

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

Introduction

Ahmet Uysal

Monday 23rd September, 2019

KOLT

1. Program Information
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2. Logistics
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3. Installations
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4. Introduction
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Agenda

1. Program Information

2. Logistics

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1. Program Information
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Course Outcomes

1. Program Information
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2. Logistics
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3. Installations
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4. Introduction
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Course Outcomes

- Apply basic programming concepts using Python

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3. Installations
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4. Introduction
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Course Outcomes

- Apply basic programming concepts using Python
- Demonstrate how Python can be used in different areas or disciplines

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Course Outcomes

- Apply basic programming concepts using Python
- Demonstrate how Python can be used in different areas or disciplines
- Create code that is easy to understand

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Course Outcomes

- Apply basic programming concepts using Python
- 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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Why Python?

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Why Python?

- Easy Syntax

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Why Python?

- Easy Syntax
- Beginner Friendly -most popular language for introductory CS courses in top universities[1]-

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Why Python?

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

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Why Python?

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

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Some of the Usage Areas [2]

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Some of the Usage Areas [2]

- Data Analysis

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Some of the Usage Areas [2]

- Data Analysis
- Web Development

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Some of the Usage Areas [2]

- Data Analysis
- Web Development
- System Administration

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Some of the Usage Areas [2]

- Data Analysis
- Web Development
- System Administration
- Machine Learning

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Some of the Usage Areas [2]

- Data Analysis
- Web Development
- System Administration
- Machine Learning
- Web Parsers/Scrawlers

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Some of the Usage Areas [2]

- Data Analysis
- Web Development
- System Administration
- Machine Learning
- Web Parsers/Scrawlers
- Testing

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Some of the Usage Areas [2]

- Data Analysis
- Web Development
- System Administration
- Machine Learning
- Web Parsers/Scrawlers
- Testing
- Education

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Some of the Usage Areas [2]

- Data Analysis
- Web Development
- System Administration
- Machine Learning
- Web Parsers/Scrawlers
- Testing
- Education
- Network Programming

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Some of the Usage Areas [2]

- Data Analysis
- Web Development
- System Administration
- Machine Learning
- Web Parsers/Scrawlers
- Testing
- Education
- Network Programming
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Python at Koç University

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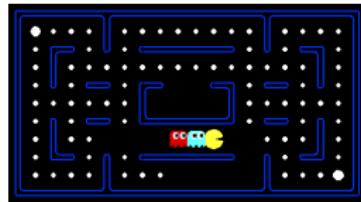
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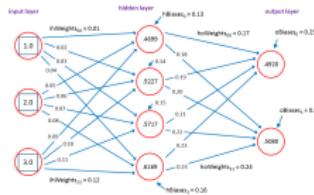
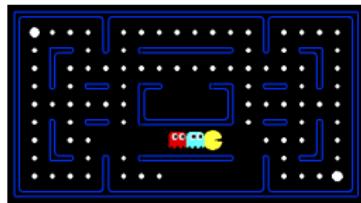
Python at Koç University

- COMP341: Introduction to Artificial Intelligence



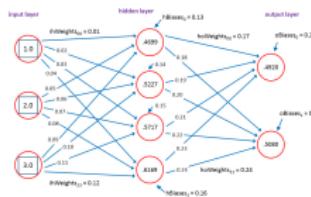
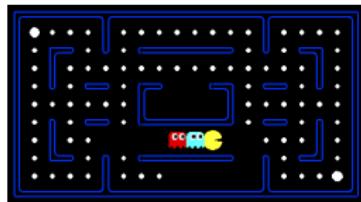
Python at Koç University

- COMP341: Introduction to Artificial Intelligence
- COMP421/521: Introduction to Machine Learning



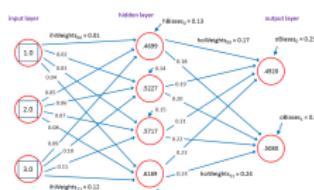
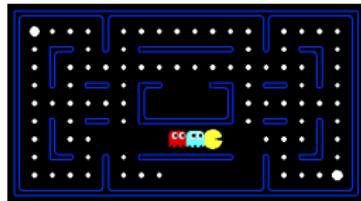
Python at Koç University

- COMP341: Introduction to Artificial Intelligence
- COMP421/521: Introduction to Machine Learning
- ENGR350 (Selected Topics - Summer18/Spring19): Introduction to Programming for Data Science



Python at Koç University

- COMP341: Introduction to Artificial Intelligence
- 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



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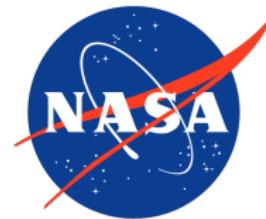
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Python at Industry



Google



YouTube



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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

PyTransit

<https://github.com/mrtommmyb/ktransit>

Fast and easy-to-use tools for exoplanet transit light curve modelling with Python. PyTransit implements the quadratic Mandel & Agol and the Giménez transit models with various optimisations, and offers both a simple interface for model evaluation and a lower-level access for fine-tuning the model.

