Tutorial 1

COMPSCI 340 / SOFTENG 370

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Agenda

- Install Ubuntu 16.04.1 LTS
- Virtual Machines
  - VMWare Workstation Player 12.11 Installation
  - VirtualBox 5.1.2 Installation
- Python
  - Installing
  - Java comparisons
  - Recap / Basics

Install Ubuntu - 1

You can install Ubuntu on your computer in three possible ways:

1. Create a bootable drive and load Ubuntu on it.
    a. Run Ubuntu from a CD/DVD.
        i. For Windows users: http://www.ubuntu.com/download/desktop/burn-a-dvd-on-windows
        ii. For Mac OS X users: http://www.ubuntu.com/download/desktop/burn-a-dvd-on-mac-osx
    b. Create a bootable USB stick
        i. For Windows Users: http://www.ubuntu.com/download/desktop/create-a-usb-stick-on-windows
        ii. For Mac OS X users: http://www.ubuntu.com/download/desktop/create-a-usb-stick-on-mac-osx

Install Ubuntu - 2

2. Dual-booting Ubuntu with your current host OS
    a. For Windows Users: https://help.ubuntu.com/community/WindowsDualBoot
    b. For Mac OS X Users: https://help.ubuntu.com/community/MactelSupportTeam/AppleIntelInstallation

3. Installing one of the virtual machines on your current OS. (You will need one of the Virtual Machine softwares and an ISO file for Ubuntu.)

Virtual Machines

- VMWare Workstation Player (Host OS: Windows, Linux)
- Virtual Box (Host OS: Os X, Windows, Linux and Solaris)
- Parallel Desktop (OS X) (Proprietary and you get only a 14-day trial.)

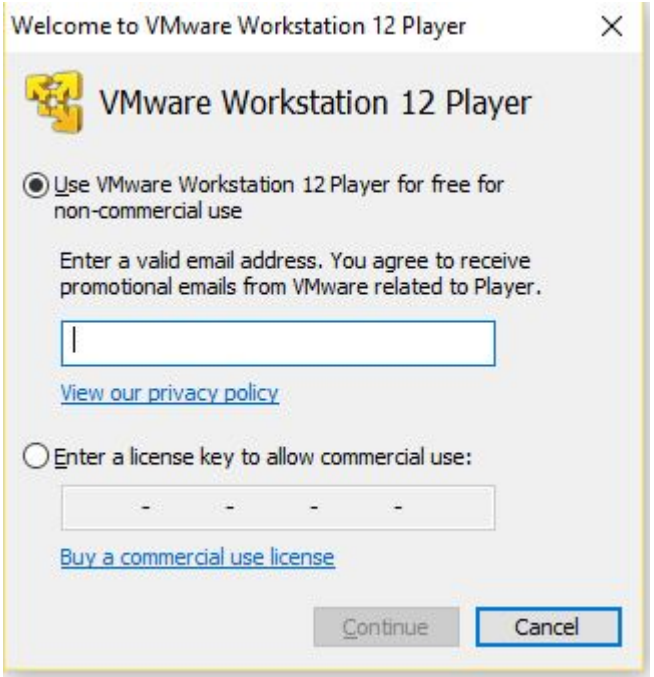
VMWare Workstation Player

- Download VMWare Workstation Player from https://my.vmware.com/en/web/vmware/free#desktop_end_user_computing/vmware_workstation_player/12_0

