LEARNING TO CODE : PYTHON WEEK 1

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COURSE OUTLINE

Week 1 – Introduction to coding, python and data types I

Week 2 – Data types II

Week 3 – Condition statements and loops

Week 4 – Read/Write files & Code

Week 5 – Functions

Week 6 – Classes and modules
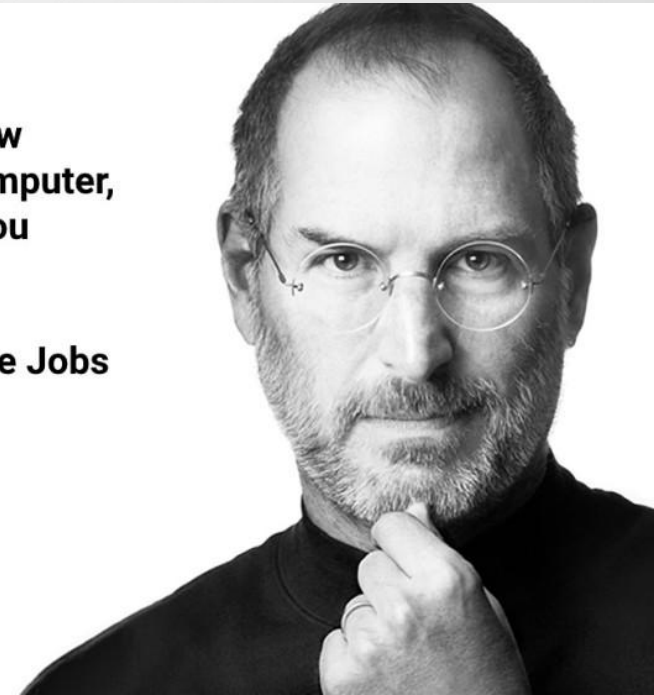
Build a hide-and-go-seek game

- Build a map
- Position hider(s)
- Seeker seeks and finds hider(s)
- Program the seeker
- Save/load feature
- Program the hiders to run from the seeker

INTRODUCTION TO CODING

- Why learn coding?

  - It a useful skill to have in science, accounts, marketing, engineering….

  - It is a great way to make money

  - It teaches you how to most efficiently deal with repetitive tasks

- All codes can be broken up into simple steps

- If you learn one, you can pick up most other languages on your own

"Everyone should know how to program a computer, because it teaches you how to think."

Steve Jobs

Be logical!!

Image source :
https://sacerdotus.files.wordpress.com/2015/02/7234b-star-trek-spock-salute-sublimated-pillow-case-4.jpg

INTRODUCTION TO PYTHON

- Python is a high level object oriented programming language.

- Its is one of the most easiest to learn and is very widely used.

