



# Python Basics

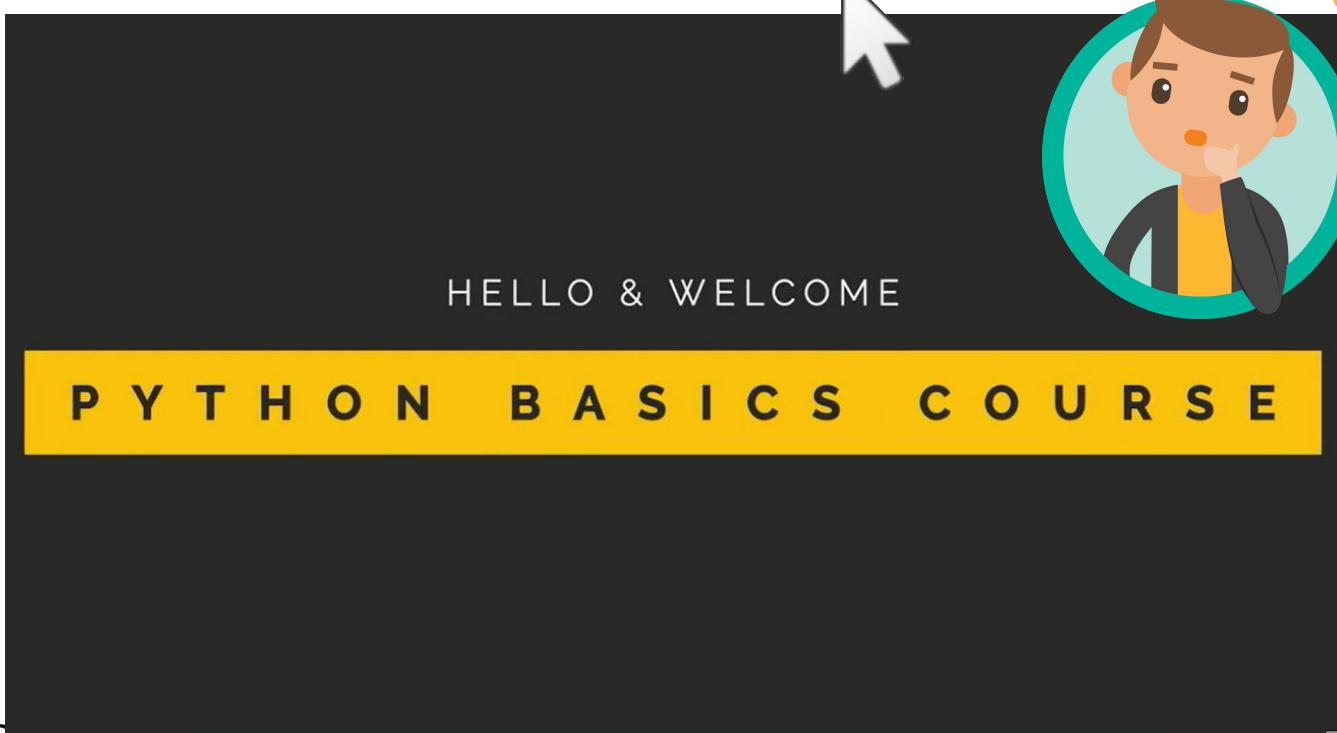


## Session-1



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## Python Overview Video



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Before breaking the jug



## Things to do...

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Hands off the keyboards...



