Python Basics

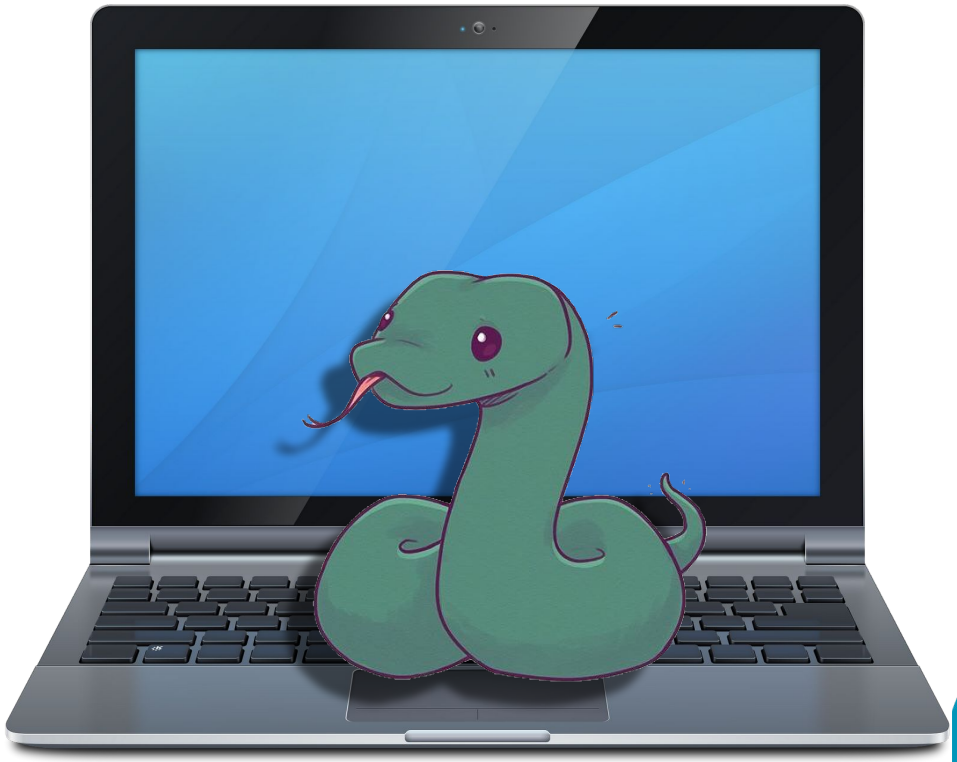
Session-1

Python Overview Video

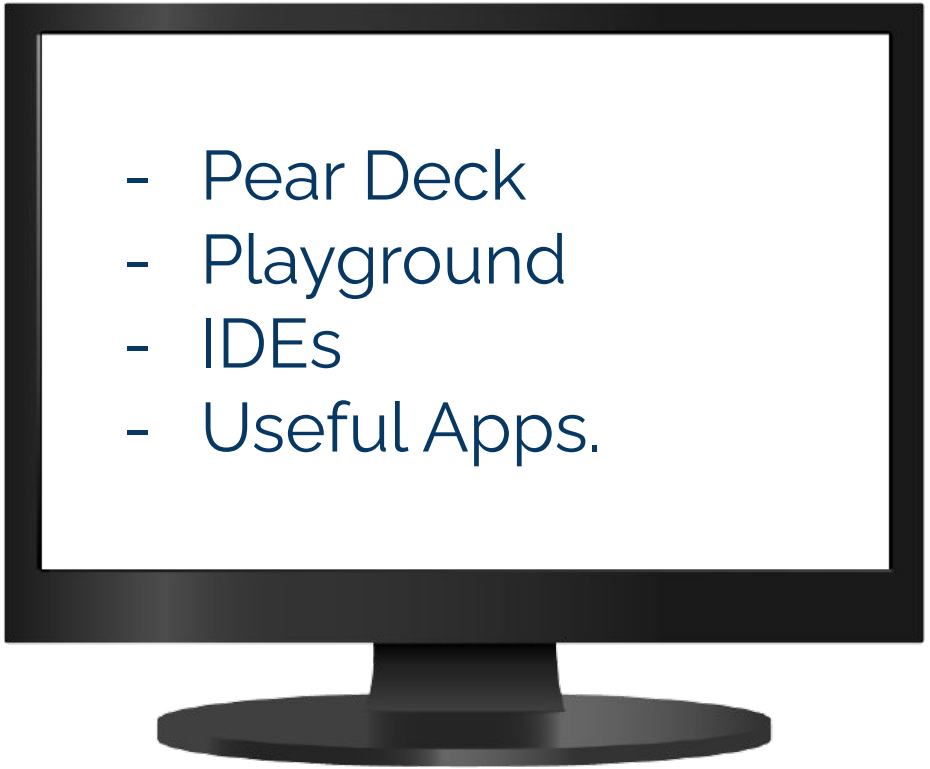
Before  breaking the jug

Things to do...

Hands off the keyboards...



Using of two screens