#Kepler

GNU General Public License (GPL) version 3

ktransit

<https://github.com/mrtommmyb/ktransit>

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Python Everywhere



imgflip.com

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Who Are We?



Ahmet Uysal
auysal16@ku.edu.tr

1. Program Information
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Who Are We?



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1. Program Information
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4. Introduction
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Who Are We?



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4. Introduction
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Who Are We?



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Ceren Kocaoğullar
ckocaoğullar15@ku.edu.tr



Hasan Can Aslan
haslan16@ku.edu.tr

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What Will We Do?

1. Program Information
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What Will We Do?

Lecture Monday 11:30–12:45

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What Will We Do?

Lecture Monday 11:30-12:45

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

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Programming Assignments(Don't Be Afraid!)

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Programming Assignments(Don't Be Afraid!)

- 4-6 in total

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Programming Assignments(Don't Be Afraid!)

- 4-6 in total
- Review sessions to **help you**

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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.

1. Program Information
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4. Introduction
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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!**

1. Program Information
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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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Certificate Requirements

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3. Installations
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Certificate Requirements

- At most **3 unexcused absences**, including sections.

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4. Introduction
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Certificate Requirements

- At most **3 unexcused absences**, including sections.
- Working on and submitting all homework assignments. Submissions that do not pass the autograders will be examined by us.

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Certificate Requirements

- At most **3 unexcused absences**, including sections.
- Working on and submitting all homework assignments. Submissions that do not pass the autograders will be examined by us.
- We do not expect that you ace all programming assignments. But, we expect that you **spend time** on them!

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Certificate Requirements

- At most **3 unexcused absences**, including sections.
- Working on and submitting all homework assignments. Submissions that do not pass the autograders will be examined by us.
- We do not expect that you ace all programming assignments. But, we expect that you **spend time** on them!
- Complying to Koç University Code of Conduct.

1. Program Information
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2. Logistics
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Installations

1. Program Information
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Installations

NO INSTALLATIONS!



1. Program Information
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Installations

NO INSTALLATIONS!



We will use Repl.it, an online IDE.



1. Program Information
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Sign Up to Repl.it

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Sign Up to Repl.it

We already sent you an invite, check your email.

1. Program Information
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We already sent you an invite, check your email.

Repl.it: Join classroom KOLT Python Certificate Program 2019 Inbox



Repl.it <notifications@repl.it> [Unsubscribe](#)
to me ▾

7:26 PM (0 minutes ago)



Hi there,

AHMET UYSAL invited you to participate in classroom "KOLT Python Certificate Program 2019" on Repl.it.

[Join Classroom](#)

Repl.it is the easiest way to get start with programming. It's a cloud coding environment for all major programming languages and a platform for teaching and learning programming.

Good luck! And let us know (contact@repl.it) if you have any problems using our product.

[Unsubscribe](#)

Repl.it, 767 Bryant St #210, San Francisco CA 94107

1. Program Information
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2. Logistics
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Sign Up Flow

1. Program Information
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2. Logistics
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3. Installations
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5. References
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Sign Up Flow



username	
email	
password	

I'm a teacher or log in

Sign up

By continuing, you agree to Repl.it's Terms of Service and Privacy Policy, and to receiving emails with updates.

1. Program Information
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Sign Up Flow



username x

email x

password x

I'm a teacher or log in

Sign up

By continuing, you agree to Repl.it's Terms of Service and Privacy Policy, and to receiving emails with updates.

Sign in with Google

Choose an account
to continue to repl.it

 Samed Biçer
mbicer14@ku.edu.tr

 Use another account

To continue, Google will share your name, email address, language preference, and profile picture with repl.it.

1. Program Information
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3. Installations
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4. Introduction
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5. References
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Sign Up Flow



username x

email x

password x

I'm a teacher or log in

Sign up

By continuing, you agree to Repl.it's Terms of Service and Privacy Policy, and to receiving emails with updates.

