

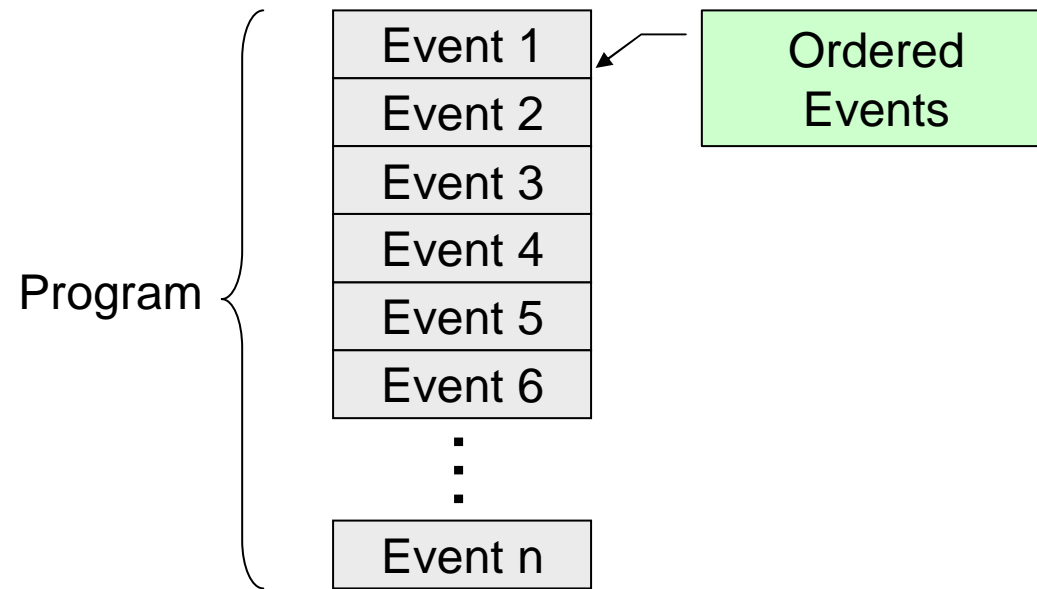
Understanding Computer Programming



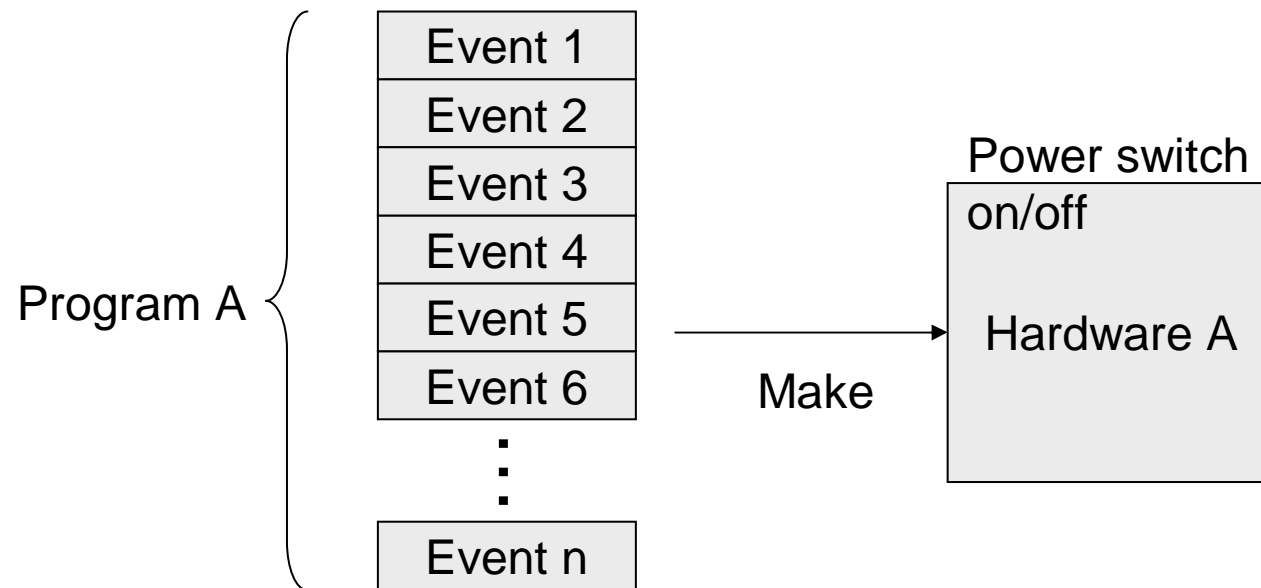
Hoon Yoo, Ph.D.