General Information about Python

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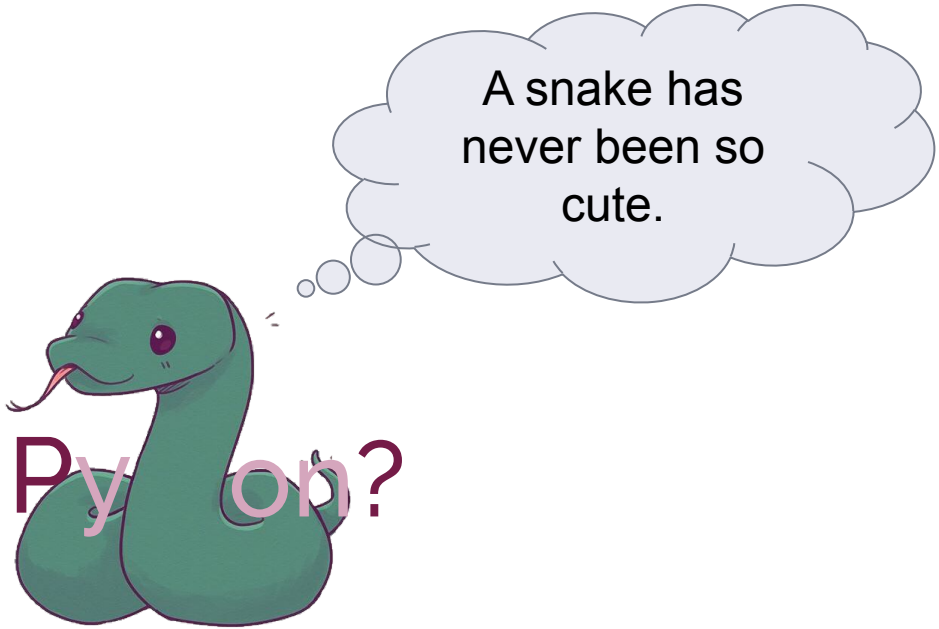
What is Python?



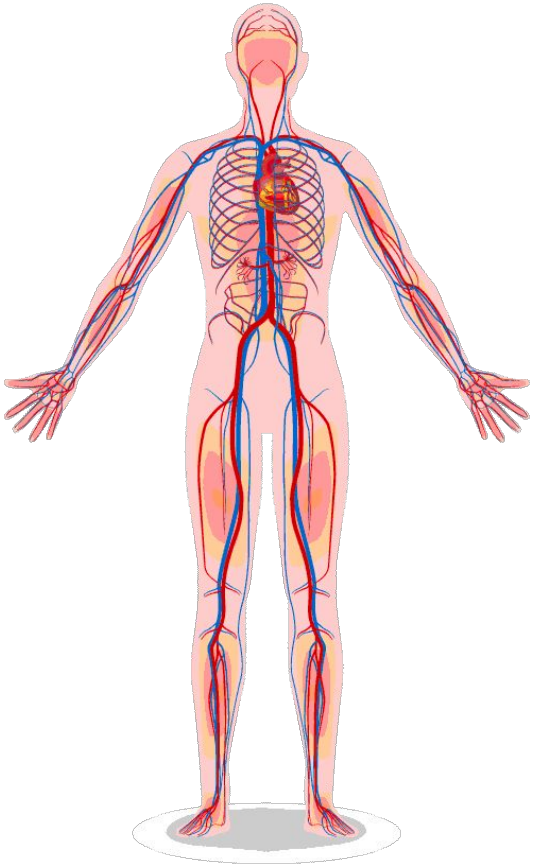
What did you learn from Pre-class materials?

