Leaders' School & College Chattogram

Class: VIII (Enlish Version)

L#01

Topic Name: Introduction to Python Programming

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Contents

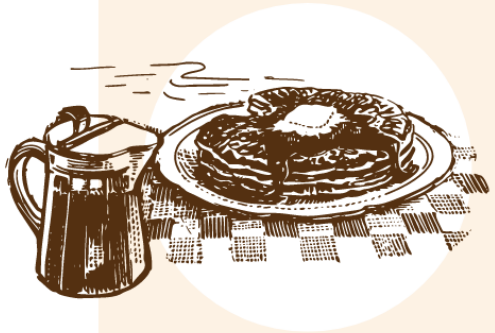
Have you Ever Made a Recipe?

Pancake

Easy Recipe

Ingredients

- 250g plain flour
- 1/2 tsp baking soda
- 1/2 tsp salt
- 1 tsp sugar
- 1 egg
- 250ml buttermilk



Directions

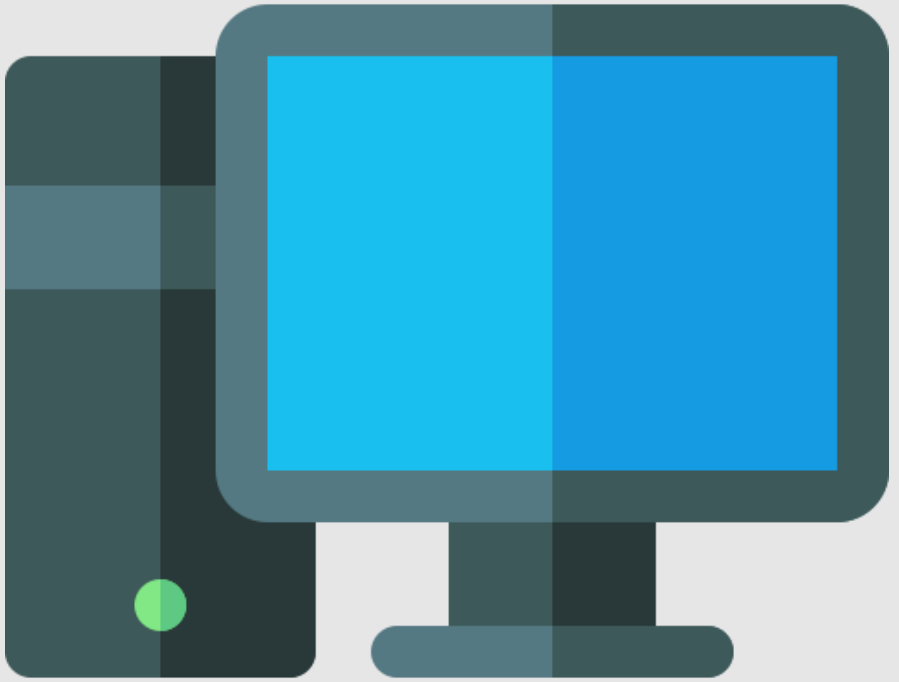
- Sift the dry ingredients in a bowl.
- Make a hole in the middle and add the egg.
- Mix them quickly after breaking the yolk and pouring in the buttermilk until they become stick batter .
- Do not beat when mixing as gluten will appears in the flour, which will prevent the pancakes from rising.
- Fry the mixture in hot griddle pan and served when it is still hot

❑ **We need to Follow some instructions!**

❑ **Finally, we will be able to make a delicious item.**

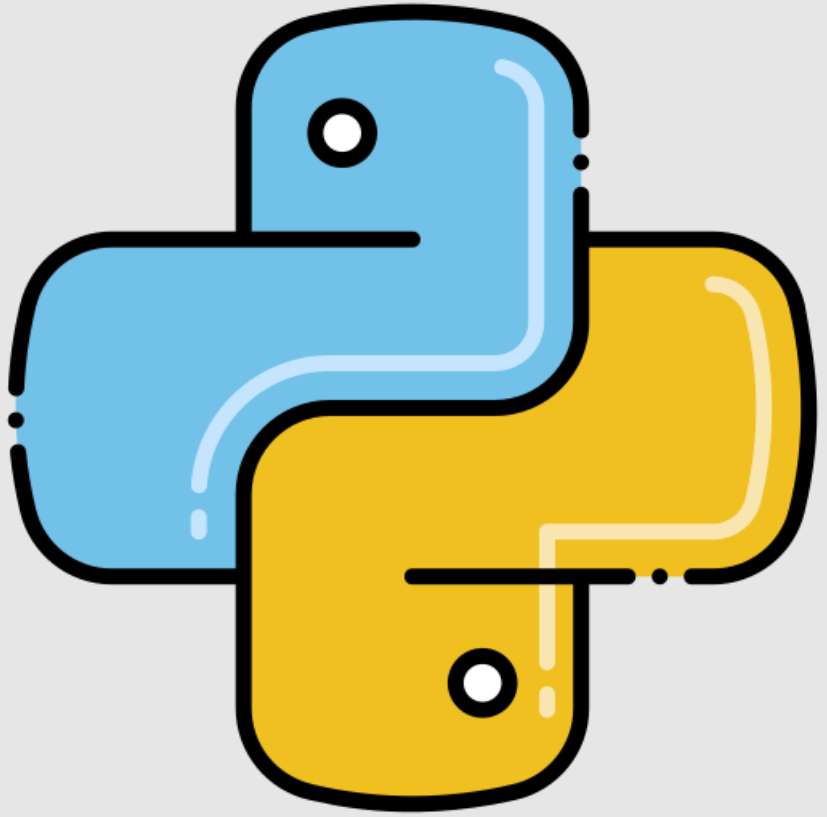
What is Programming?