What is Programs

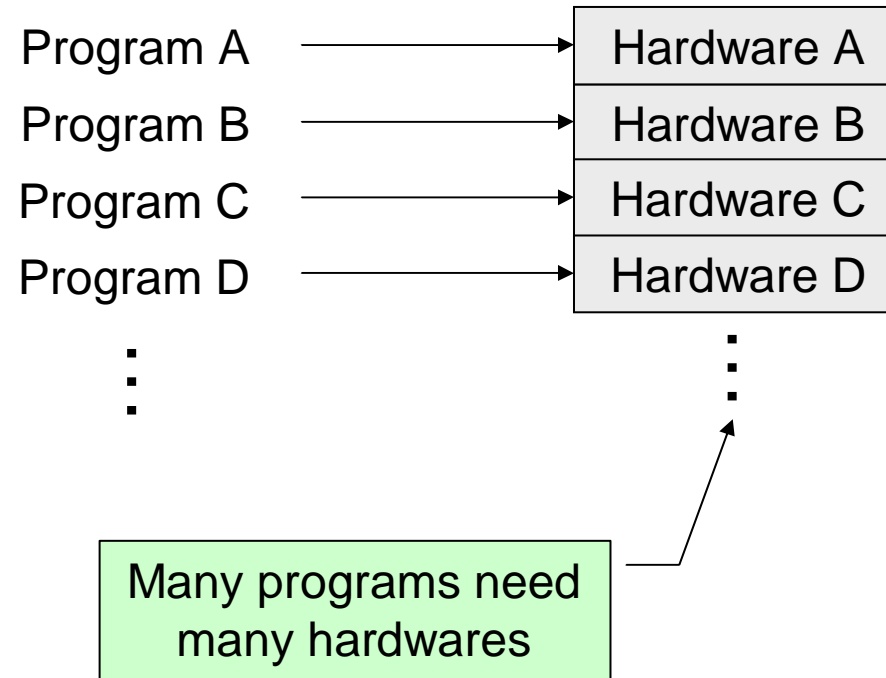
- A program is a listing of the order of events
- An instruction sequence in programmed instruction



