

CS 110

Intro to Computer Science I

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Introduction

- What is computer programming?
- What is this class about?
- Who should take this class?

Administrative Information

- Class web page

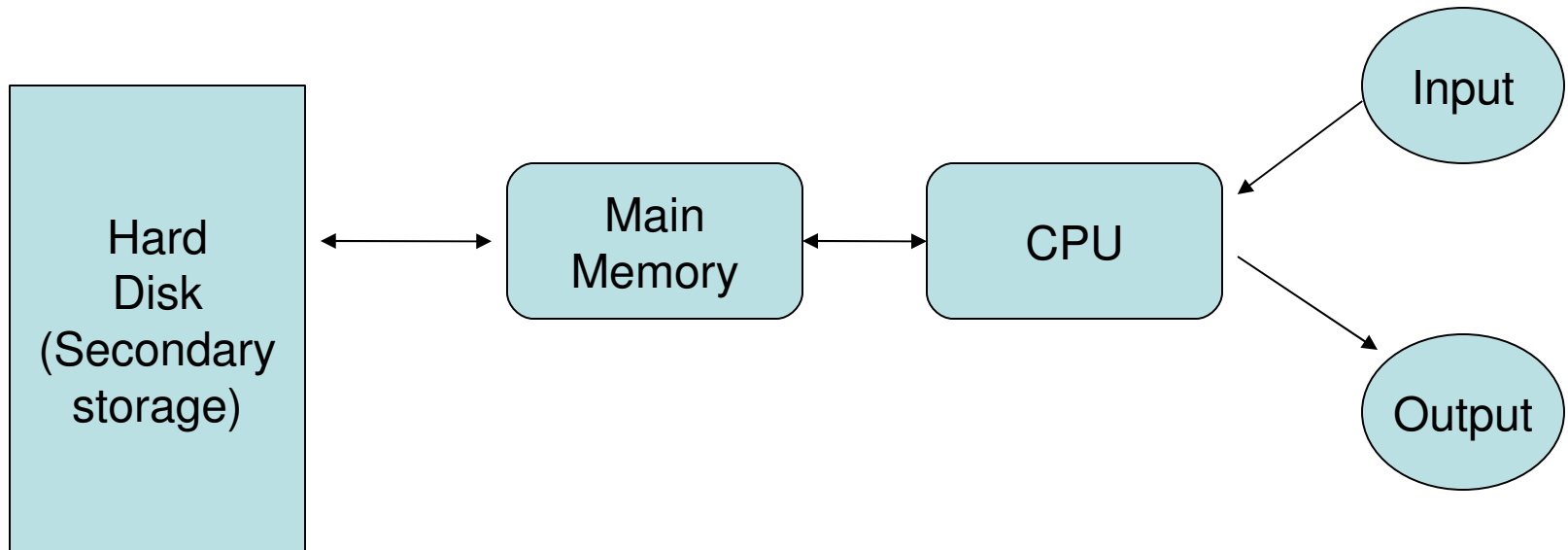
Computer Hardware

- Main memory
- Secondary memory
- CPU
- Input devices
- Output devices

Computer Software

- Operating system
 - Examples?
- Applications
 - Examples?