Write down three things..

* ....
* ....
* ....

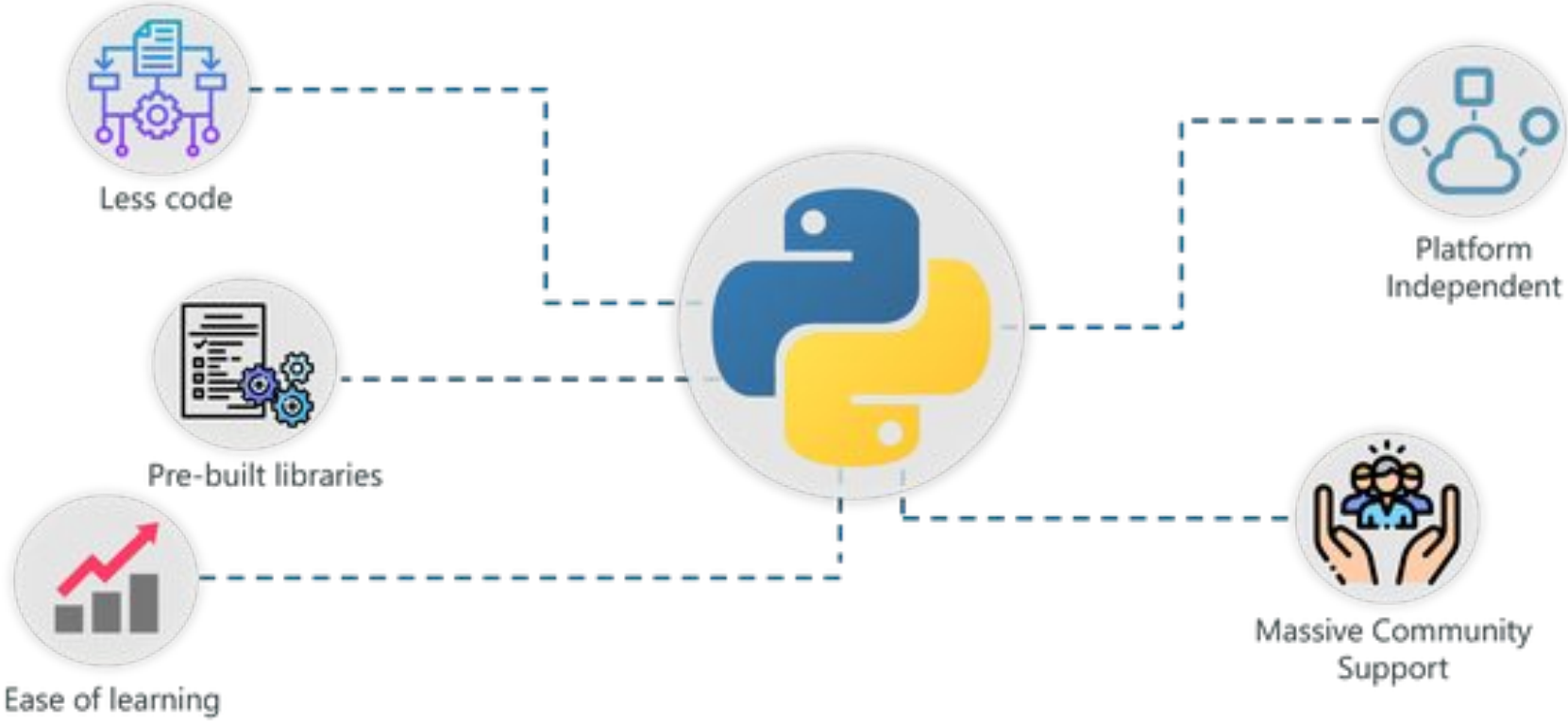
Students, write your response!