Ubuntu ISO file

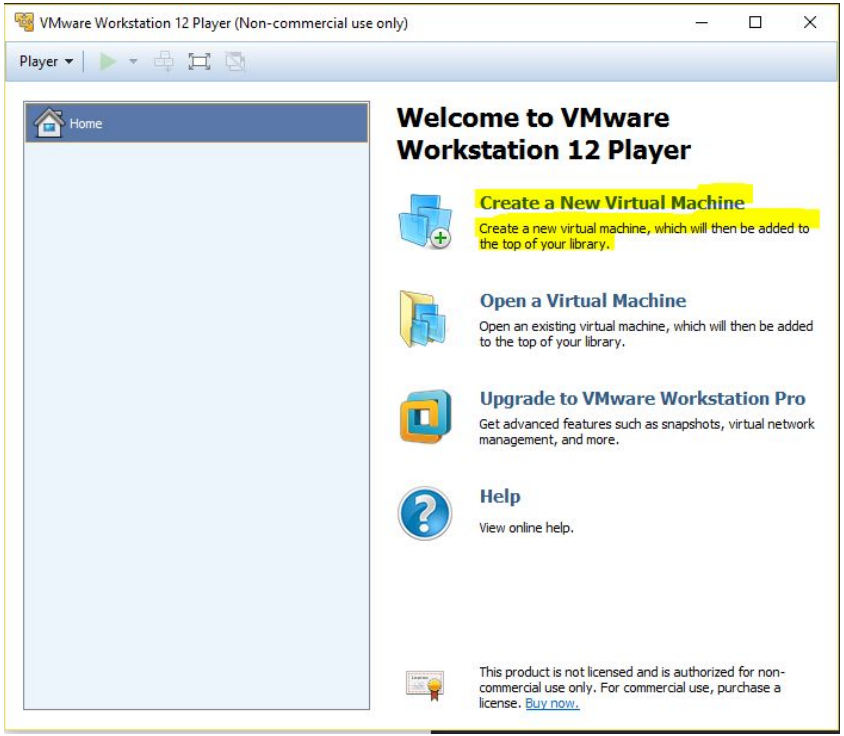
- Download the ubuntu iso file from http://www.ubuntu.com/download/desktop (Size: ~1.5GB; Installation Time:)

Appendix for Windows Users (1)



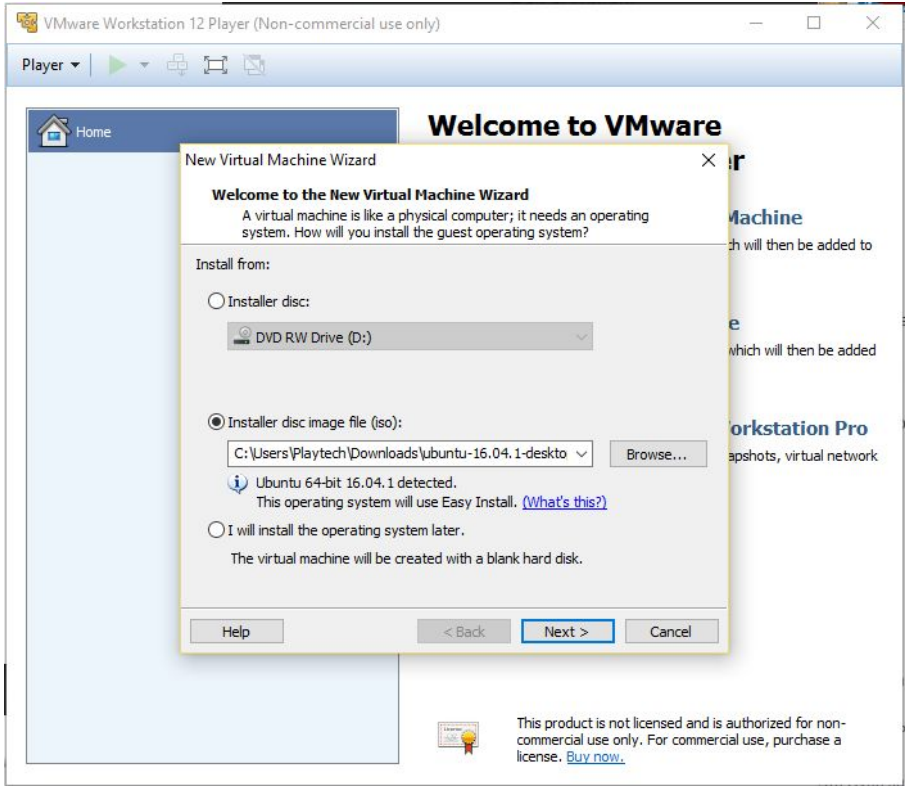
- Select non-commercial use
- Enter one of your emails that receive all the spam

Appendix for Windows Users (2)