Sign in with Google

Choose an account
to continue to [repl.it](#)

 Samed Biçer
mbicer14@ku.edu.tr

 Use another account

To continue, Google will share your name, email address, language preference, and profile picture with repl.it.

Classrooms

PYTHON
Certificate Program

KOLT Python Certificate Program 201...

Python

1 assignments

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1. Program Information
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5. References
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Repl.it

back to edit run ► ▶ | ⌂ | ✎

```
1 # Welcome to KOLT Python Certificate Program
2 # Lines that begin with '#' symbol are single line comments.
3 # Python will ignore these lines. They are purely for humans, like you.
4 """
5 You can also see multiline comments.
6 They start and end with triple quotes.
7 Usually comments are used to document the code and
8 make it more easy to understand.
9 However, we will use comments to guide you or give instructions
10 in exercises and assignments.
11 """
12
13 # modify this function to print your name
14 def print_name():
15     print("Hello, world!")
16
17 print_name()
```

Python 3.7.4 (default, Jul 9 2019, 00:06:43)
[GCC 6.3.0 20170516] on linux

Due: --

submit

Instructions from your teacher:

Welcome Coder!

This is your first task. Please modify `print_name` function as described.

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

back to edit run ▶

```
1 # Welcome to KOLT Python Certificate Program
2 # Lines that begin with '#' symbol are single line comments.
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```

Python 3.7.4 (default, Jul 9 2019, 00:06:43)
[GCC 6.3.0 20170516] on linux
▶

Due: -- submit

Instructions from your teacher:

Welcome Coder!

This is your first task. Please modify `print_name` function as described.

1. Program Information
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Repl.it

```
1 # Welcome to KOLT Python Certificate Program!
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17 print_name()
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```
Python 3.7.4 (default, Jul  9 2019, 00:06:43)
[GCC 6.3.0 20170516] on linux
> █
```

Due: --

Instructions from your teacher:

Welcome Coder!

This is your first task. Please modify `print_name` function as described.

Submit

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Repl.it

The screenshot shows a Repl.it interface. On the left, there's a code editor with Python code. A red circle highlights the 'run' button. Below the code editor is a terminal window showing a Linux environment. On the right, there are sections for 'Due: --', 'Instructions from your teacher:', and 'Welcome Coder!'. A 'submit' button is at the top right.

```
1 # Welcome to KOLT Python Certificate Program
2 # Lines that begin with '#' symbol are single line comments.
3 # Python will ignore these lines. They are purely for humans, like you.
4 """
5 You can also see multiline comments.
6 They start and end with triple quotes.
7 Usually comments are used to document the code and
8 make it more easy to understand.
9 However, we will use comments to guide you or give instructions
10 in exercises and assignments.
11 """
12
13 # modify this function to print your name
14- def print_name():
15     print("Hello, world!")
16
17 print_name()
```

```
Python 3.7.4 (default, Jul  9 2019, 00:06:43)
[GCC 6.3.0 20170516] on linux
> |
```

Due: --

Instructions from your teacher:

Welcome Coder!

This is your first task. Please modify `print_name` function as described.

submit

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Repl.it

The screenshot shows a Repl.it interface. On the left, there's a code editor with Python code. On the right, there's a terminal window with a red border, showing a Linux terminal session. The terminal output is:

```
Python 3.7.4 (default, Jul  9 2019, 00:06:43)
[GCC 6.3.0 20170916] on linux
> 
```

At the top right of the main area, there's a green "submit" button.

Code in the editor:

```
1 # Welcome to KOLT Python Certificate Program!
2 # Lines that begin with '#' symbol are single line comments.
3 # Python will ignore these lines. They are purely for humans, like you.
4 """
5 You can also see multiline comments.
6 They start and end with triple quotes.
7 Usually comments are used to document the code and
8 make it more easy to understand.
9 However, we will use comments to guide you or give instructions
10 in exercises and assignments.
11 """
12
13 # modify this function to print your name
14 def print_name():
15     print('Hello, world!')
16
17 print_name()
```

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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

- How to represent/store values in Python?

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Variables

- How to represent/store values in Python?
- Which kind of values we need to represent?

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Variables

- How to represent/store values in Python?
- Which kind of values we need to represent?
 - Numbers?

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Variables

- How to represent/store values in Python?
- Which kind of values we need to represent?
 - Numbers?
 - Texts?

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Variables

- How to represent/store values in Python?
- Which kind of values we need to represent?
 - Numbers?
 - Texts?
 - Individual Characters?

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Variables

- How to represent/store values in Python?
- Which kind of values we need to represent?
 - Numbers?
 - Texts?
 - Individual Characters?
 - Starting time of the class?

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Variables

- How to represent/store values in Python?
- Which kind of values we need to represent?
 - Numbers?
 - Texts?
 - Individual Characters?
 - Starting time of the class?
 - Colors?

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Variables

- How to represent/store values in Python?
- Which kind of values we need to represent?
 - Numbers?
 - Texts?
 - Individual Characters?
 - Starting time of the class?
 - Colors?
 - Truth Values?

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Variables

- How to represent/store values in Python?
- Which kind of values we need to represent?
 - Numbers?
 - Texts?
 - Individual Characters?
 - Starting time of the class?
 - Colors?
 - Truth Values?
 - People?

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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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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

OK, but how do we create one?

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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!

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Console I/O(Input/Output)

Now we can store the data we know,

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Console I/O(Input/Output)

Now we can store the data we know,
how about interacting with the user?

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Console I/O(Input/Output)

Now we can store the data we know,
how about interacting with the user?