What is Python?



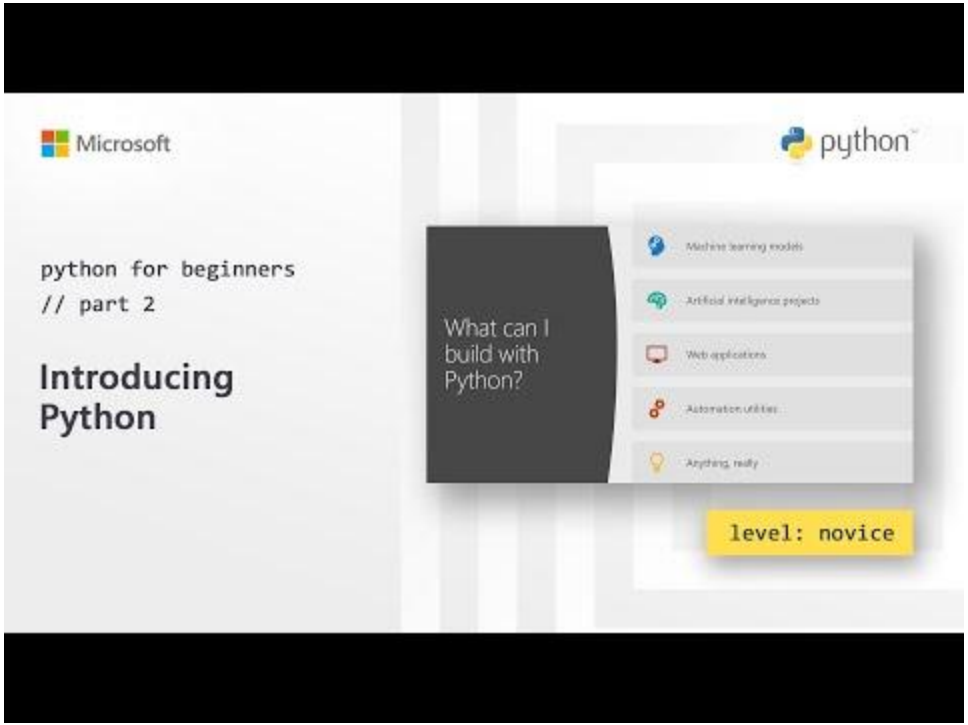
Mr. IT

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**..



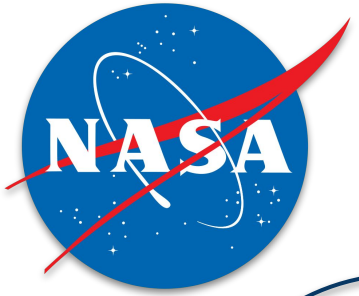
'Microsoft Developers' on Youtube :

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

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

Students, write your response!

What is Python?



Why Python?