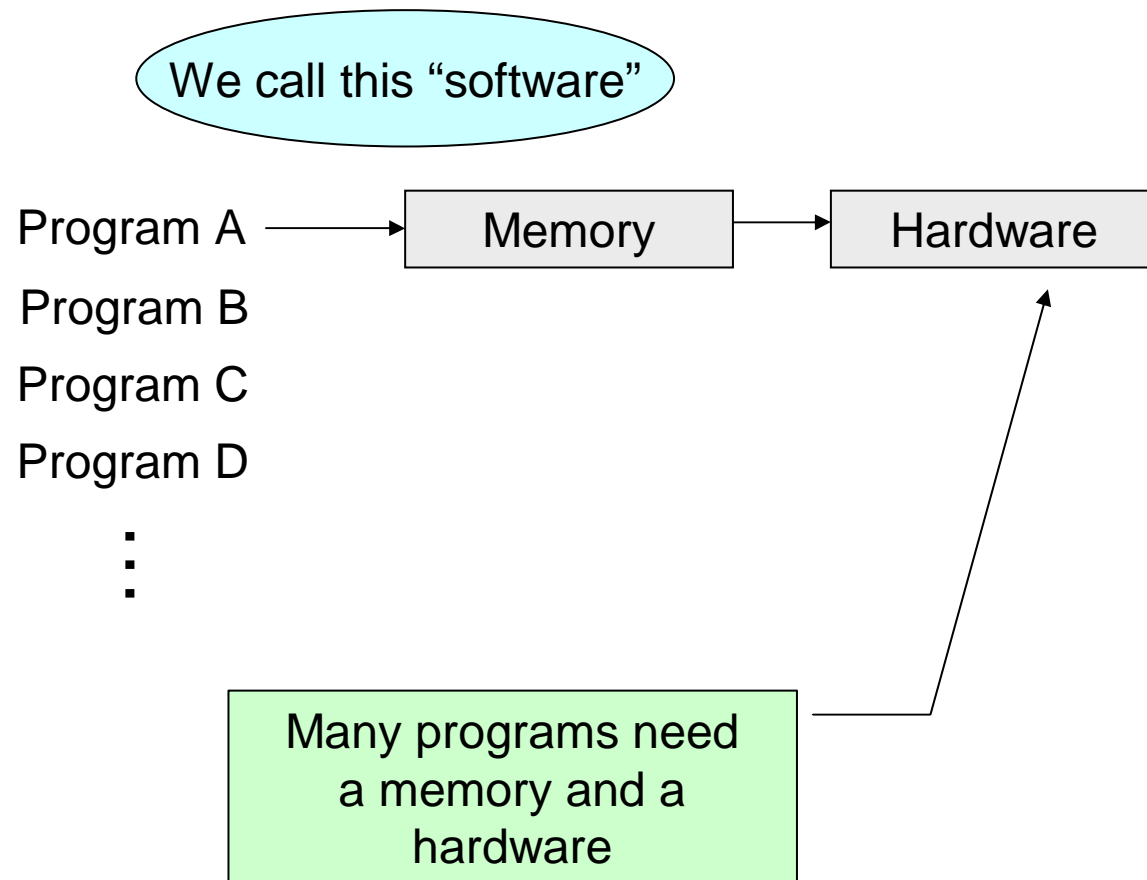
What is Programs



What is Programs

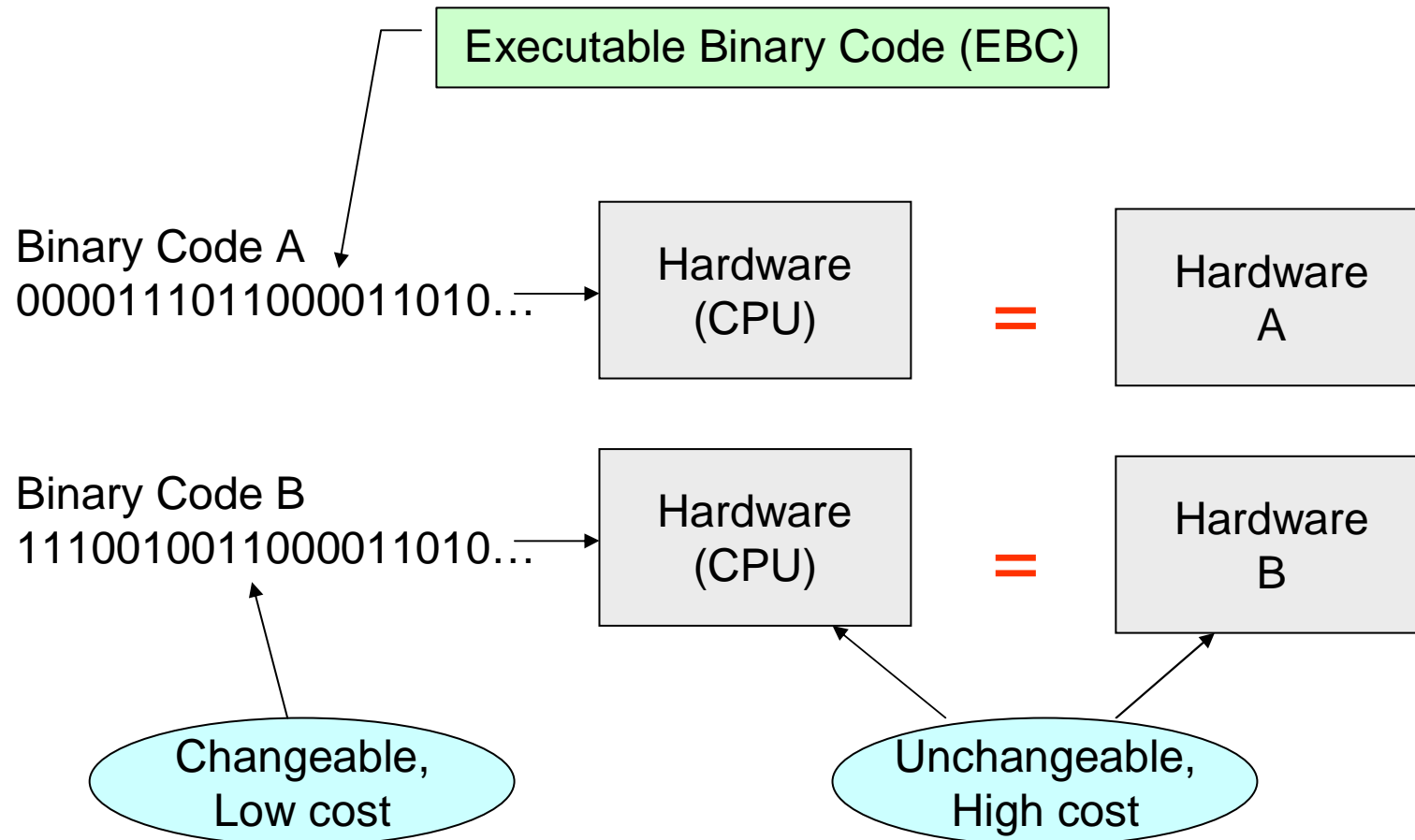


What is Programs



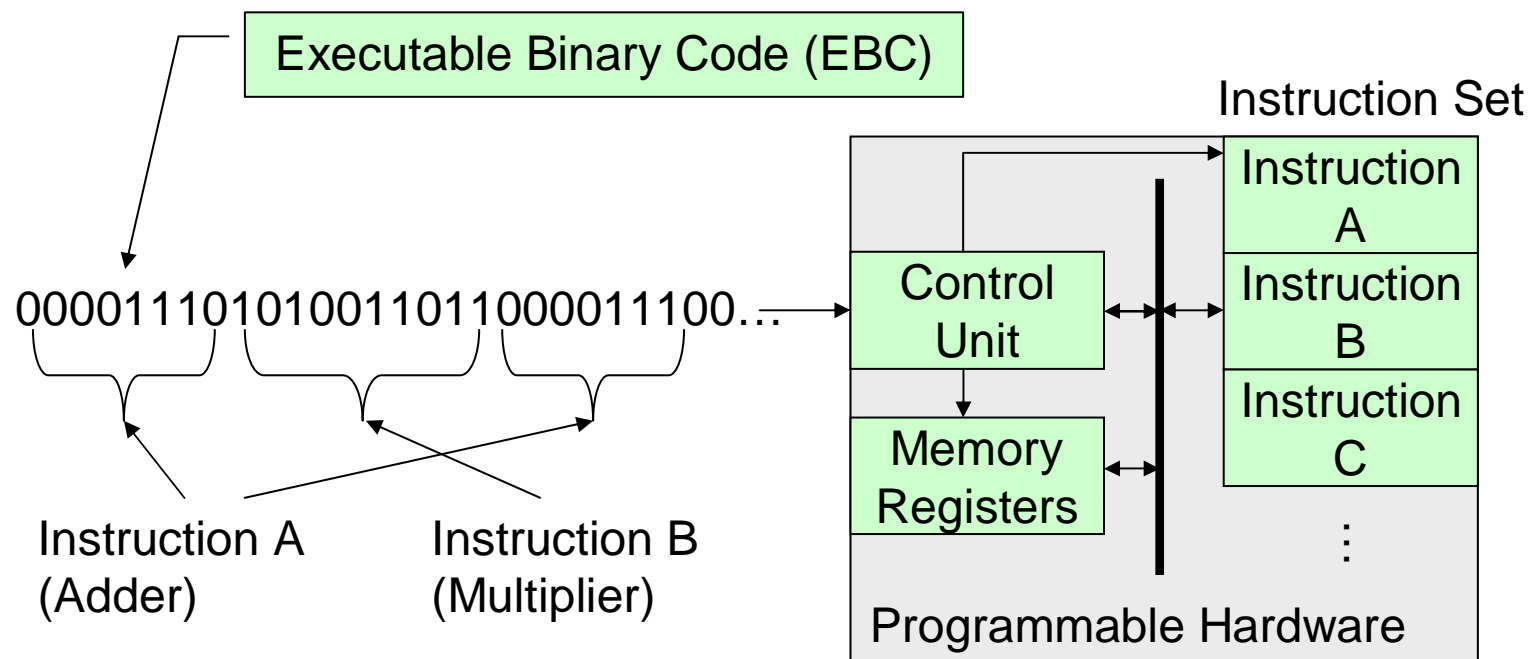
Goal for Computer Programs

- Executable Binary Codes
