

## 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

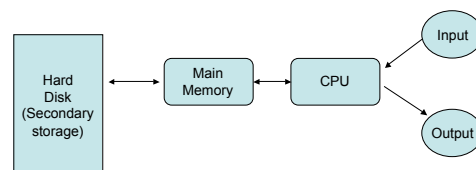
## Computer Hardware

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

## Computer Software

- Operating system
  - Examples?
- Applications
  - Examples?

## Application Execution

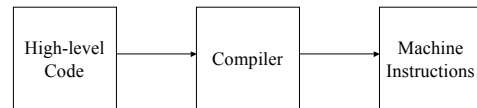


## Computer Programs

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

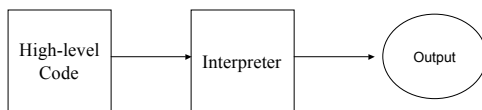
## Compiled Languages

- Some languages are compiled or translated directly into machine instructions

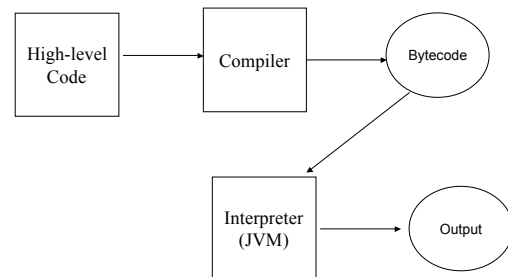


## Interpreted Languages

- 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. – `prit "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

## Exercises

1. Write a program to display the following:

```
*
**
***
****
*****
```

2. Now try the following:

```
*****
****
***
**
*
```