KOLT Python

Introduction

Ahmet Uysal

Monday 18th February, 2019

KOLT

Agenda

Course Outcomes

- Apply basic programming concepts using Python

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- Demonstrate how Python can be used in different areas or disciplines

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- Demonstrate how Python can be used in different areas or disciplines
- Create code that are easy to understand
- **Implement practical challenges** by gaining experience in Python

Why Python?

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# and assign input to variable
name = input('Enter a sentence:')
# Greet user
print('Hello from Python,', name)
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```java
import java.util.Scanner;

public class Example{
    public static void main(String[] args){
        // Create a scanner object
        Scanner scanner = new Scanner(System.in);
        // Print descriptive text to console
        System.out.print("Enter your name: ");
        // Read user input and assign it to a variable
        String name = scanner.nextLine();
        // Greet user
        System.out.println("Hello from Java, " + name);
    }
}
```

Why Python?

- Easy Syntax
- Beginner Friendly -most popular language for introductory CS courses in top universities[1]-
- Wide usage area
- Large and growing community

Some of the Usage Areas[2]

- Data Analysis

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- Web Development

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- System Administration

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Python at Koç University

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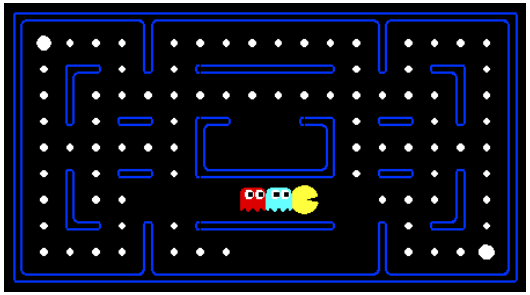

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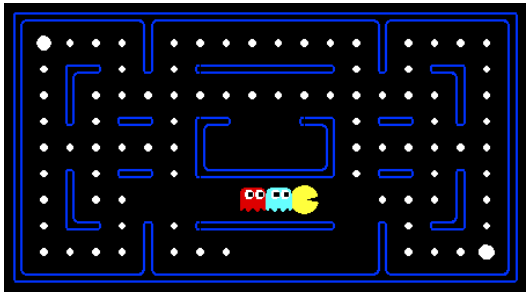

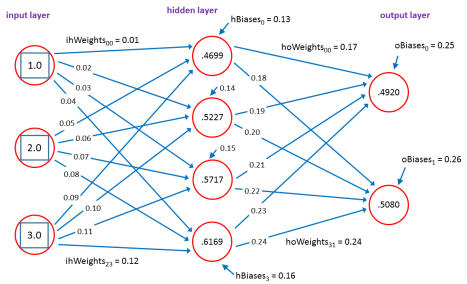

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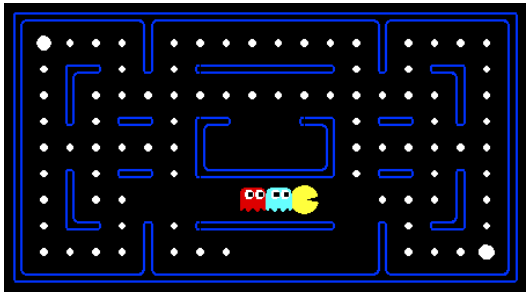

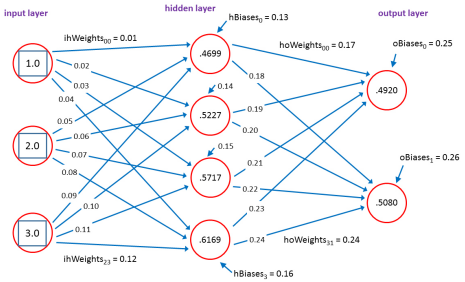

Python at Industry

Team

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Weekly Schedule

`Monday 17:30-18:45` **`Lecture`**

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```
Monday 17:30-18:45 Lecture
Wednesday 17:30-18:45 Contest/Review
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Every Week **HackerRank Contest**

We will use HackerRank a lot this semester, create your account if you have not already!

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- Review sessions will be conducted to **help you**
- Some assignments will have **autograders** to help you find your mistakes and test your code.
- Later assignments will be based on **your interests!**
- We can also organize hackathons if requested :)

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  - Duration: 50 minutes
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  - Surprize gifts to first three places and problem solvers!

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- Complying to *Koç University Code of Conduct*.

5 Minute Break

Installing Python

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- (Windows only) Make sure to add python to the `environment variables` by checking the corresponding permission on the installation or by hand
- Check the installation by running **`python`**(Windows)/**`python3`**(macOS/Linux) in terminal.