Ex:

```
public class Script{
        public static void main (String[] args){
                System.out.println("Hello")
        }
}
```
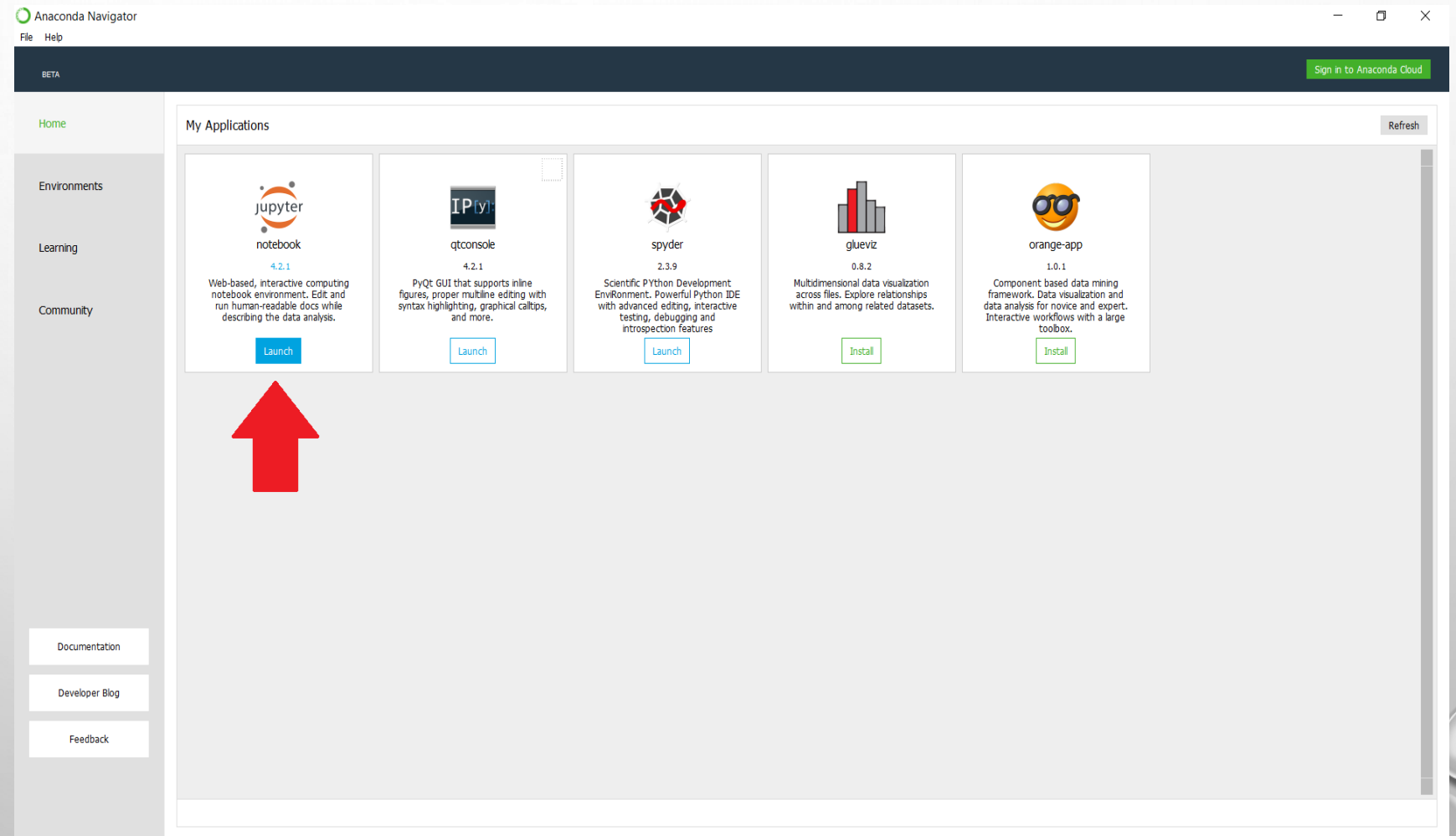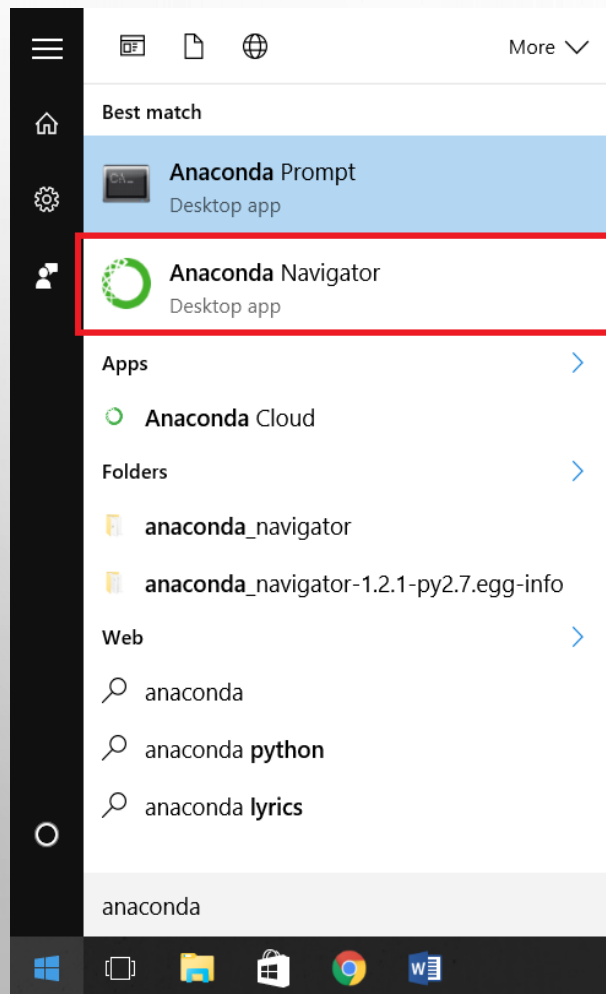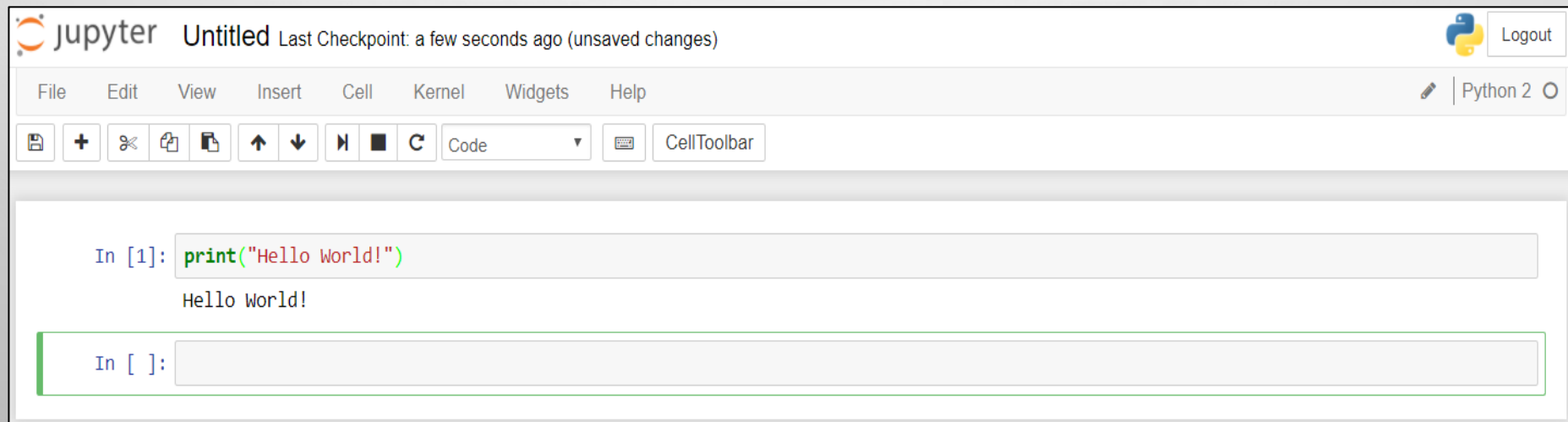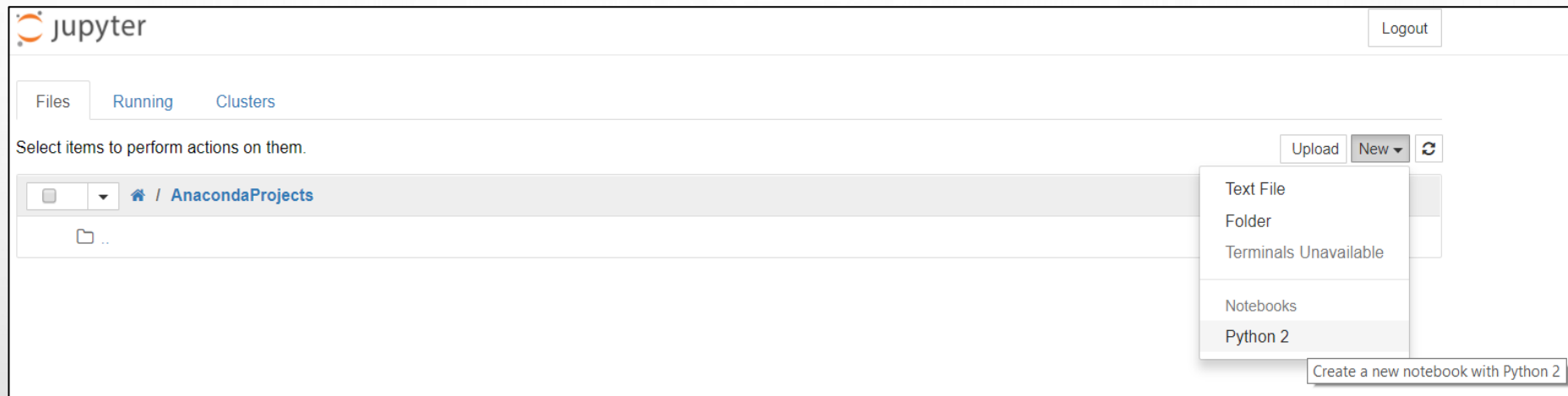
print "Hello"