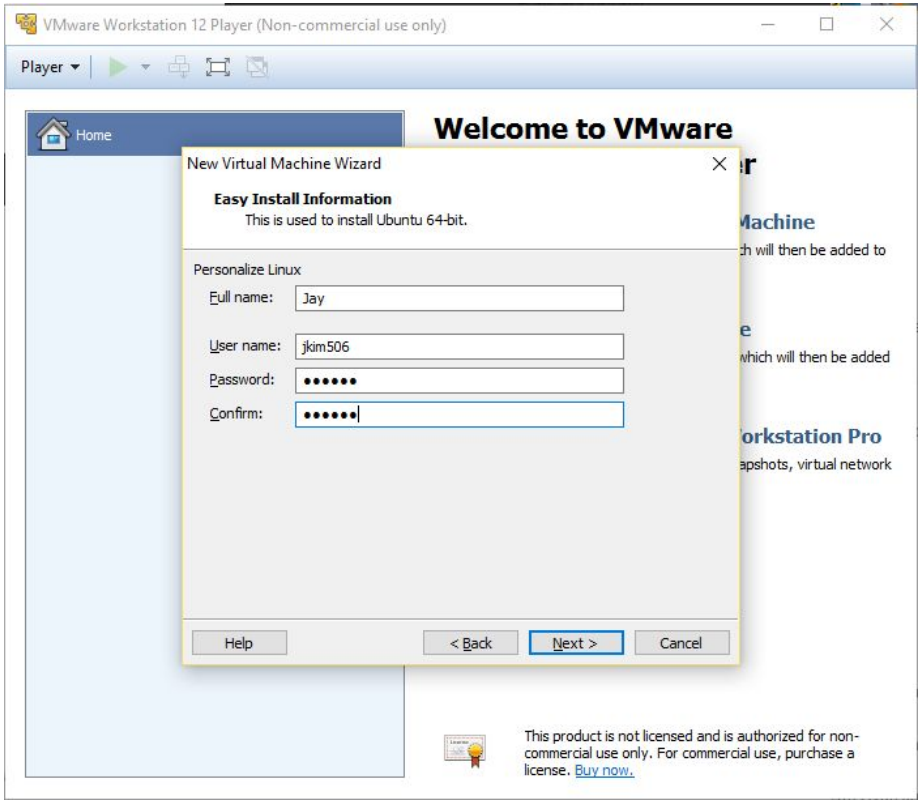
- Select “Create a New Virtual Machine”

Appendix for Windows Users (3)



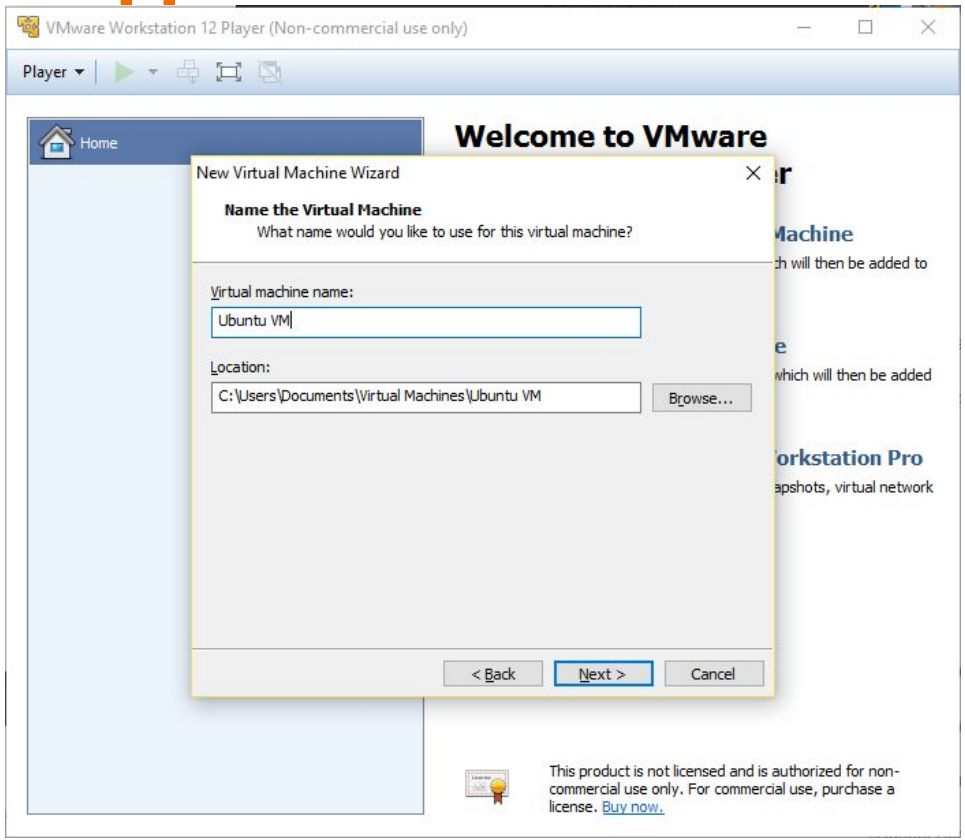
- Locate the Ubuntu iso that was downloaded earlier