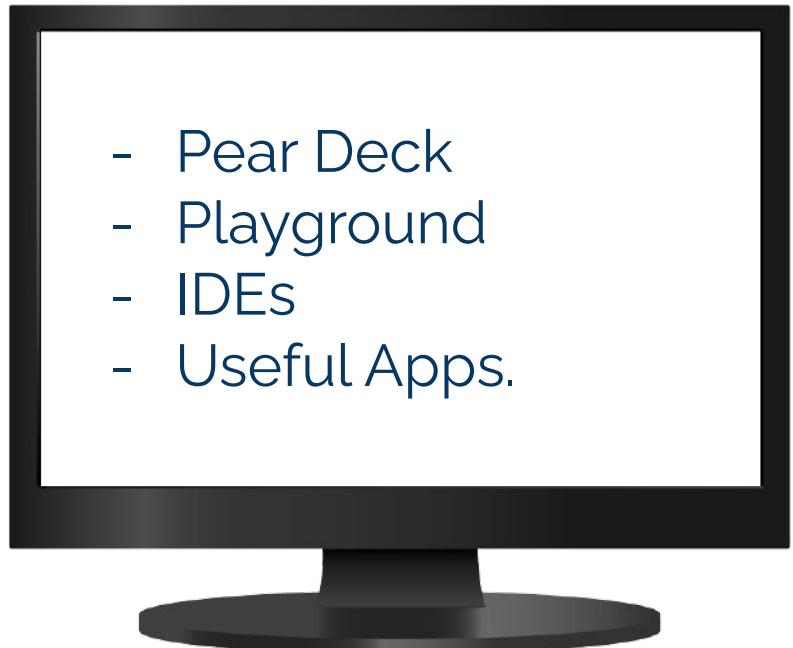
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# Using of two screens



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## General Information about Python



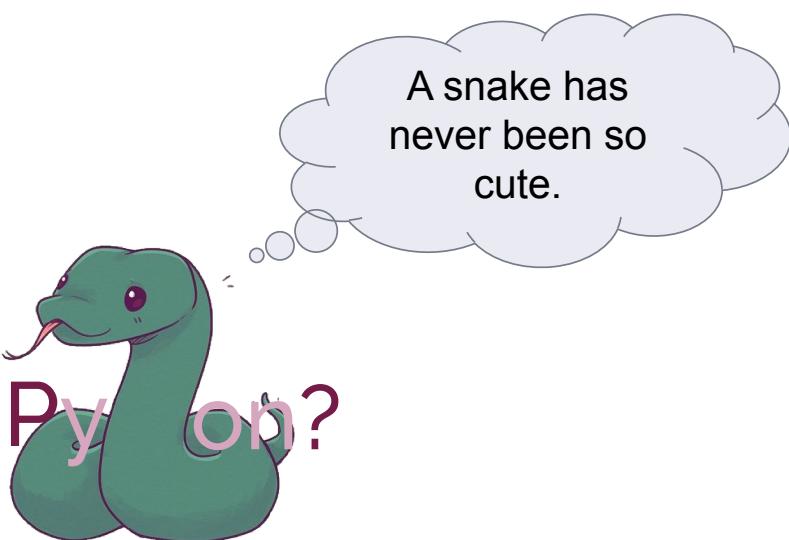
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# Table of Contents



- ▶ What is Python?
- ▶ Historical Development of Python
- ▶ Review of Tools & Installations
- ▶ First Program 'Hello World!'
- ▶ Matter of Quotes

## 1 What is Python?



# What did you learn from Pre-class materials?



Write down three things..

- \* ....
- \* ....
- \* ....

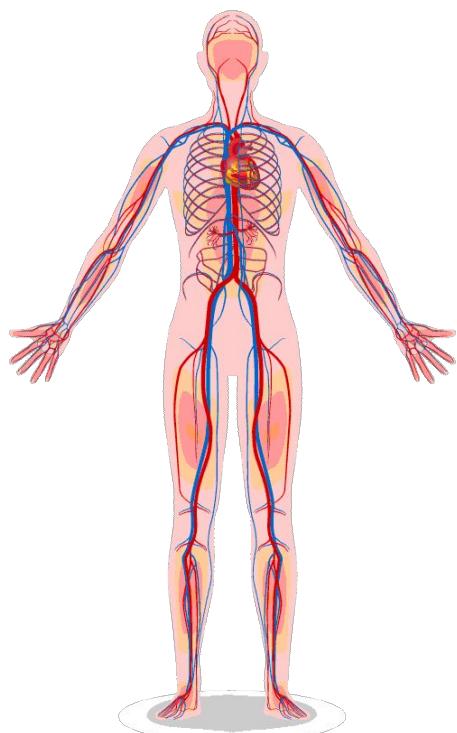


Students, write your response!

