

## **Week-1: Summary**

### **Why is Python vital?**

1. Basically Python is a language that can be used for developing anything and everything you want.
2. Although it's an interpreted language (Don't worry about the "interpreted language" term, we'll discuss later.).
3. It is used widely because it's easier to write code and understand.
4. When I started as a beginner, I found Python to be a very friendly language as it was easier to read and understand.
5. It has a huge set of libraries that can be used to do anything that you can think of doing with a programming language.
6. The Python developer community across the world has been doing a great job in helping people with issues and most of the stuff is very well documented and easy to understand and implement.
7. The documentation provided by the guys who developed Python is pretty good and very very clear and understandable.
8. Documentation for a lot of languages is pretty hard to understand, but Python documentation doesn't fall into that category.
9. You have a manual task to Automate, Python can help you do that.
10. If you are interested in Machine learning or data science, there are a bunch of awesome, well documented libraries available for Python.
11. Web development libraries are very good and are used extensively for various Use cases like hosting a website.

**Note:** If you fail to understand any of the terms, please don't worry, we will discuss later.

## Which tool will we use for the course?

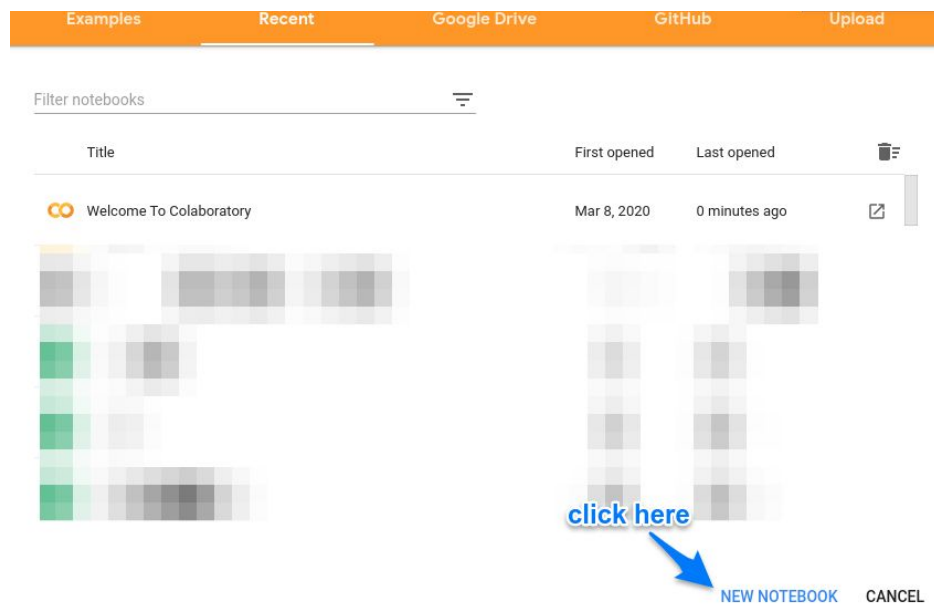
### → Google Colab:

1. We will use Google Colab for the programming environment. Let's learn what Colab is, and how to use it.

Here we described the running procedure.

Step 1: Please go to the [website](#).

Step 2: Then a popup box will come, click the **NEW NOTEBOOK** button to open a python environment to code.