Appendix for Windows Users (4)



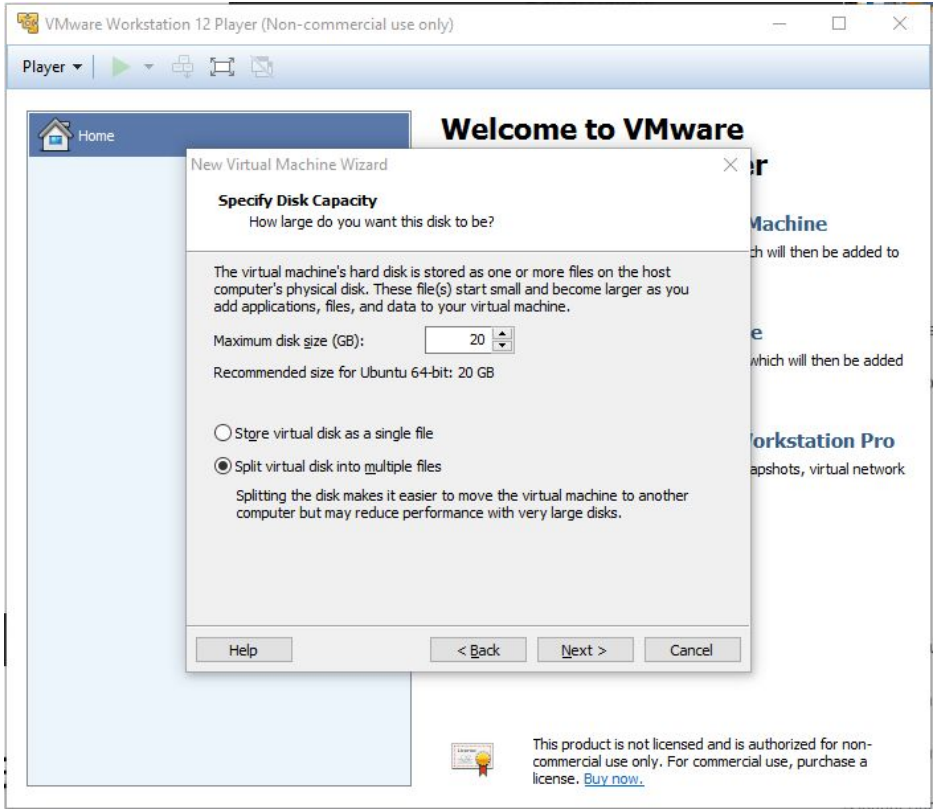
- Enter set your username and password

Appendix for Windows Users (5)



