KOLT Python

Introduction

Ahmet Uysal

Monday 23rd September, 2019

KOLT

Agenda

1. Program Information
2. Logistics
3. Installations
4. Introduction
5. References

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 is easy to understand
- **Implement practical challenges** by gaining experience in Python

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- 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

- COMP341: Introduction to Artificial Intelligence

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Python at Koç University

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- INTL450 (Selected Topics - Spring19): Advanced Data Analysis in Python

Python at Koç University

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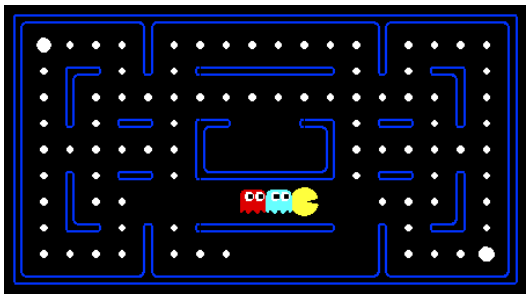
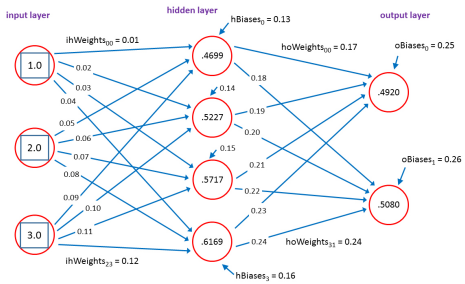
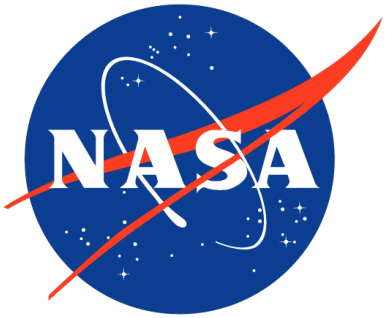
- COMP421/521: Introduction to Machine Learning
- ENGR350 (Selected Topics - Summer18/Spring19): Introduction to Programming for Data Science
- INTL450 (Selected Topics - Spring19): Advanced Data Analysis in Python





Python at Industry

Google



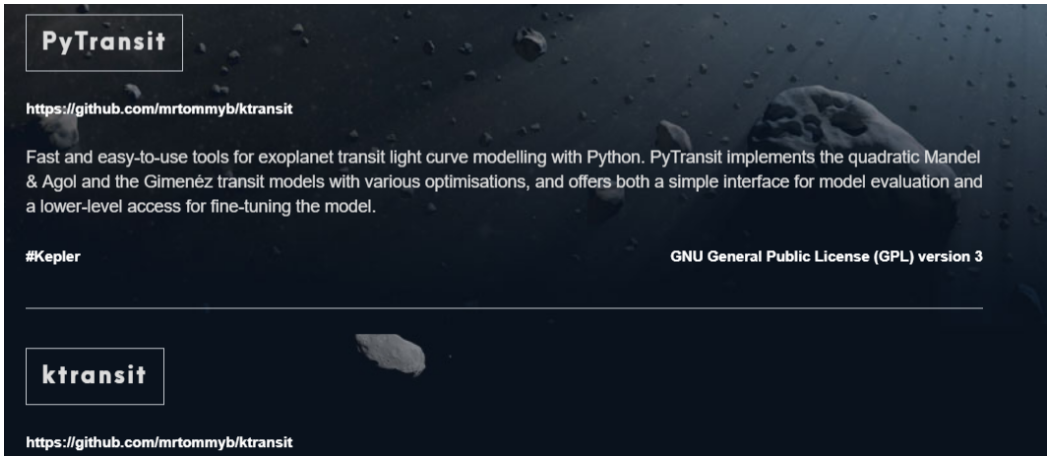
YouTube

Python at Industry [3]

Web Service Efficiency at Instagram with Python

Instagram Engineering Follow
Jun 21, 2016 · 6 min read

Instagram currently features the world's largest deployment of the Django web framework, which is written entirely in Python. We initially chose to use Python because of its reputation for simplicity and practicality, which aligns well with our philosophy of "do the simple thing first." But simplicity can



Python Everywhere

Who Are We?