 - Software



Goal for Computer Programs

- An EB code consists of instructions
- Instruction set is collection of basic hardware units
- CPU makers give theirs instruction set

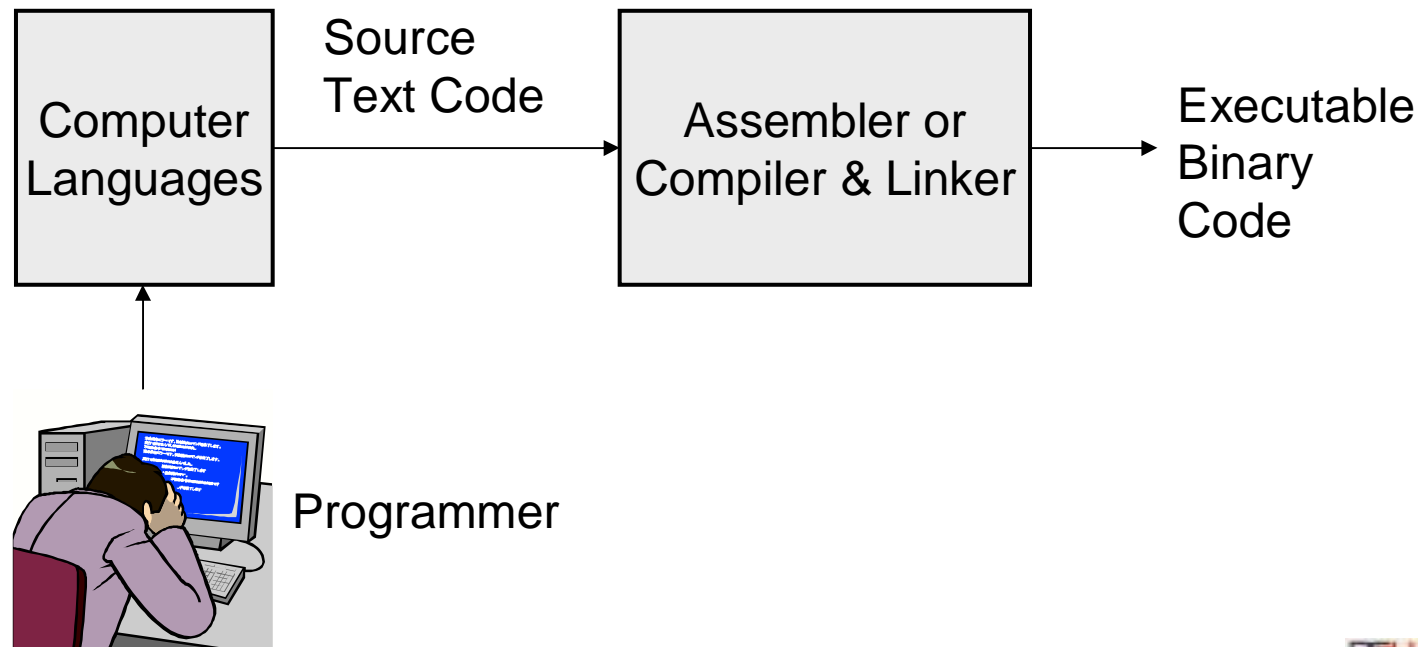


How to Generate EBC

- Edit machine language using instruction set table
 - Assembly codes are more convenient
 - ADD a b, 1101010010101011101 // a=a+b;
 - Assembly codes are text data
 - Assembler converts text codes to EBC