- Python can be used as environment to perform tasks (as in Matlab or R) or run scripts directly (Java, C++)

CHECK PYTHON INSTALLATION : ANACONDA

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MEET YOUR BEST FRIEND: THE TEXT EDITOR

- Python IDLE
  - Can test code in the python environment window
  - Can run scripts directly from editor
  - Supports only python

- Notepad++
  - Looks just like your windows notepad
  - Supports multiple programming languages and formats
  - https://notepad-plus-plus.org/

MEET YOUR BEST FRIEND: THE TEXT EDITOR

- Anaconda python notebook
  - Anaconda notebook lets users write scripts and record results
  - Allows users to test their code and is beginner-friendly
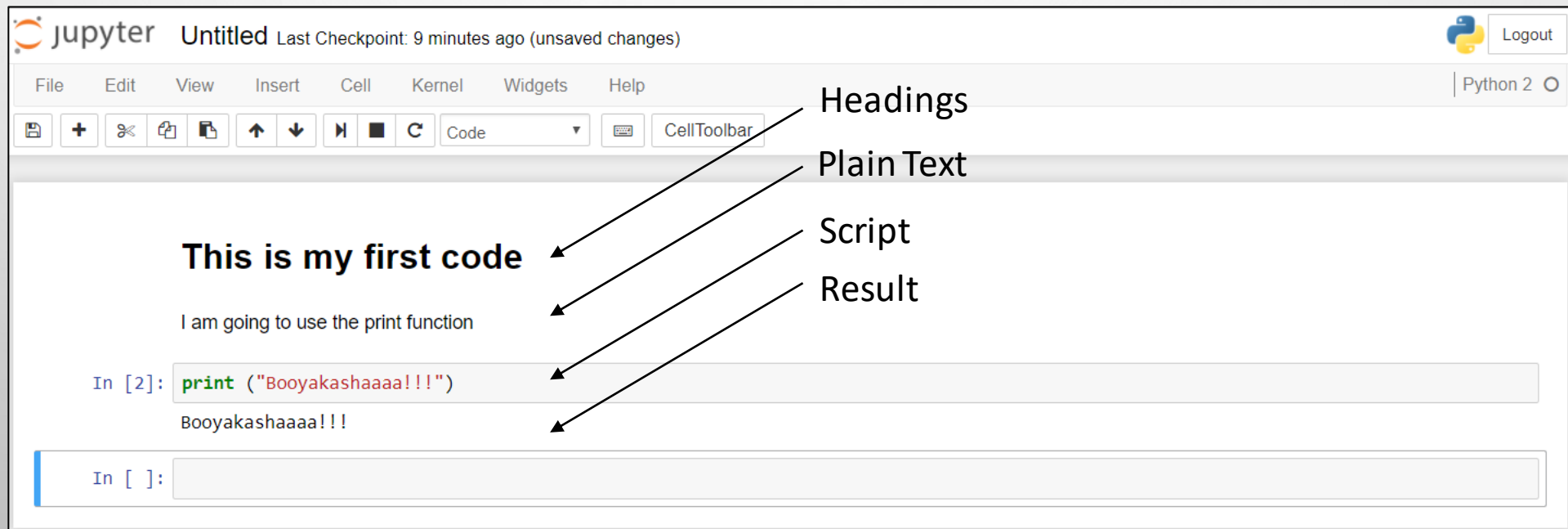
DATA TYPES IN PYTHON

- Everything something…

- int : Integers
  - Used to represent whole numbers, ex: 2 , -4, 0
  - Does not have decimal places

- float : Floating-point numbers
  - Used to represent real numbers, ex: 1.5, -3.9, 0.0
  - Allows decimal places

- str : Strings
  - Used to represent a character or a sequence of alpha-numeric characters, ex: "Apple3", "A", "3", ""

BASIC OPERATIONS

- "=": assigning a value
- "+": addition or string concatenation
- "/": division

- "%": modulo (remainder from division)
- "**": power

BASIC FUNCTIONS

- print(a) : prints the value of a
- int(a) : returns value of a as int
- float(a) : returns value of a as float

- str(a) : returns value of a as string
- type(a) : returns the data type a falls under
- dir(a) : returns built-in properties of a

EXERCISE : WEEK 1

Objective: Create a map for your hide-and-go-seek game