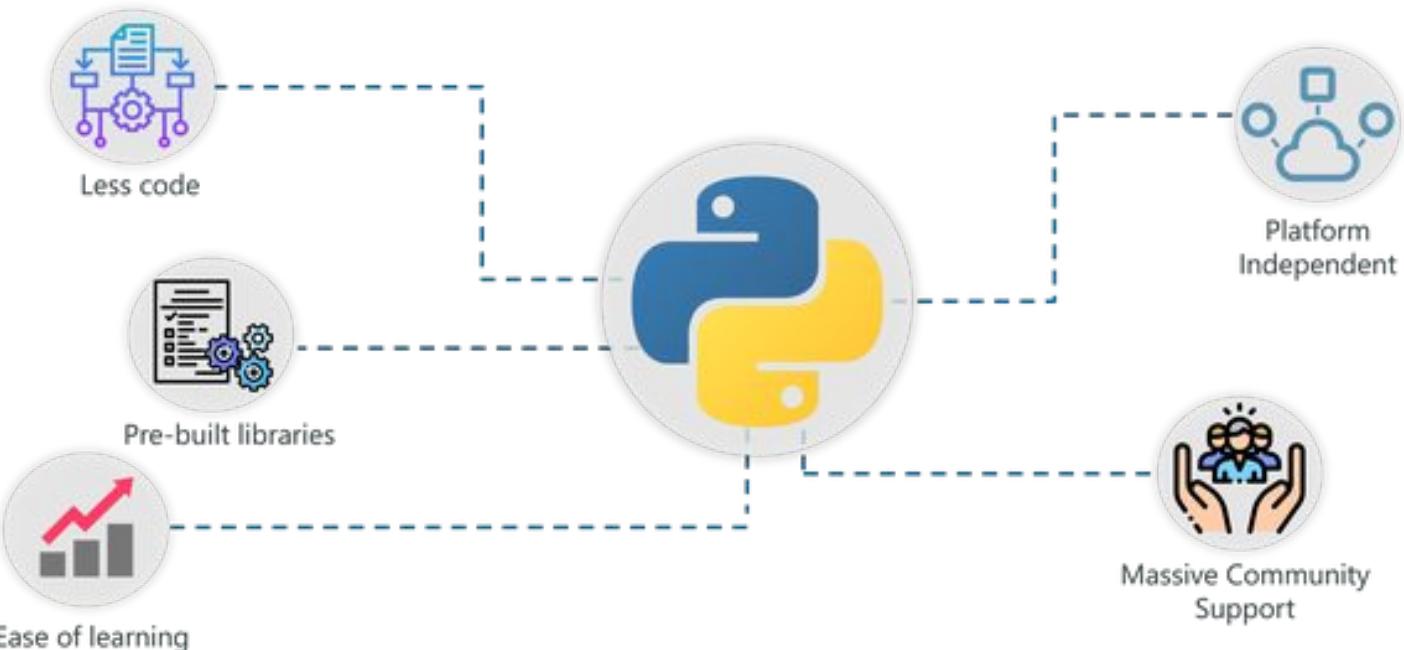
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## ► What is Python?

Mr. IT

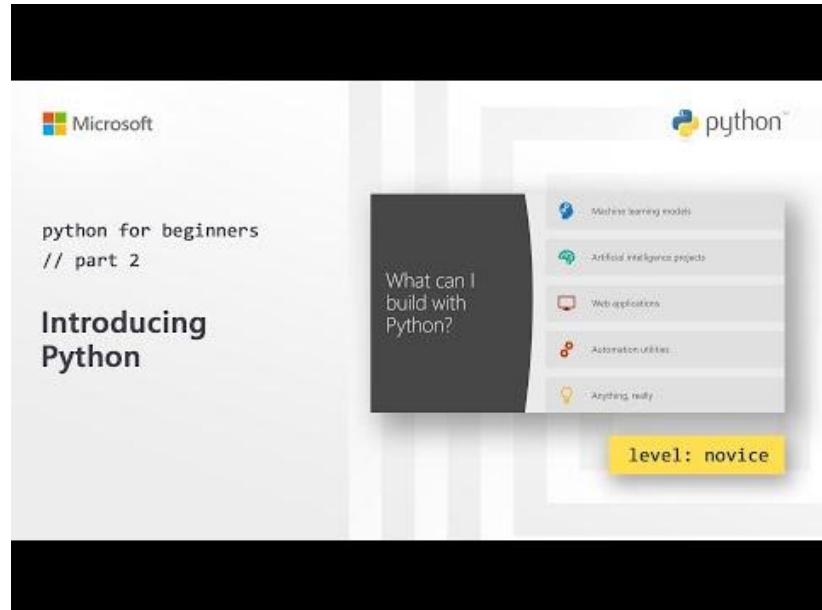


# ► What is Python? (review)



## ► What is Python?

- Easy to **learn**
- Easy to **use**
- Easy to **run**
- Easy to **read**
- Easy to **develop**
- Easy to **teach..**