Ahmet Uysal
auysal16@ku.edu.tr

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Ahmet Uysal
auysal16@ku.edu.tr

Ceren Kocaoğullar
ckocaogullar15@ku.edu.tr

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Gül Sena Altıntaş
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Gül Sena Altıntaş
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Hasan Can Aslan
haslan16@ku.edu.tr

What Will We Do?

Lecture Monday 11:30-12:45

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Section Wednesday 14:30-15:45 **or**
Section Thursday 11:30-12:45 **or**
Section Thursday 13:00-14:15 **or**
Section Thursday 16:00-17:15

Programming Assignments

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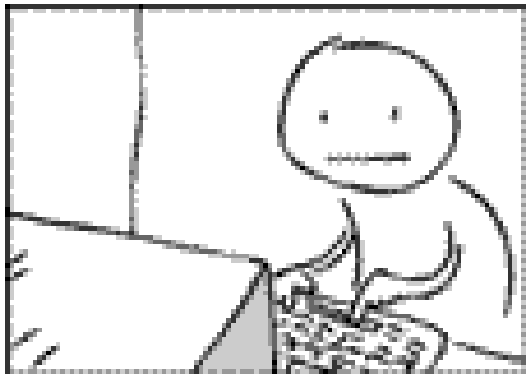
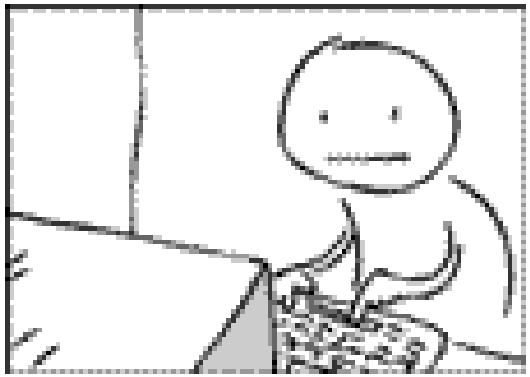


Programming Assignments (Don't Be Afraid!)

- 4-6 in total
- Review sessions 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!**



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- Complying to *Koç University Code of Conduct*.

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

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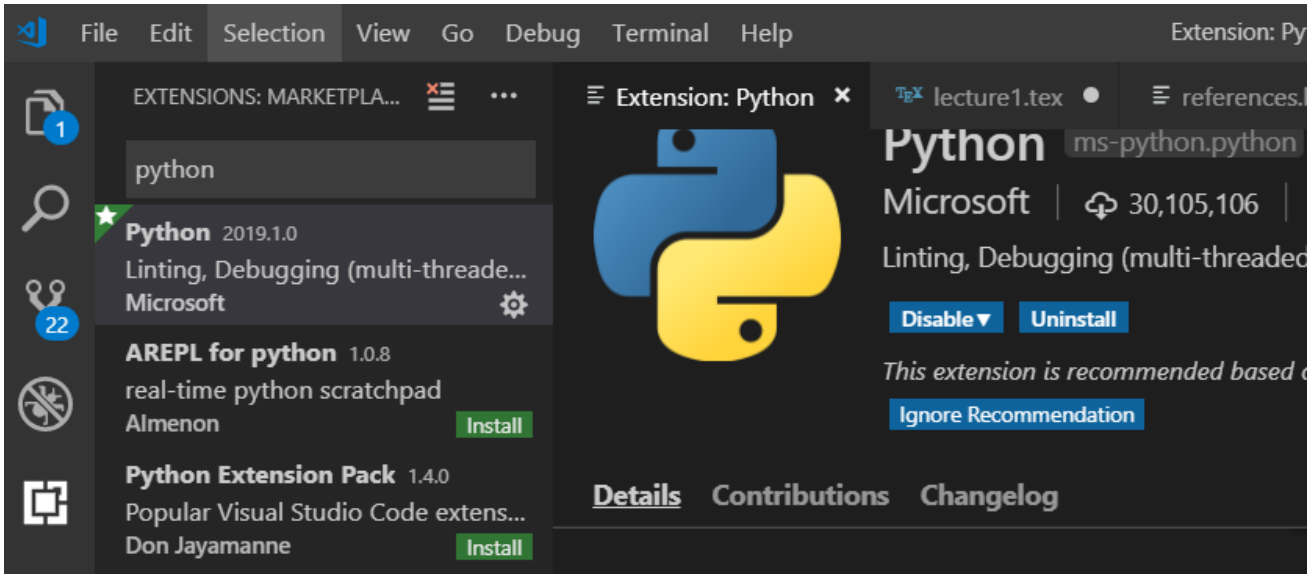
- For more information, visit *VS Code Python Tutorial*.