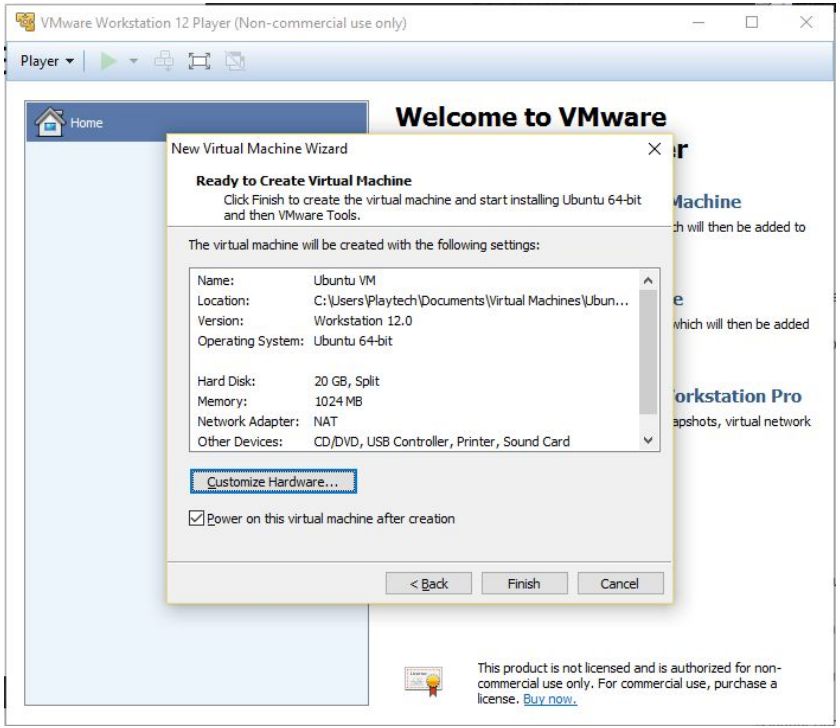
- Name your virtual machine

Appendix for Windows Users (6)



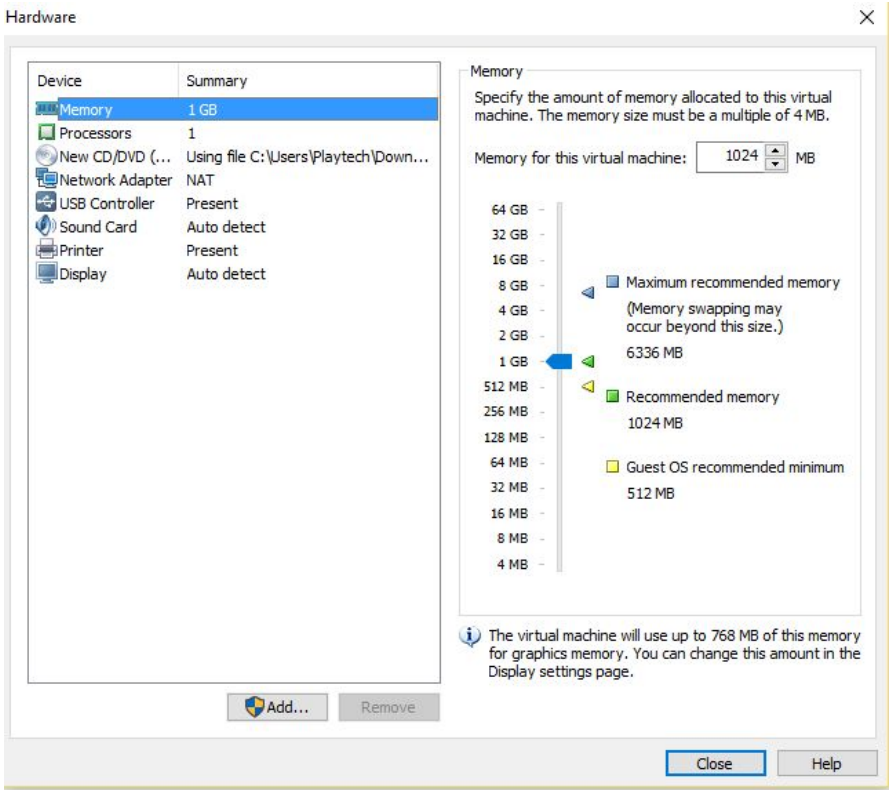
- Specify the maximum disk size
- Adjust accordingly to your machine’s disk size

Appendix for Windows Users (7)