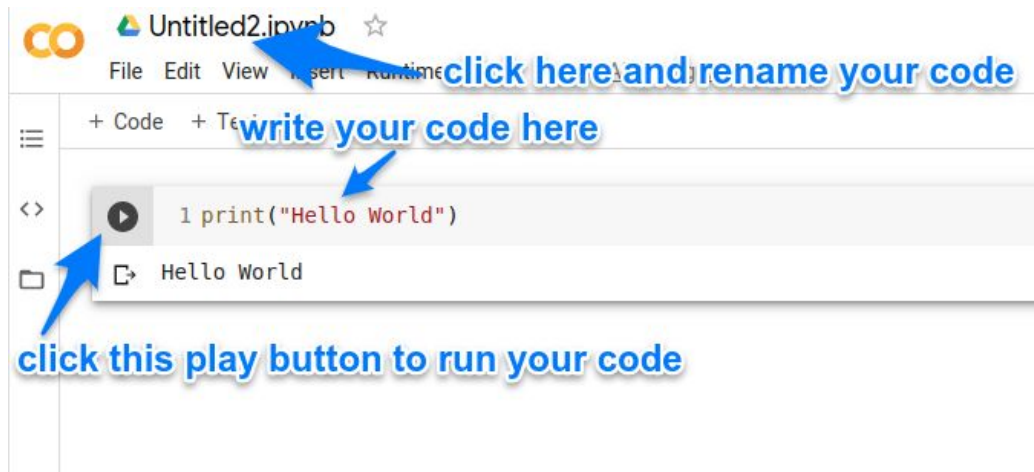


Step 3: Write your code on the mentioned area on the picture below.

Step 4: Click the play button to run your code.

Step 5: Rename the code by clicking the mentioned area on the picture.

Step 6: Now, save your file by clicking File, then Save or pressing Ctrl+S from your keyboard.



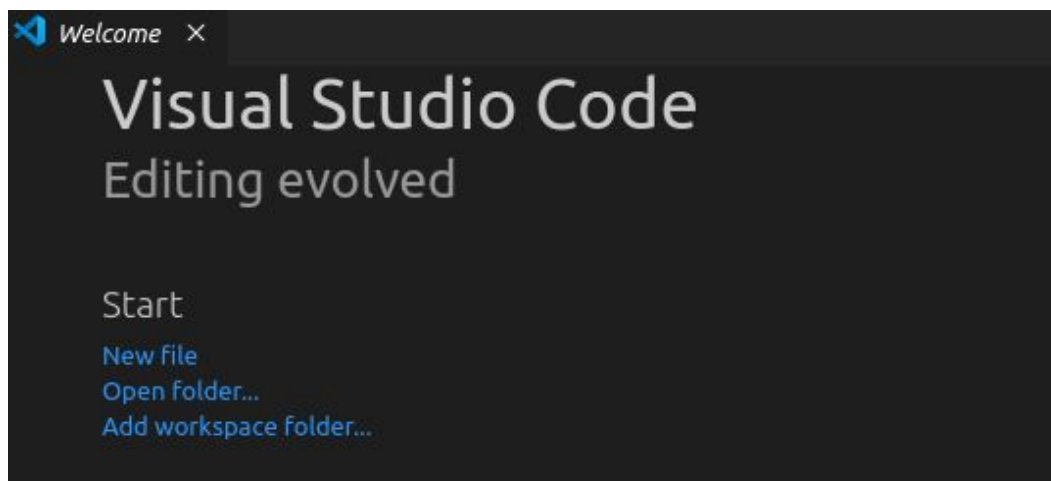
→ **VS Code:**

2. We will use VS Code alternatively. Let's learn it.

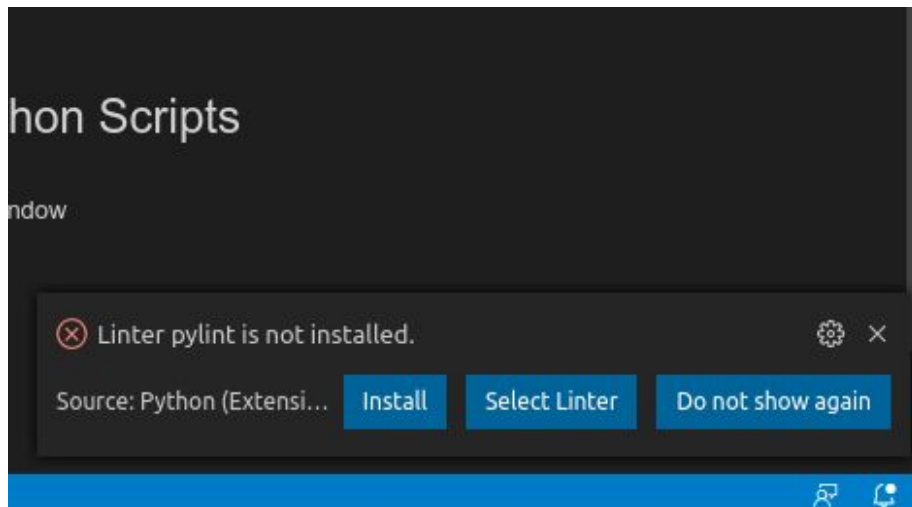
Here we described the running procedure.