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You can instantly run code on terminal!

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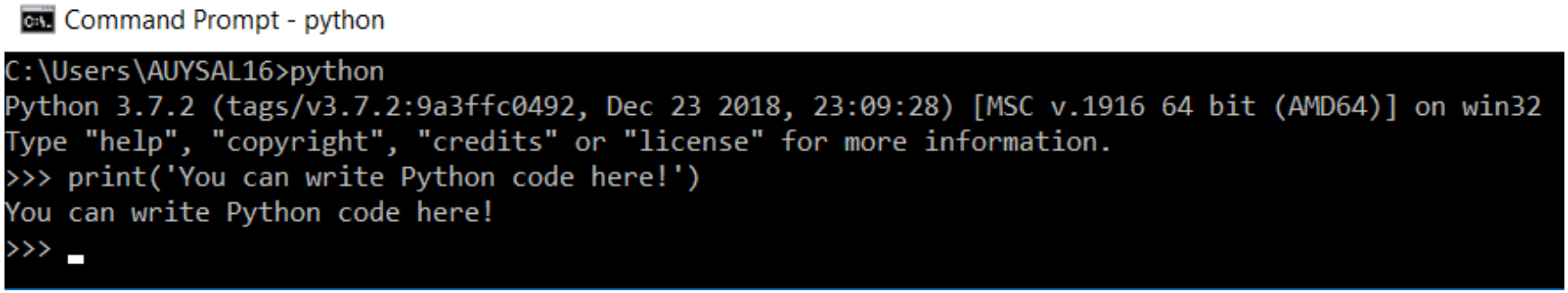

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Command Prompt - python

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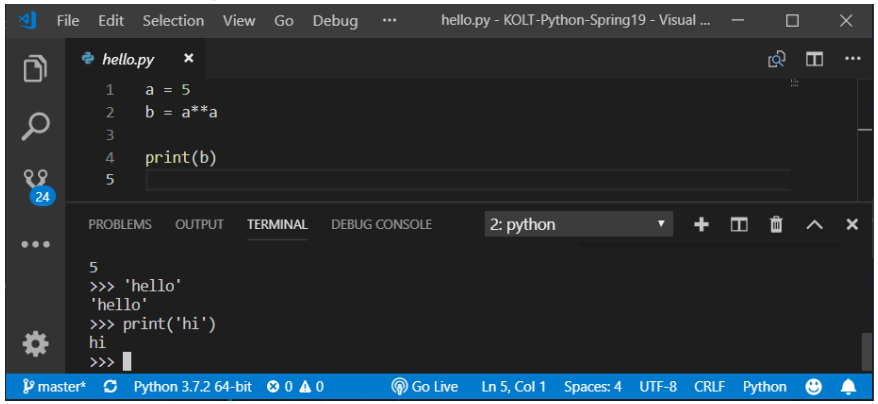
>>> print('You can write Python code here!')
You can write Python code here!
>>>
```

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**!

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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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Now we can store the data we know,
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`print(), input()`

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`print(), input()`

