

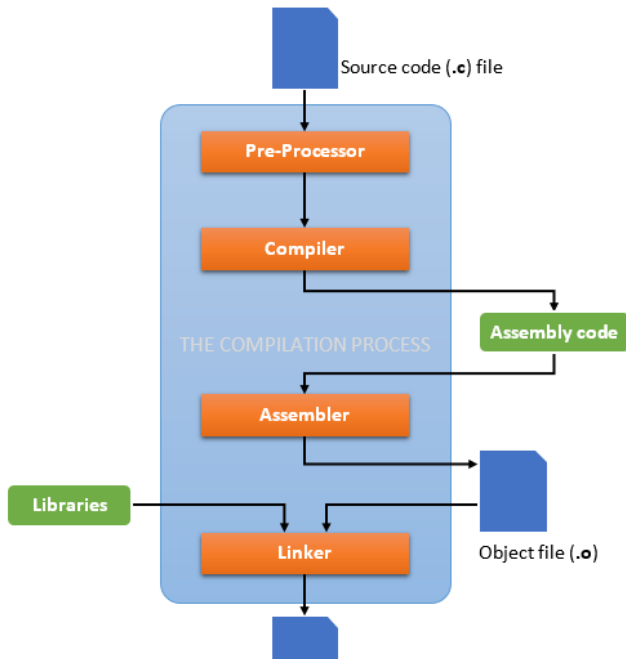
Lecture 4

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On two occasions, I have been asked [by members of Parliament], 'Pray, Mr. Babbage, if you put into the machine wrong figures, will the right answers come out?' I am not able to rightly apprehend the kind of confusion of ideas that could provoke such a question. - Charles Babbage

Compilation Procedure



How to compile

```
g++ 00.cpp
```

```
g++ -o first.out 00.cpp
```

▶ `echo $?` will show the value in shell

```
g++ -c 00.cpp
```

```
g++ -o 00.out 00.o
```

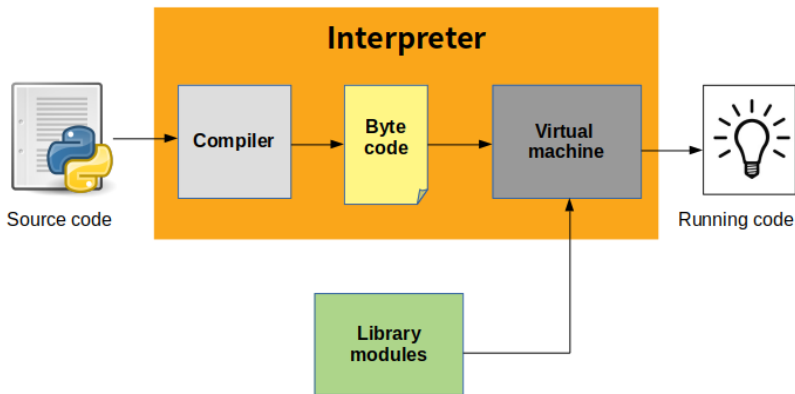
```
g++ -E 00.cpp > tmp.cpp
```

```
g++ -c tmp.cpp
```

```
g++ -o 00.out tmp.o
```

▶ Where is this `iostream` present? (`/usr/include/c++/`)

Compilation Procedure (Python)



Variables

- ▶ Core of programs
- ▶ Variable is a place to store data
- ▶ Stored data then can be manipulated

Datatypes

Variables can be of many types. Basic types are:

- ▶ Characters (`char`)
- ▶ String (`string`)
- ▶ Integers (`int`)
- ▶ Floats (`float`, `double`)
- ▶ Special datatype `void` used for functions and *pointers*
- ▶ Look at the sizes (`02-datatypes.cpp`) of the datatypes and their ranges (`02-range-datatypes.cpp`)

Floating Point Arithmetic

- ▶ Single float (`float`) gives 8 decimal place precision
- ▶ Double float (`double`) gives 16 decimal place precision