'Microsoft Developers' on Youtube :

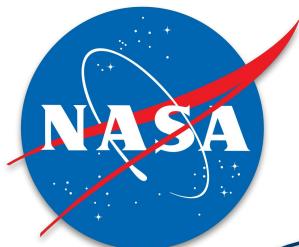
-Introducing Python (*duration: 3 min 9 sec*)

# What do you think about World-class companies and institutions that built their technical infrastructure using **Python?**



A grey horizontal bar with the Pear Deck logo at the top. It includes a speech bubble icon, the text "Students, write your response!", and a note at the bottom right: "Pear Deck Interactive Slide Do not remove this bar".

## ► What is Python?

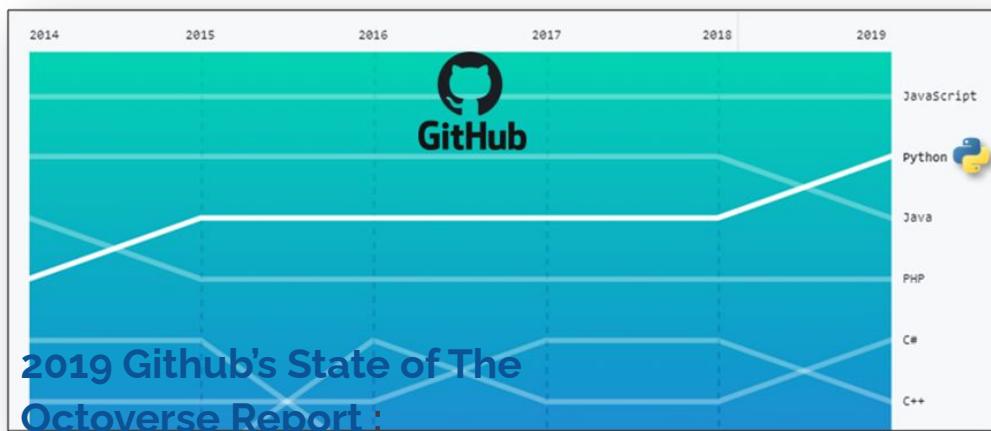


# Why Python?

**Some indexes** showing the position of Python among the other programming languages.

# Why Python?

**Some indexes** showing the position of Python among the other programming languages.

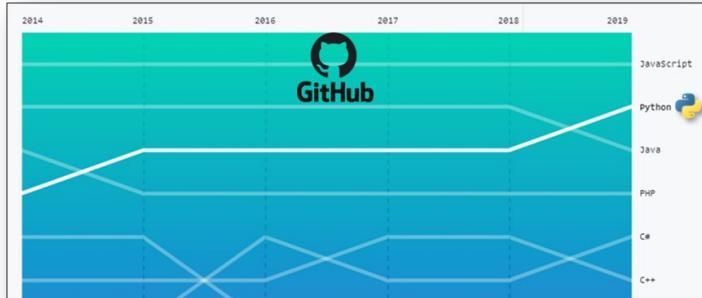


-The Second Most Popular Language



# Why Python?

**Some indexes** showing the position of Python among the other programming languages.



Oct 2019	Oct 2018	Change	Programming Language	Ratings	Change
1	1		Java	16.88%	-0.92%
2	2		C	16.180%	+0.80%
3	4	▲	Python	9.089%	+1.93%
4	3	▼	C++	6.229%	-1.36%
5	6	▲	C#	3.860%	+0.37%
6	5	▼	Visual Basic .NET	3.745%	-2.14%
7	8	▲	JavaScript	2.076%	-0.20%
8	9	▲	SQL	1.935%	-0.10%