Application Execution

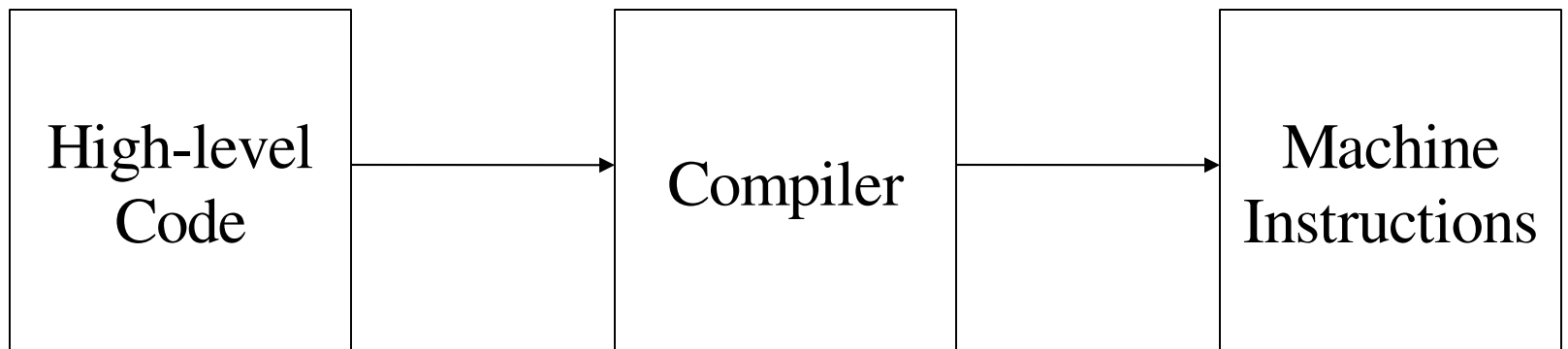


Computer Programs

- At the lowest level – machine instructions
 - 00000111000
- One step up – assembly language
 - ADD A
- More user friendly – high level languages
 - $C = A + B;$
 - Examples?