```
C:\Users\AUYSAL16>python
Python 3.7.2 (tags/v3.7.2:9a3ffc0492, Dec 23 2018, 23:09:28) [MSC v.1916 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print('hello, world!')
hello, world!
```

Installing an Editor/IDE(Integrated Development Environment)

- Although you can edit Python(.py) files with any text editor and run them directly through terminal, having a specialized editor/IDE can help a lot.
- We will use Visual Studio Code in lectures but you are free to use any editor/IDE of your choice.
- Get Visual Studio Code from *code.visualstudio.com/Download*

Configuring Visual Studio Code for Python

- Install Python extension for VS Code.

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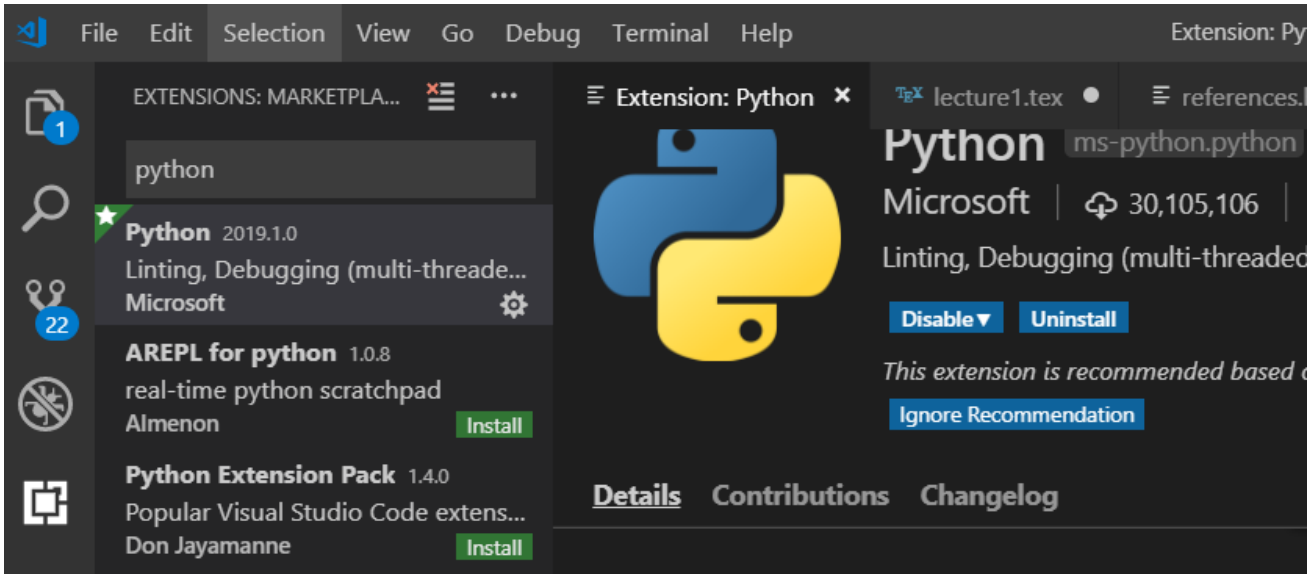
- For more information, visit *VS Code Python Tutorial*.



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>>> print('You can write Python code here!')
You can write Python code here!
>>> _
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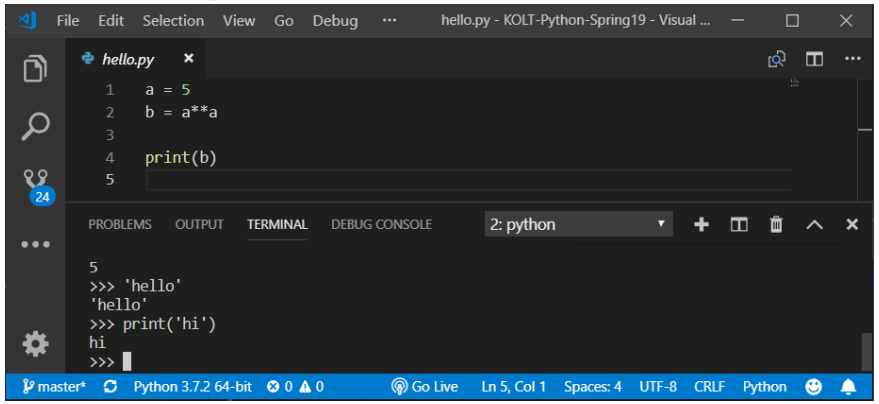
You can also open a terminal inside VS Code



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- Immediate gratification :)
- Provides a sandboxed environment to experiment
- You are not sure what something does, **try it!**
- Shortens code-test-debug cycle and speeds up learning

Comments

```
# Single line comments start with a '#'

"""
Multiline comments can be written between
three "s and are often used as function
and module comments.
"""
print('Hello, stranger!')
```

Python will basically ignore comments, they are purely written **for humans**!

Variables

- How to represent/store values in Python?

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Variables

Type	Explanation	Examples
`int`	represent **integers**	3, 4, 17, -10
`float`	represent **real numbers**	3.0, 1.11, -109.123123
`bool`	represent **boolean** truth values	`True`, `False`
`str`	A sequence of characters.	'Hello', '', '3'
`NoneType`	special and has one value, None	`None`

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OK, but how do we create one?

Variables

```
x = 2
x * 7
# => 14
x
# => 2
x = x * 7

y = 'Hello'
y + ' World!'
# => 'Hello World!'
```

How about type of variables?

Special method called **`type()`**

```
type(1) # => <class 'int'>
type('Hello') # => <class 'str'>
type(None) # => <class 'NoneType'>
type('') # => <class 'str'>

type(int) # => <class 'type'>
type(type(int))# => <class 'type'>
```

Python knows variables' type even if you don't know it!

Console I/O(Input/Output)

Now we can store the data we know,

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# and assign input to variable
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# Greet user
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print(*args, sep=' ', end='\n')
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`input([prompt])`

- Prints the prompt to Console
- Program is paused until user enters something
- **returns an `str` object!**

Example Program

```
number = input('Please enter a number:')
# Assume user entered 34
result = number * 2
# What will we see in console?
print(result)
```

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LET'S TRY!!!

References

[1] P. Guo, “Python is now the most popular introductory teaching language at top u.s. universities.” [Online]. Available: https://cacm.acm.org/blogs/blog-cacm/176450-python-is-now-the-most-popular-introductory-teaching-language-at-top-u-s-unive fulltext

[2] JetBrains, “Python developers survey 2018.” [Online]. Available: https://www.jetbrains.com/research/python-developers-survey-2018/