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

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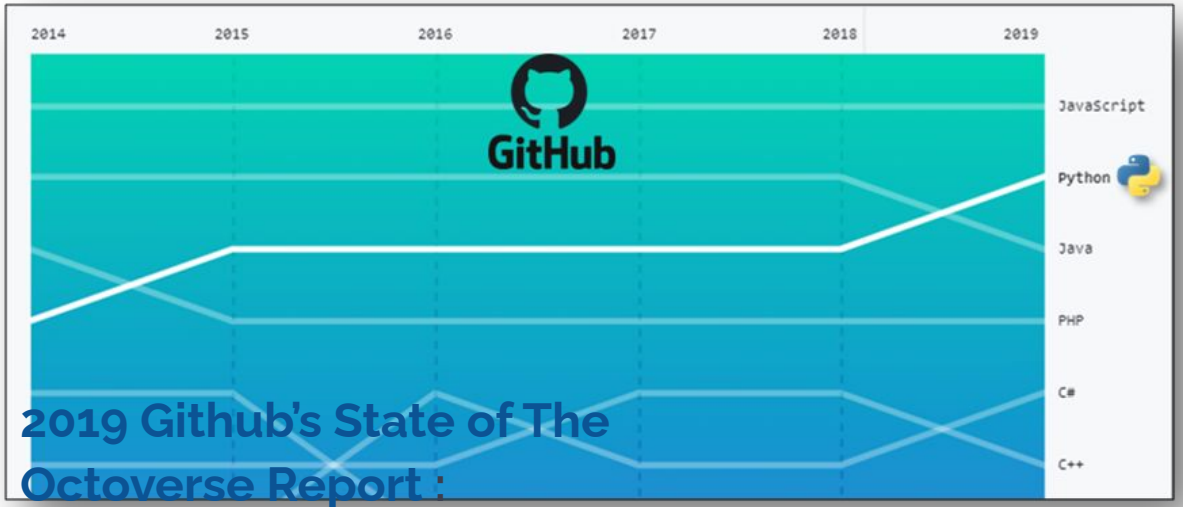
Some indexes showing the position of Python among the other programming languages.

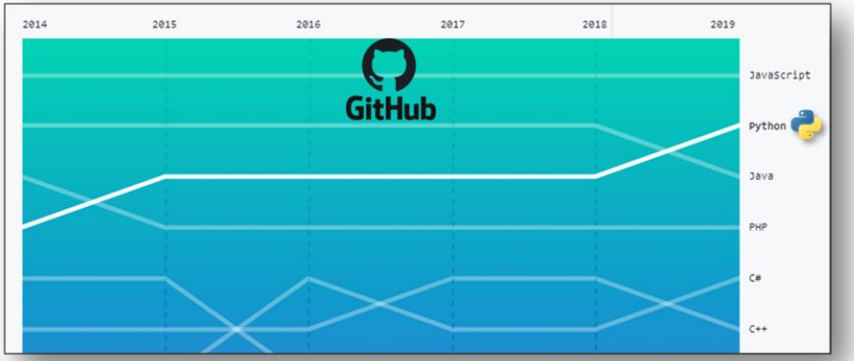


2019 Github's State of The Octoverse Report :

-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	16.884%	-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 :