## 2019 Github's State of The Octoverse Report :

-The Second Most Popular Language

## 2019 Tiobes.com's Index :

-The fastest growing language

# Why Python?

**Some indexes** showing the position of Python among the other programming languages.



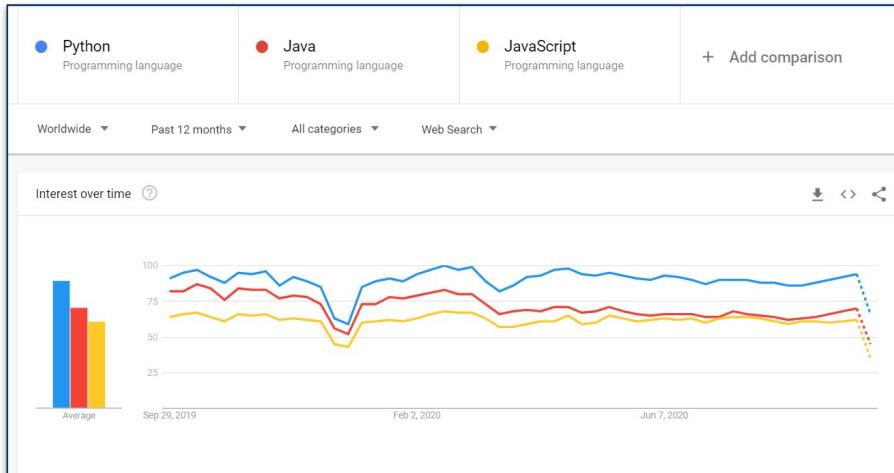
In February 2020 nearly 65,000 developers told us how they learn and level up, which tools they're using, and what they want.

**The second most popular language.**



# Why Python?

**Some indexes** showing the position of Python among the other programming languages.



## 2020 'trends.google.com'

### Report :

-The Most Popular Searched Term  
Among all Programming Languages

19



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## Historical Development of Python

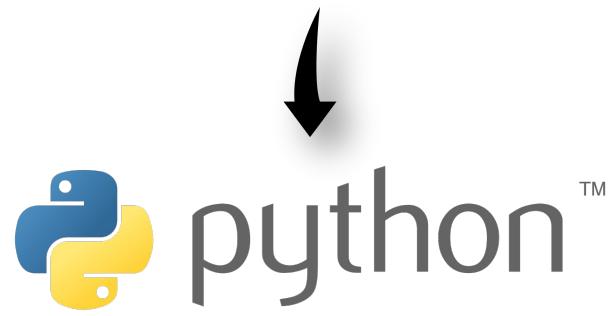


# ► Historical Development of Python

Guido van Rossum (*duration :4 min*)



The logo



## 3 Review of Tools & Installations

# Review of Tools & Installations



How and where to run your Python codes?

The image shows two side-by-side screenshots of Python code execution environments. On the left is the Python Playground interface, which includes a code editor with the code `print('hello world')`, a green 'Run' button, and an 'Output' section showing the result `hello world`. On the right is the Google Colab Jupyter Notebook interface, showing a notebook titled 'Untitled' with a single cell containing the code `print ("hello")` and its output `hello`.

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I have no problem with using **Playground** and I liked it.



Students choose an option

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# First Steps into Coding



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## Stretch Break!

*Let's take 3 minutes to stretch*

- *stretch your neck*



Students, follow the instructions on the slide



# Introduction



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## 4 First Program 'hello world'

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## First Program for 'Hello World!'

- Writing a text is **quite simple** in Python.

```
print('Hello World!')
```

## First Program for 'Being a Good Person'

- Writing a text is **quite simple** in Python.

```
print('Hello World!')
```

```
Hello World!
```

# ► First Program for 'Being a Good Person' ➤

- ▶ Writing a text is **quite simple** in Python.

```
print('Hello World!')
```

Hello World!

- ▶ Just type your text enclosed by **quotes** in parentheses.

## 5 Matter of Quotes



# Matter of Quotes

What we wrote is a **string datatype**. Strings are always in **quotes**. There are basically two types of quotes we use in Python. **Single** or **double** quotes. Both are the same but we should use them in the correct way.