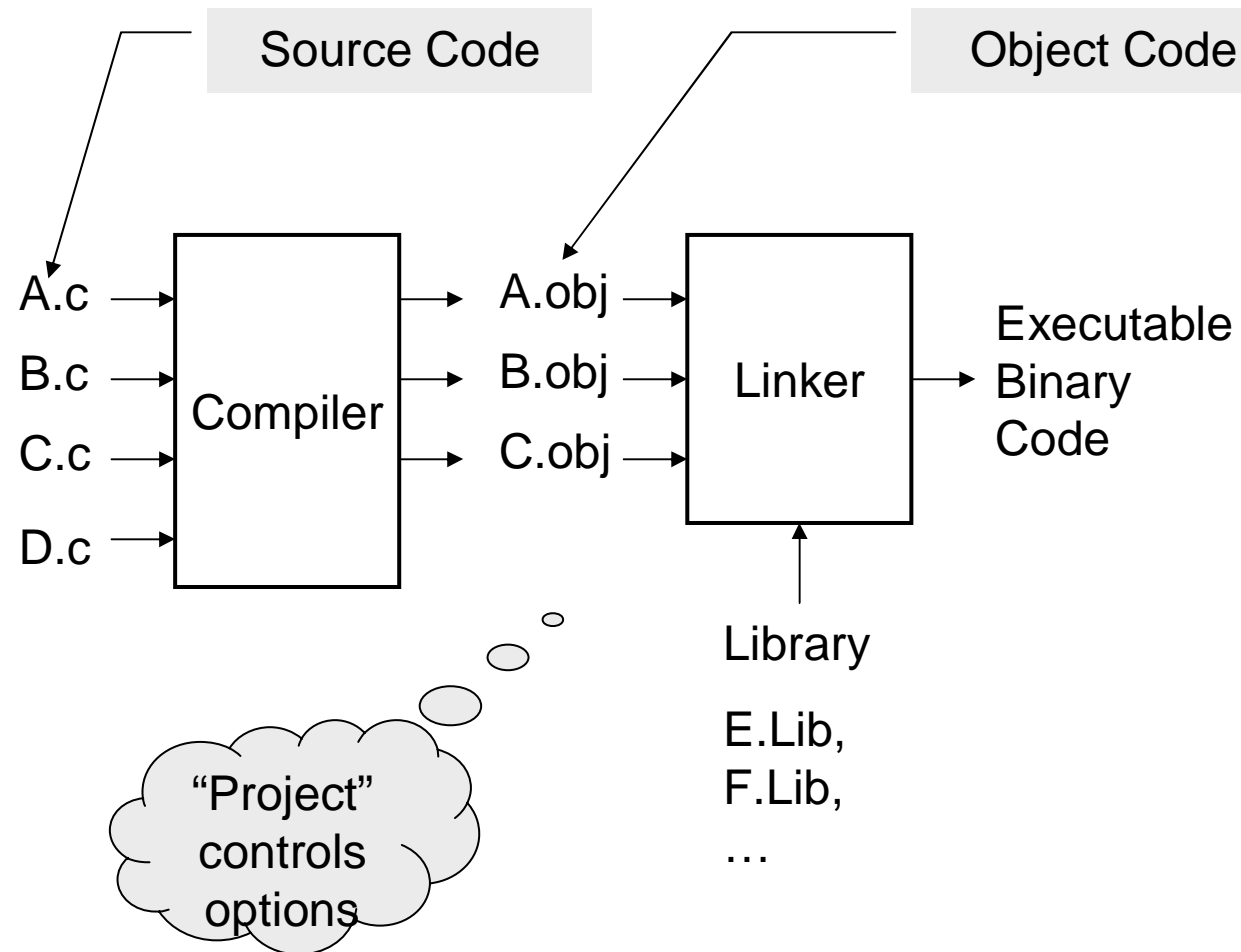
How to Generate EBC

- Compiler and Linker
 - High level language codes are text data
- Computer languages including C are promises between programmers and compilers