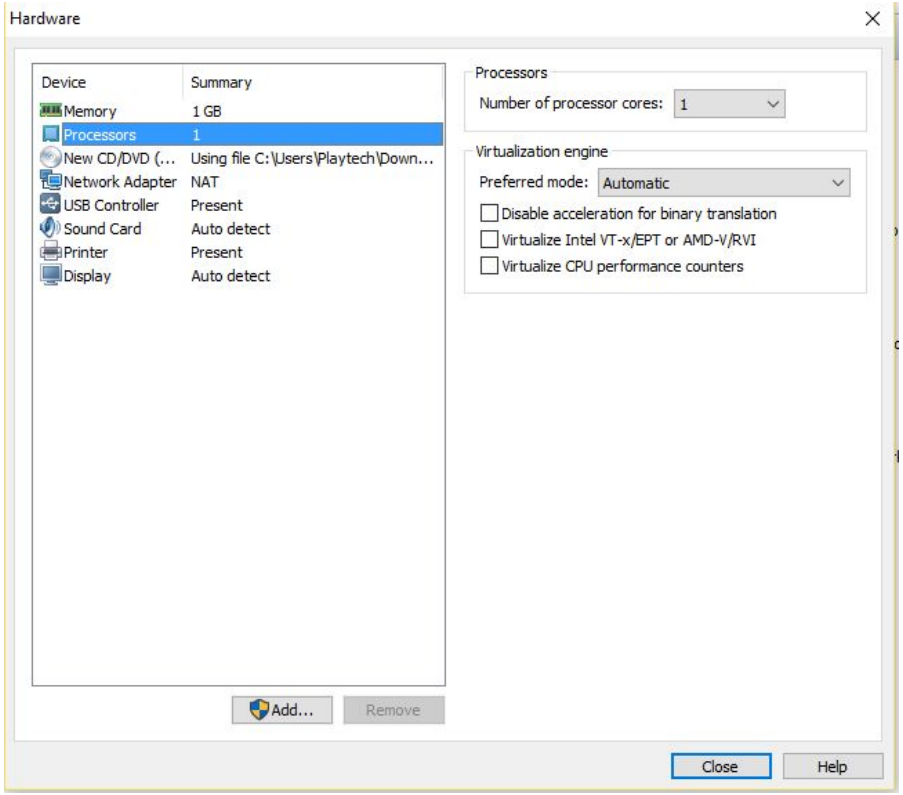
- Click “Customize Hardware...”

Appendix for Windows Users (8)



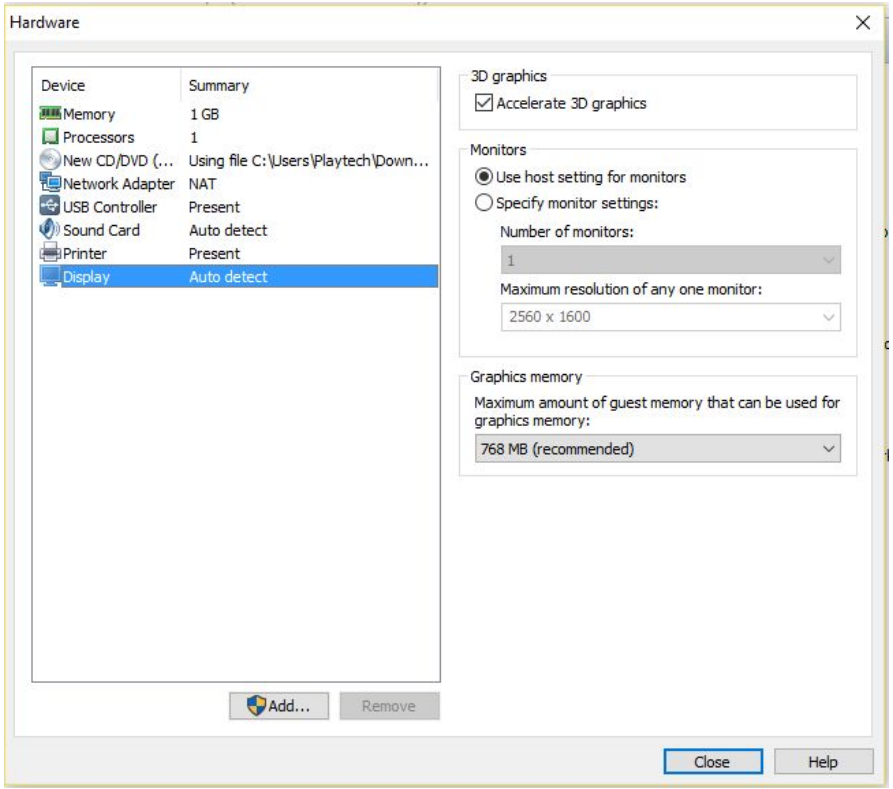
- Adjust your memory for the VM
  - There are indicators for..
    - Maximum
    - Recommended
    - Minimum