Single



```
print('Hello World!')
```

Double



```
print("Hello World!")
```

# Matter of Quotes



Choose one of them and stick to it.



```
print('Hello World!')
print("Clarusway School!")
print("I'm happy to learn!")
```



```
print("Hello World!")
print('Clarusway School!')
print('I'm happy to learn!')
```



# Matter of Quotes



The alternative valid use of quotes.

```
print('''Lorem ipsum dolor sit amet,  
fusce ut quisque neque donec,  
massa metus amet, luctus inceptos.''')  
  
print("""Praesent a, mi mattis velit metus,  
accumsan adipiscing ipsum sit justo  
penatibus, amet mauris non tempus justo.""")
```

Triple use  
of '**single**'  
and  
**"double"**  
quotes

# Matter of Quotes



The alternative valid use of quotes.

**Output1:**

  Lorem ipsum dolor sit amet,  
  fusce ut quisque neque donec,  
  massa metus amet, luctus inceptos.

**Output2:**

  Praesent a, mi mattis velit metus,  
  accumsan adipiscing ipsum sit justo  
  penatibus,  
  amet mauris non tempus justo.

Triple use of  
**'single** and  
**"double"**  
quotes



# Matter of Quotes



What is the difference of these two syntaxes?

```
print('3.14')  
print(3.14)
```



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Students, write your response!

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# Matter of Quotes



What is the difference of these two syntaxes?

```
print('3.14')  
print(3.14)
```

The outputs are the same but quotes make data string type.

```
3.14  
3.14
```

# Matter of Quotes



What is the output?

```
print(''''We should have enough time for our family'''')
```



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Students, write your response!

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# Matter of Quotes



What is the output?

```
print(''''We should have enough time for our family'''')
```

'We should have enough time for our family"

```
print('We should have enough time for our family')
```

This code prints the statement inside the `print()` function.

True

False



Students choose an option

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## Matter of Quotes

```
print('We should have enough time for our family')
```

output

```
File "", line 1
  print('We should have enough time for our family')
^
```

```
SyntaxError: EOL while scanning string literal
```



# Matter of Quotes



Multiple lines of codes.

```
print('first line')
print()
print('''third line''')
```

**print()** prints  
an empty line

# Matter of Quotes



Multiple lines of codes.

```
print('first line')
print()
print('''third line''')
```

first line

third line

**print()** prints  
an empty line

**These two codes give an empty line each.**

```
print()  
print('')
```

True

False



Students choose an option

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**These two codes give an empty line each.**

```
print()  
print(''')
```

True

False



Students choose an option

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# PEP 8 Conventions



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## Table of Contents



- ▶ What is PEP 8?
- ▶ Some Important PEP 8 Rules

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## How was pre-class content ?



Students, drag the icon!



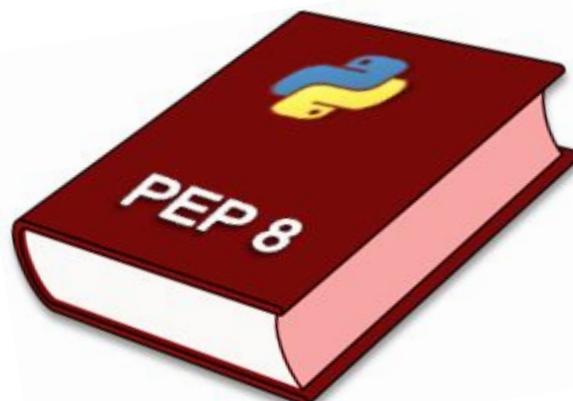
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## What is PEP 8?