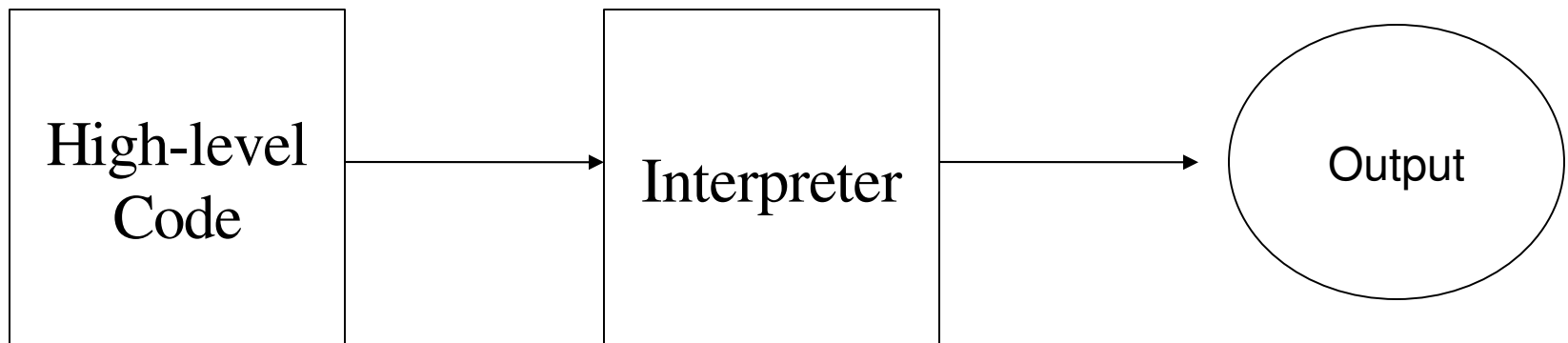
Compiled Languages

- Some languages are compiled or translated directly into machine instructions

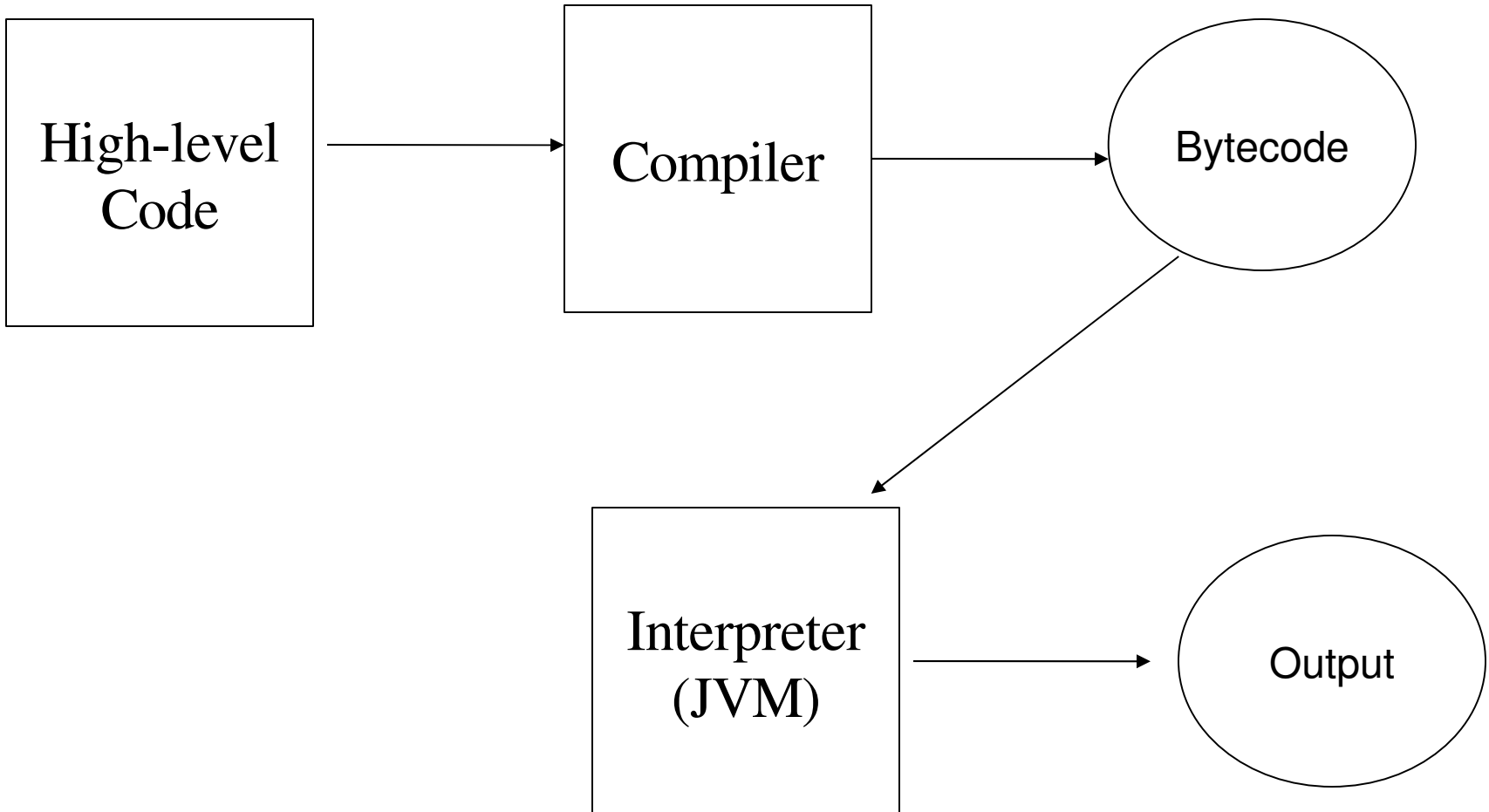


Interpreted Languages

- High level language must be translated into a language the computer can understand



Java



Writing Programs

- Understand requirements
- Write an *algorithm*
- *Implement* your algorithm
- ***Debug and test*** your code

What is an algorithm?

- *A specific* set of instructions
- An algorithm to make a PBJ sandwich?

Getting Started

- Linux
 - A tutorial: <http://www.ee.surrey.ac.uk/Teaching/Unix/>
 - Commands:
 - ls - list files (*ls*)
 - cd dest - change directory (*cd .., cd cs110*)
 - pwd - print current directory (*pwd*)
 - mkdir dir_name- make a new directory (*mkdir cs110*)
 - cp src dest- copy file (*cp hello.py anotherhello.py*)
 - rm file_name - remove file (*rm oldprogram.py*)
 - mv src dest - move file (*mv hello.py anotherhello.py*)

Hello World -- interactive

```
pinot:~/teaching/cs110/test_py srollins$ python
Python 2.3.5 (#1, Mar 20 2005, 20:38:20)
[GCC 3.3 20030304 (Apple Computer, Inc. build 1809)] on darwin
Type "help", "copyright", "credits" or "license" for more
information.
>>> print "Hello, world!"
Hello, world!
>>>
```

Hello World -- non-interactive

```
#Name: Sami Rollins  
#Filename: hello.py  
#My first python program  
  
print "Hello, world!"
```

Errors

- You WILL have errors in your programs
- Syntax Errors
 - Compiler/interpreter doesn't understand code
 - Ex. – `pritt "Hello, world!"`
 - Sometimes error messages don't match problem
- Logic
 - Program runs, but doesn't do what you want
 - Ex. – `print "Helol, world!"`
 - Can be hard to track down