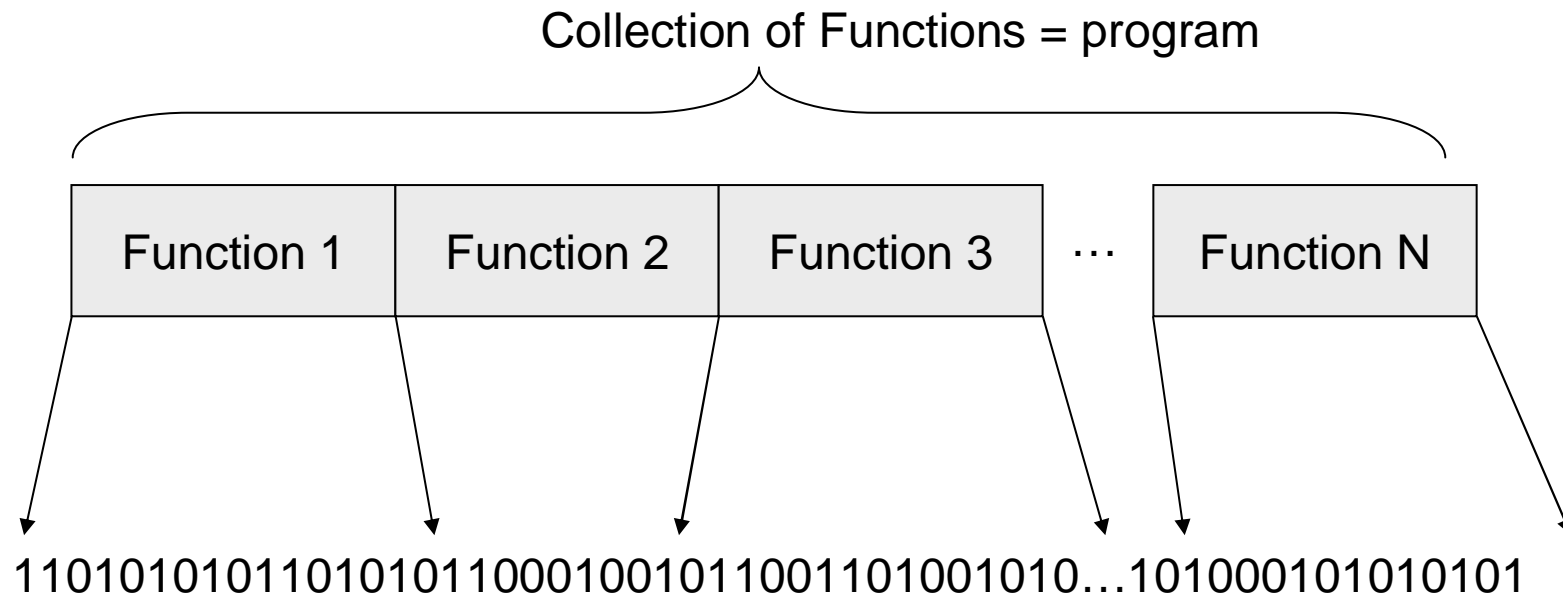
How to Generate EBC

- Compiler and Linker



C Language Structure

- C-codes consist of functions
 - Modules, procedures



C Language Structure

- The basic unit of C languages is “function”
- The beginning function
 - The first function should start when a program is running

Beginning Function	Types of Programs	OS
main()	console programs	DOS, Windows
WinMain()	Win32 programs	Windows
Application_Initialize()	embedded programs	Nucleus
root()	embedded programs	pSOS
main()	Qualcom system programs	Rex
⋮	⋮	⋮