```
print(), input()
```

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Console I/O(Input/Output)

Now we can store the data we know,
how about interacting with the user?

```
print(), input()
```

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

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Console I/O(Input/Output)

```
print(*args, sep=' ', end='\n')
```

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Console I/O(Input/Output)

```
print(*args, sep=' ', end='\n')
```

- Can take arbitrary number of arguments

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Console I/O(Input/Output)

```
print(*args, sep=' ', end='\n')
```

- Can take arbitrary number of arguments
- Separates elements with space by default

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Console I/O(Input/Output)

```
print(*args, sep=' ', end='\n')
```

- Can take arbitrary number of arguments
- Separates elements with space by default
- Adds newline character '\n' to end by default

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Console I/O(Input/Output)

```
print(*args, sep=' ', end='\n')
```

- Can take arbitrary number of arguments
- Separates elements with space by default
- Adds newline character '\n' to end by default

```
input([prompt])
```

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Console I/O(Input/Output)

```
print(*args, sep=' ', end='\n')
```

- Can take arbitrary number of arguments
- Separates elements with space by default
- Adds newline character '\n' to end by default

```
input([prompt])
```

- Prints the prompt to Console

Console I/O(Input/Output)

```
print(*args, sep=' ', end='\n')
```

- Can take arbitrary number of arguments
- Separates elements with space by default
- Adds newline character '\n' to end by default

```
input([prompt])
```

- Prints the prompt to Console
- Program is paused until user enters something

Console I/O(Input/Output)

```
print(*args, sep=' ', end='\n')
```

- Can take arbitrary number of arguments
- Separates elements with space by default
- Adds newline character '\n' to end by default

```
input([prompt])
```

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

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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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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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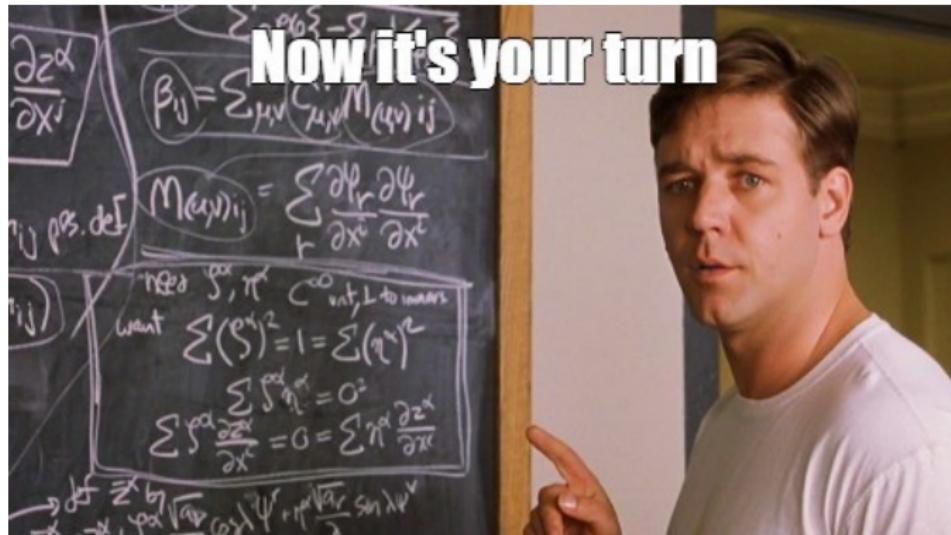
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Get Your Hands Dirty



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References

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