```
# Print descriptive text to console
# and assign input to variable
name = input('Enter a sentence:')
# Greet user
print('Hello from Python,', name)
```

Console I/O(Input/Output)

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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('Rate us out of 100 :')
# Assume user entered 34
result = number + (100 - number)
# What will we see in console?
print(result)
```

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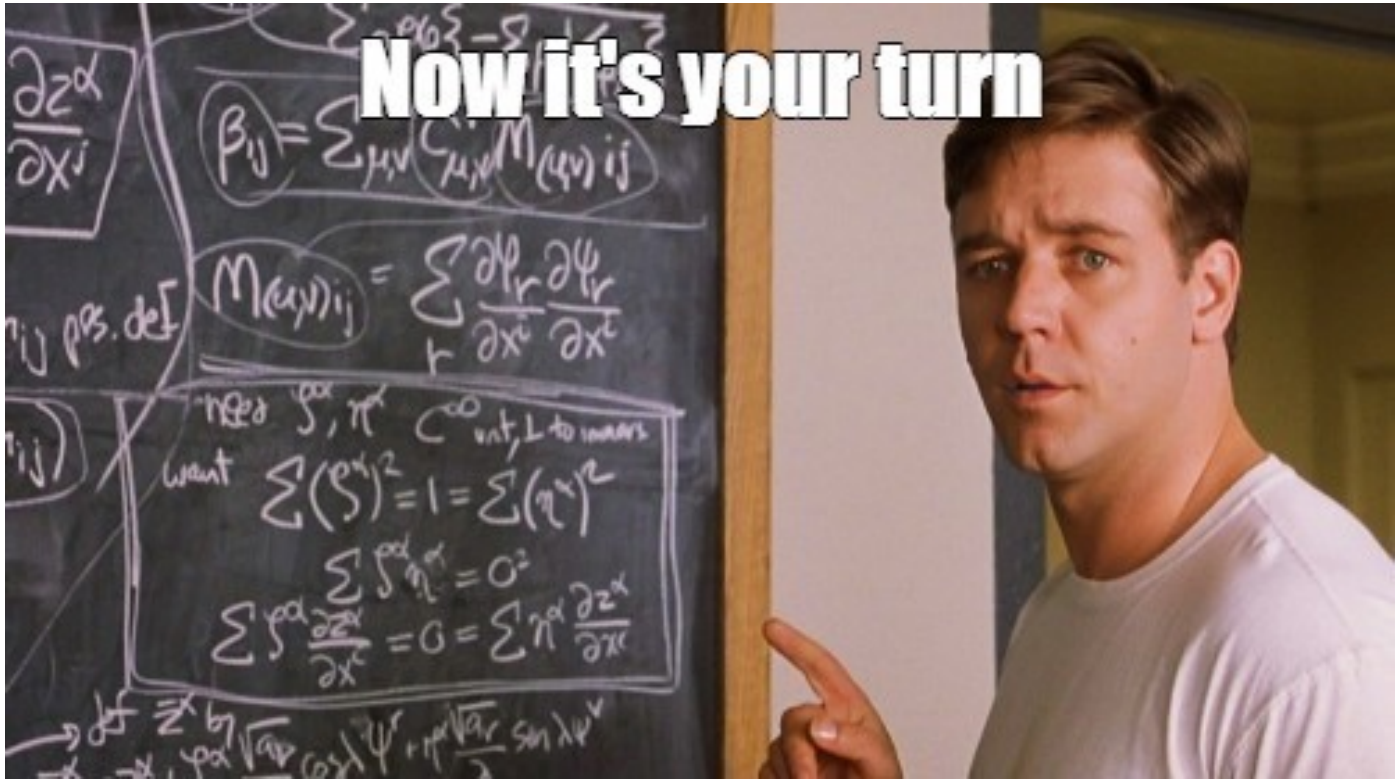
Get Your Hands Dirty



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

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