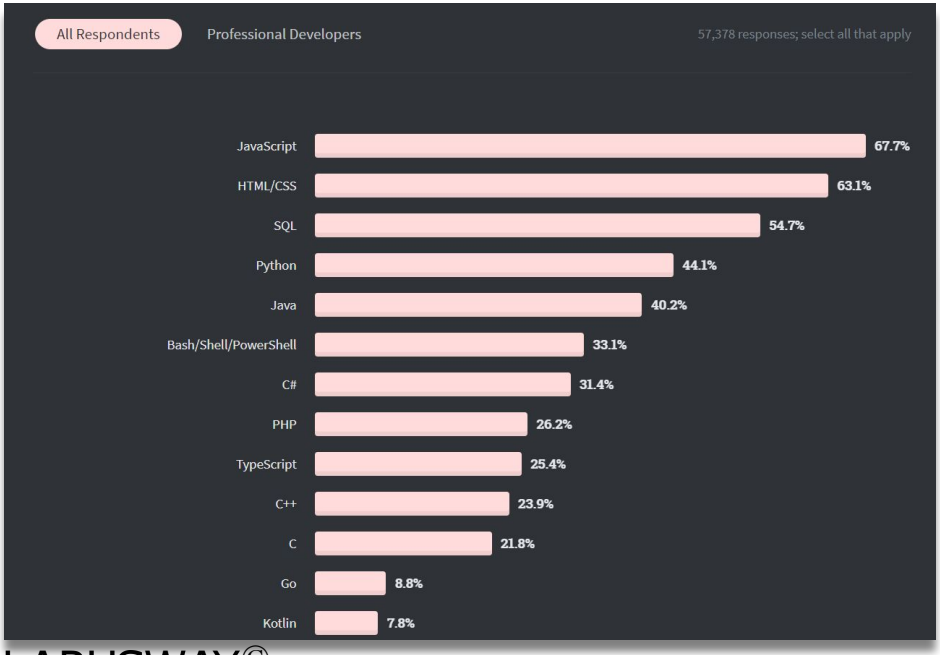
-The Second Most Popular Language

2019 Tiobes.com's Index :

-The fastest growing language

Why Python?