Appendix for Windows Users (9)



- Select the number of processor cores for the VM

Appendix for Windows Users (10)



- Make sure “Accelerate 3D graphics” is ticked

VirtualBox

- Download Virtual Box for OS X/ Windows/ Linux from https://www.virtualbox.org/wiki/Downloads (Size: ~100MB; Installation Time: not much)

Installing and running python

```
>>> sudo apt-get install python3
>>> chmod +x hello_world.py
>>> ./hello_world.py
```

Terminal

```
#! /usr/bin/env python3

print (“Hello world!”)
```

hello_world.py

```
>>> brew install python3

(For mac users)
```

Python vs Java Overview

Python

- Dynamic typing
- Indentation
- Not verbose

Java

- Static Typing
- Braces
- Verbose

Python vs Java (1)

```java
public static void main(String[] args) {
  String test = "compare Java with Python";
        for(String a : test.split(" "))
                System.out.print(a);
}
```

Java

```python
a="compare Python with Java"
print (a.split())
```

Python

http://www.programcreek.com/2012/04/java-vs-python-why-python-can-be-more-productive/

Python vs Java (2)

```java
File dir = new File(".");// get current directory
File fin = new File(dir.getCanonicalPath() + File.separator
                                + "Code.txt");
FileInputStream fis = new FileInputStream(fin);
// //Construct the BufferedReader object
BufferedReader in = new BufferedReader(new
InputStreamReader(fis));
String aLine = null;
while ((aLine = in.readLine()) != null) {
        // //Process each line, here we count empty lines
        if (aLine.trim().length() == 0) {
        }
}

// do not forget to close the buffer reader
in.close();
```

Java

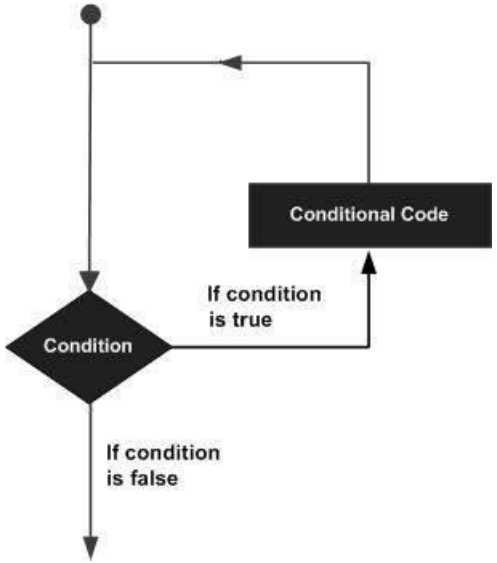
```python
myFile = open("/home/xiaoran/Desktop/test.txt")
print (myFile.read())
```

Python

http://www.programcreek.com/2012/04/java-vs-python-why-python-can-be-more-productive/