PEP 8



Python Enhancement Proposal

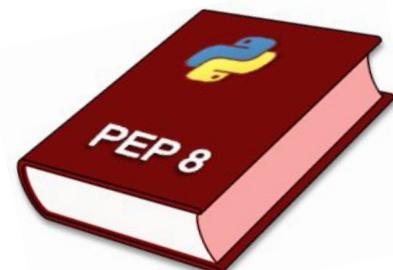




# ► What is PEP 8?

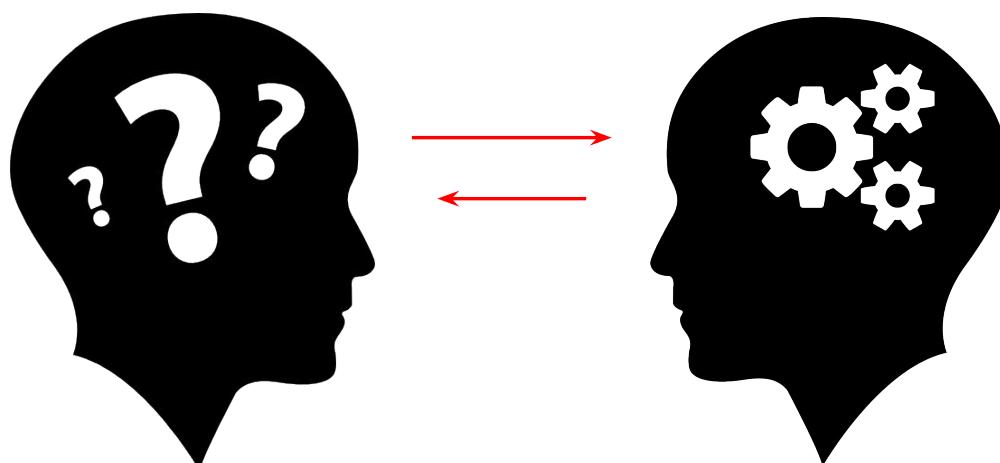
**PEP 8** is a style guide about consistency.

- ▶ Consistency with this style guide is **important**.
- ▶ Consistency within a project is **more important**.
- ▶ Consistency within one module or function is the **most important coding aspect**.



# ► What is PEP 8?

***COMMUNICATE with each other!***





# Some Important PEP8 Rules

- Writing a text is **quite simple** in Python.

```
print('being a good person')
```

Limit the code lines to a maximum **79** characters



# Some Important PEP8 Rules

- Avoid extraneous **spaces** in situations such as:

Immediately inside parentheses, brackets or braces :

YES : `spam(meat[1], {milk: 2})` , NO : `spam( meat[ 1 ], { milk: 2 } )`

Between a trailing comma and a following close parenthesis :

YES : `df[0,] or foo = (2,)` , NO : `df[0, ] or foo = (2, )`

Immediately before a comma, semicolon, or colon :

YES : `if y == 3: print x, y; x, y = y, x` , NO : `if y == 3 : print x , y ; x , y = y , x`

Immediately before the open parenthesis that starts the argument list of a function call:

YES : `print('peace')` , NO : `print ('peace')`



# Some Important PEP8 Rules

- More than one space around an assignment (or other) operator to align it with another:

YES	NO
x = 3	x = 3
y = 4	y = 4
long_vars = 5	long_vars = 5

# Some Important PEP8 Rules

- Always surround these operators with a single space on either side. Such as:

```
=, +=, ==, <, >, >=, in, not in, is, and, or, not
```

- Failure to follow the basic rules of PEP 8 **does not make** your program **wrong** or **unable to work**.



Don't ask '**Why**' regarding the conventional rules.





# Comments and Docstrings



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## Introduction

I can't  
remember  
why I typed  
these codes...

$x = 10$   
 $y = 5$   
 $a = (x / y) * 100$   
`print(a)`



$x = 10$   
 $y = 5$   
 $a = (x / y) * 25$   
`print(a ** 2)`

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# Comments

- ▶ **Comments** are used to explain code when the basic code itself isn't clear.

#



The '**Hash**' character makes the lines comment.



# Comments

- ▶ **Single-line Comments :**

```
# This is a single line comment
```



# Comments

## ► Single-line Comments :

```
# This is a single line comment
```

What is the output?

## ► Inline Comments :

```
print('hello') # This is an inline comment
```

two spaces

one space



These spacing principles are just PEP8 conventional rules.



Students, write your response!

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# Comments

## ► Single-line Comments :

```
# This is a single line comment
```

## ► Inline Comments :

```
print('hello') # This is an inline comment
```

two spaces

one space



These spacing principles are just PEP8 conventional rules.

hello



# Comments

## ► Multi-line Comments :

```
print('hello')
# First multi-line comment
# Second multi-line comment
# Third multi-line comment
```

What will be the output ?



Students, write your response!

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# Comments

## ► Multi-line Comments :

```
print('hello')
# First multi-line comment
# Second multi-line comment
# Third multi-line comment
```

hello



# Comments

**Keep these in your mind ! :**

► **Comments should be :**

- ▷ **Sufficient**
- ▷ **Necessary**
- ▷ **Updated**

