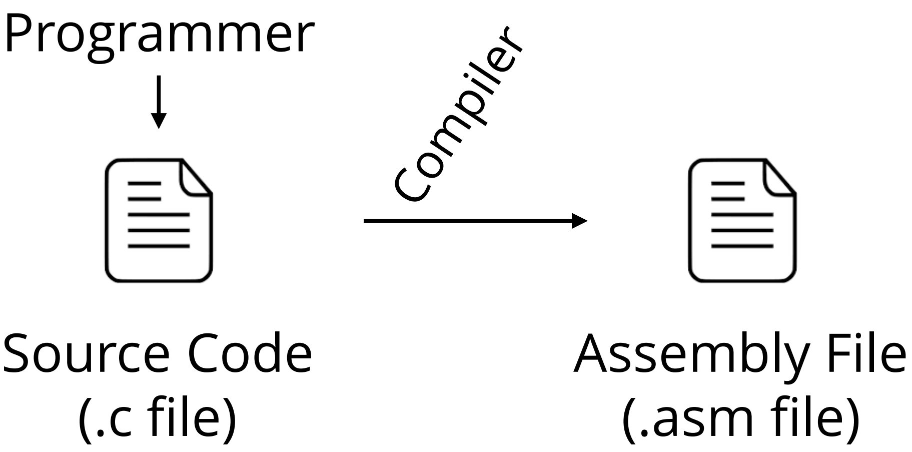
Executable File
(.exe file)

Stored in Hard Disk Drive

The running program
in RAM

(The console that we see)

Preprocessor



Programmer

Compiler

Source Code
(.c file)

Assembly File
(.asm file)

Preprocessor Commands

Ser No	Directive & Description
1	**#define** Substitutes a preprocessor macro.
2	**#include** Inserts a particular header from another file.
3	**#undef** Undefines a preprocessor macro.
4	**#ifdef** Returns true if this macro is defined.
5	**#ifndef** Returns true if this macro is not defined.
6	**#if** Tests if a compile time condition is true.

Reference: https://www.tutorialspoint.com/cprogramming/c_preprocessors.htm

(cont.) Preprocessor Commands

Ser No	Directive & Description
7	**#else** The alternative for #if.
8	**#elif** #else and #if in one statement.
9	**#endif** Ends preprocessor conditional.
10	**#error** Prints error message on stderr.
11	**#pragma** Issues special commands to the compiler, using a standardized method.
7	**#else** The alternative for #if.

Reference: https://www.tutorialspoint.com/cprogramming/c_preprocessors.htm

Other Preprocessor Topics

- Predefined Macros
- Preprocessor Operators
  - Macro Continuation (\) Operator
  - Stringize (#) Operator
  - Token Pasting (##) Operator
  - Defined() Operator
- Parameterized Macros

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