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



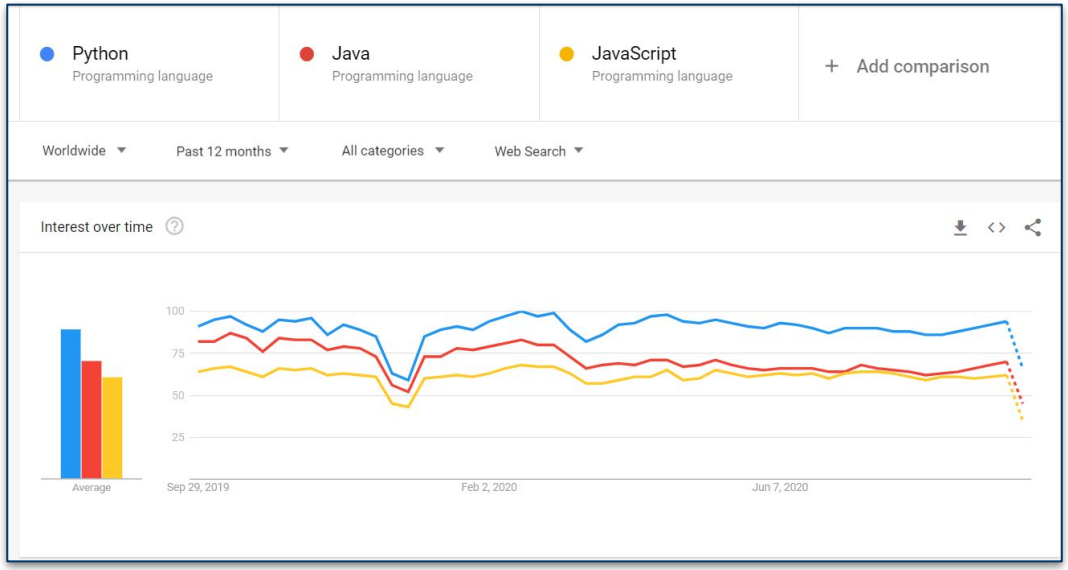
2020 Developer Survey

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

2

Historical Development of Python

Historical Development of Python

Guido van Rossum *(duration :4 min)*

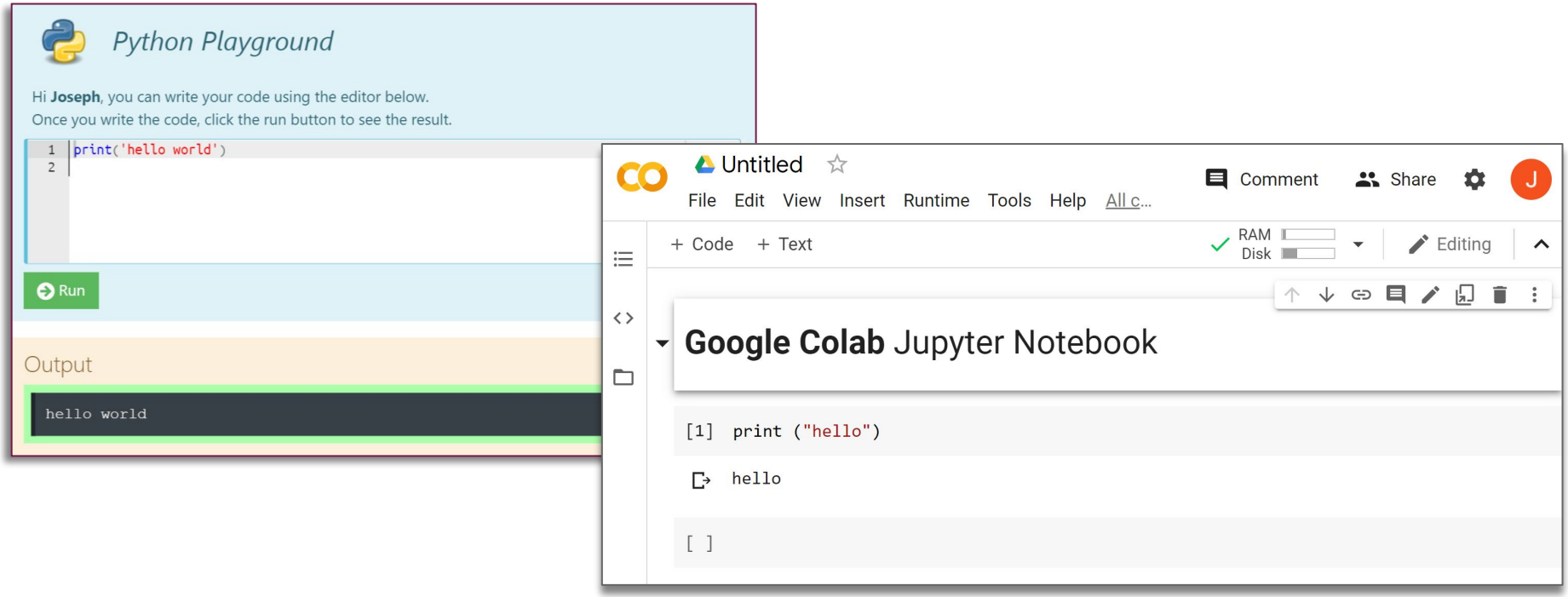
The logo

3

Review of Tools & Installations

Review of Tools & Installations

How and where to run your Python codes?



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

First Steps into Coding

Stretch Break!

Let's take 3 minutes to stretch

- ***stretch your neck***

Students, follow the instructions on the slide

Introduction

4

First Program

```
'hello world'
```

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)
```

Students, write your response!

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''''')
```

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.