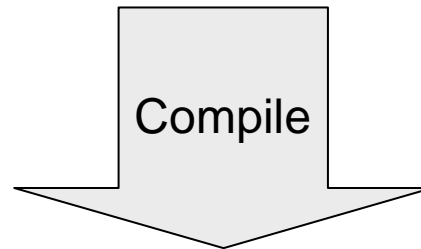
C Language Structure

- Example of C program

ExampleA.c

```
main()
{
}
```

<Source Code>



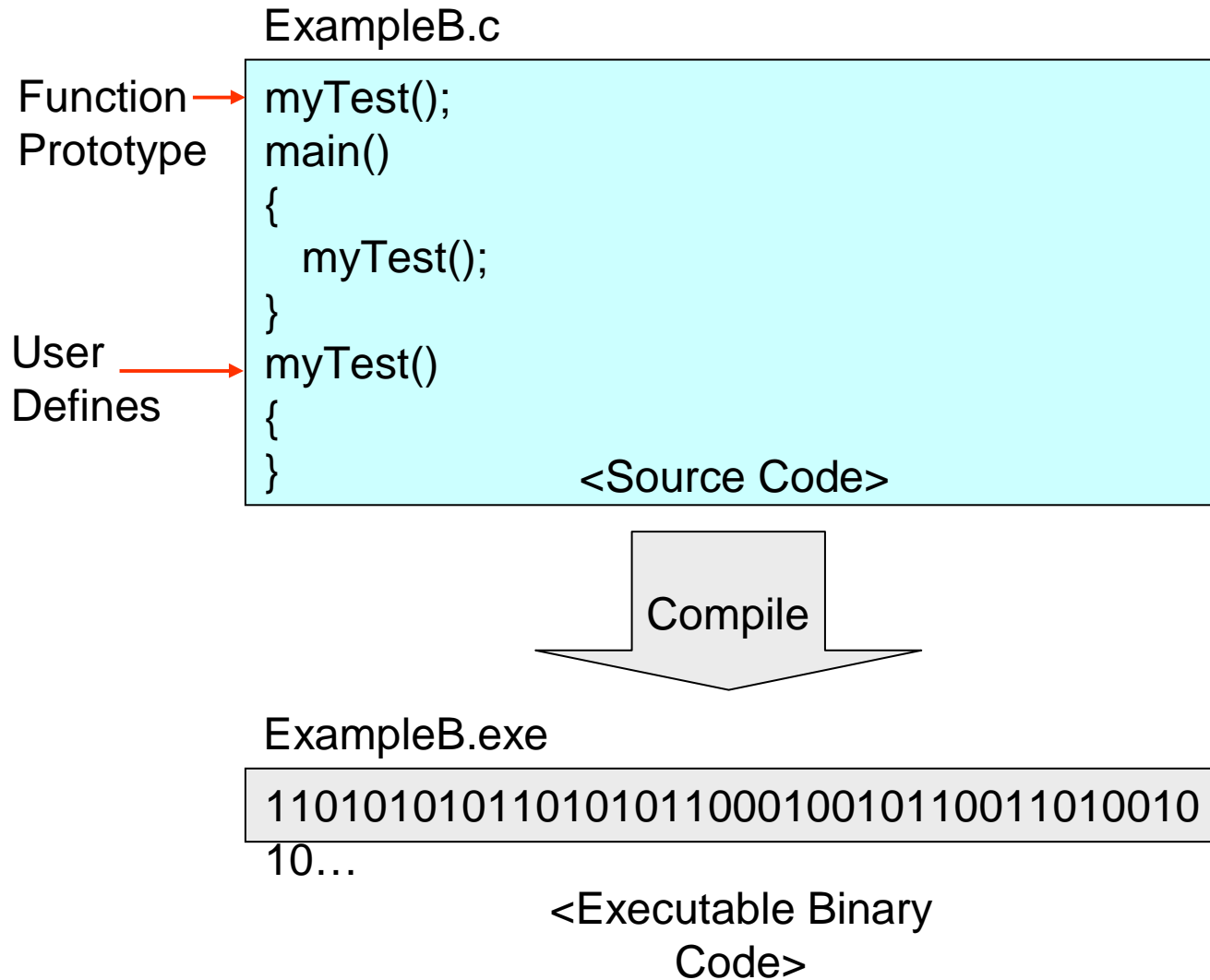
ExampleA.exe

```
1101010101101010110001001011001101001010...
```

<Executable Binary Code>

C Language Structure

- Example of C program



Summary

- Executable Binary Code
- Function is the basic unit of C-language programming
- The beginning functions

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