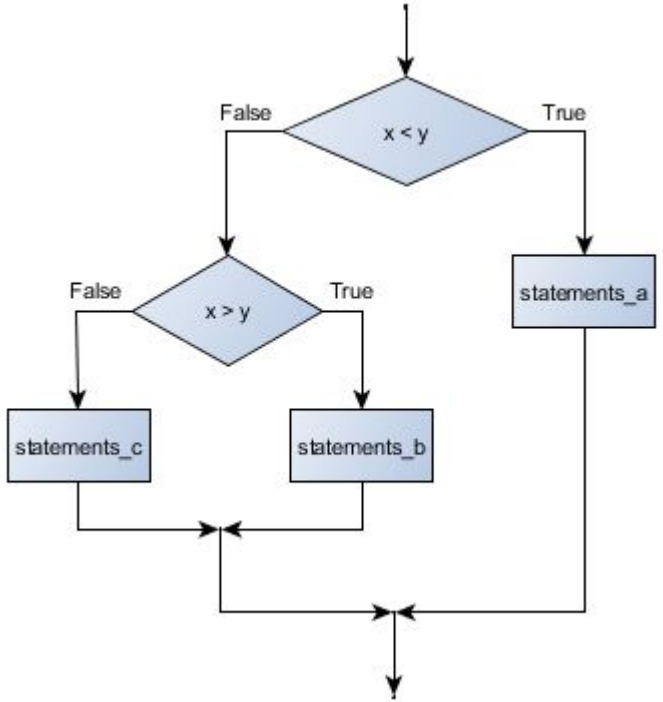
Python: For loops

```
ITERATION_COUNT = 100;
sum = 0;

for i in range(1, ITERATION_COUNT  + 1)  #iterates from 1 to 100
        sum += i

print(“Sum: ”, sum)
```



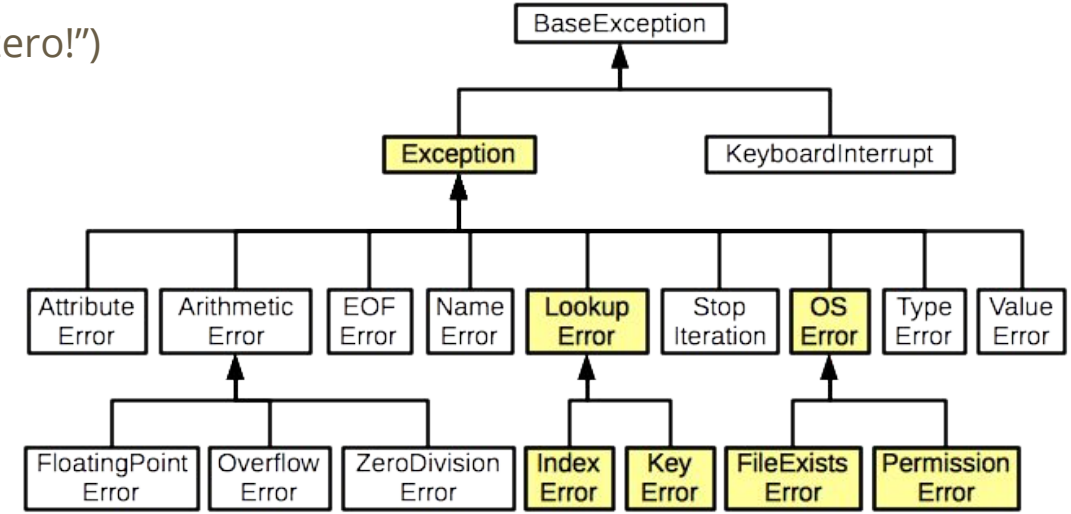
Python: Conditionals

```
num = 200;

if num <= 100:
        print(“Small number”)
elif num > 1000:
        print(“Big number”)
else:
        print(“Medium number”)
```



Python: Exceptions

```
def divide(dividend, divisor):
        try:
                return (dividend / divisor)
        except ZeroDivisionError:
                print("You cannot divide by zero!")
...
```



Python: Dictionaries

```
fruit_basket = {
        'Apples' : 5,
        'Bananas' : 10,
        'Lemons' : 1,
        'Pineapples' : 2,
        'Melons' : 3
}
```

Initializing

```
for fruit, count in fruit_basket.items():
        print ("There are " + str(count) + " " + fruit)
```

Iterating

```
fruit_basket['Oranges'] = 3
```

Add

```
fruit_basket.pop("Apples")
```

Remove

Python: Functions

```
def multiply(num1, num2):
        return num1 * num2

num1 = int(input("First number: "))
num2 = int(input("Second number: "))

print(multiply(num1, num2))
```

Next tutorial

- Fork
- Named pipe
- Lambda
- Pickle