Step 1: Download Visual Studio Code software from [here](#) and install it.

Step 2: Click **New file** to create a new python file. Use .py extension after the file name (for example: test.py)



Step 3: VS Code will suggest a python extension to install.



Step 4: write and save your python code.

Step 5: Press Shift+Enter to run your code.

### How to write a code in Python?

1. Our first program is "Hello ODIN".

We use the print function to show something as output. We can write something inside both single and double quotation to show as output. For example, both `print('Hello ODIN')` and `print("Hello ODIN")` are correct.

We will describe why and when it did not work correctly.

2. Now, we'll see some basic printing of python.

Anything inside single/double quotations are considered as string type (text) in python language. For example: `print('4'+'5')` will print 45 as output.

We can also print two or more strings using the comma (,).

For example: `print('Hello', 'how is your job going?')` will print *Hello how is your job going?*

Numbers are considered as integers and float in python language and this word integer is called format. We can't add different formats in Python.

For example: `print('4'+5)` will print an error. Because '4' is a string (text) and 5 is an integer. But we can change the format of '4' to a string by using the `int()` function.

For example: `print(int('4')+5)` will print 9, and the output is a number.

### **Definition of the Integer and Float:**

Any number that can be written without a fractional component is called integer number and opposite is fractional number.

For example: `print(111)` will print integer number and `print(19.71)` will print floating number.

Now, we'll see basic calculations in python.

We can add, subtract, multiply and divide using +, -, \*, / symbols respectively.

Any operation using integer and floating point will return floating point number in python.

For example: `print(4.6+9)` will print 13.6.

Division between two integers using a single / will return a floating number. But using // will print integers.

For example: `print(24/5)` will print 4.8, and `print(24//5)` will print 4.

**Note:** % is used between integers returns the remainder.

For example: `print(24%5)` will return 4 as output.

Using \*\* return the power of a number.

For example: `print(2**3)` will return 2<sup>3</sup> which is 8.

We can do multiple calculations inside the print function.

Basic calculations will follow this order: Brackets → Power → Division → Multiplication → Subtraction → Addition.

Now, we'll learn the "`format()`" function.

Inside quotation {} is used for format function and after quotation `.format()` is used. Inside format function the specific printing value is stored.

For example: `print('A = {}, B = {}, C = {}'.format(4, 5, 6))` will return A = 4, B = 5, C = 6.

Then, let's learn another format from the slides.

What is variable and value in Python? Let's discuss it.

Definition of Value and Variable: ([web](#))



Money bag → variable	Money → value
Box → variable	Ball → value

Now, we'll store the value inside the variable.

For example:  $a = 3$ , store 3 inside **a**. If we assign 4 inside **a**, it will print 4 as the value of **a**. For adding 4 with a we write  $a = a + 4$ .

Then we will learn swapping. Swapping is interchanging value between two variables.

Till now we are giving value inside the print function or assigning value to variable for return as output. Now we'll learn how to take input from the user?

We use `input()` to read variables from the user.

For example:  $n = \text{int}(\text{input}())$  will read an integer,  $n = \text{float}(\text{input}())$  will read a floating number and  $n = \text{input}()$  will read a line of text.

Let's practice more.