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('')
```

These two codes give an empty line each.

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

PEP 8 Conventions

Table of Contents

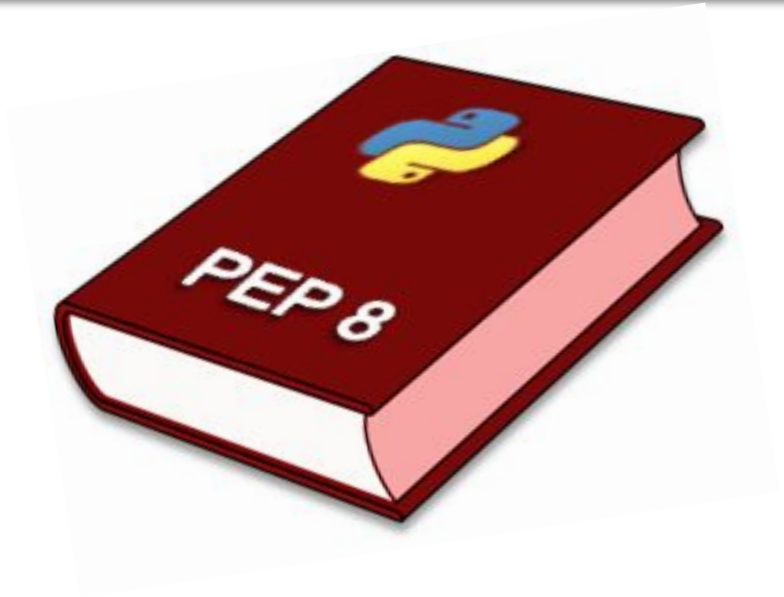
How was pre-class content ?

Students, drag the icon!

What is PEP 8?

PEP 8

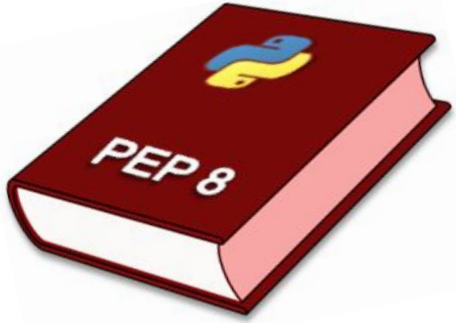
Python **E**nhancement **P**roposal



What is PEP 8?

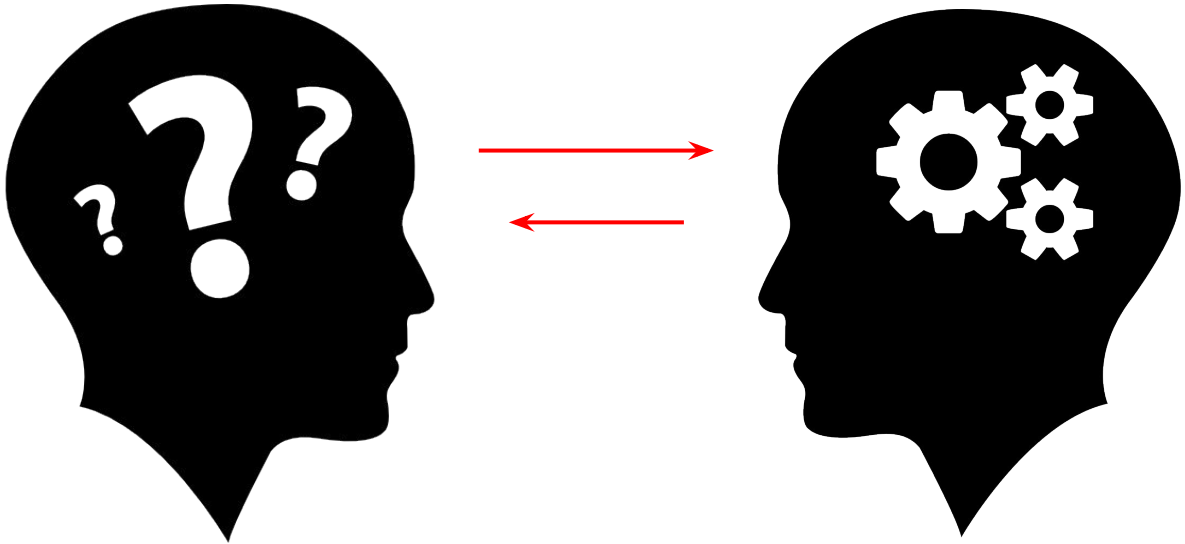
PEP 8 is a style guide about consistency.

- 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

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)
```

Comments

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

Comments

- **Single-line Comments** :

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

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.

What is the output?

Students, write your response!

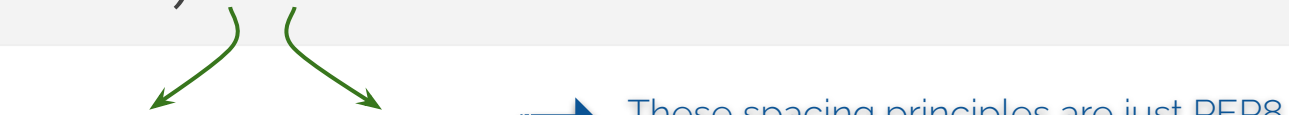
Comments

- **Single-line Comments** :

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

- **Inline Comments** :

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




```
hello
```

Comments

- **Multi-line Comments** :

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

What will be the output ?

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**