- Computer only understand 0 and 1
- We need to give instructions to a computer on what to do
- Program is a set of instructions to do a particular task



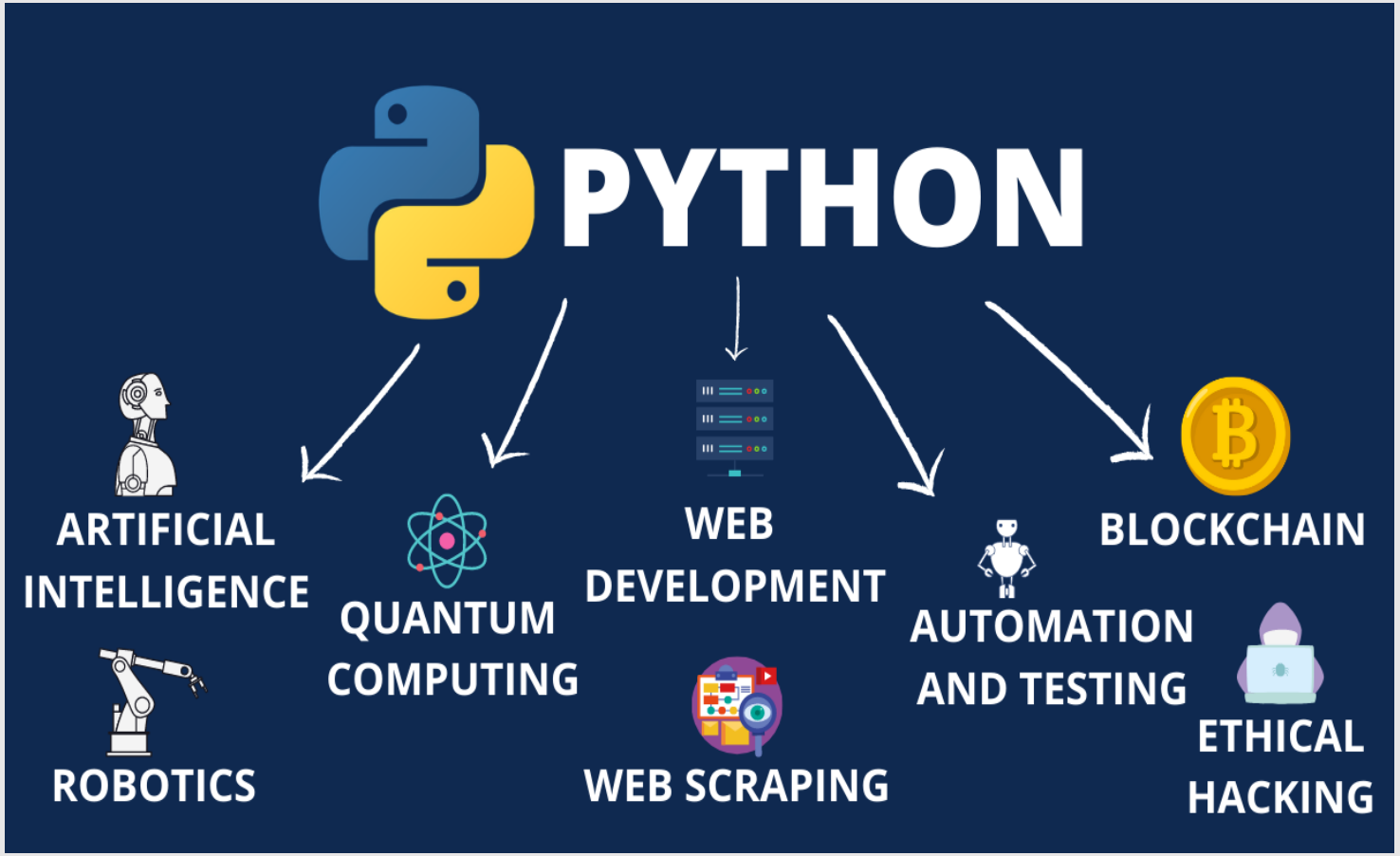
What is Programming Language?

- We use language to communicate with each other
- To communicate with computer: for giving instructions, we need to use a language
- Python is one kind of Programming Language
- C, C++, Java, C#, JavaScript etc.



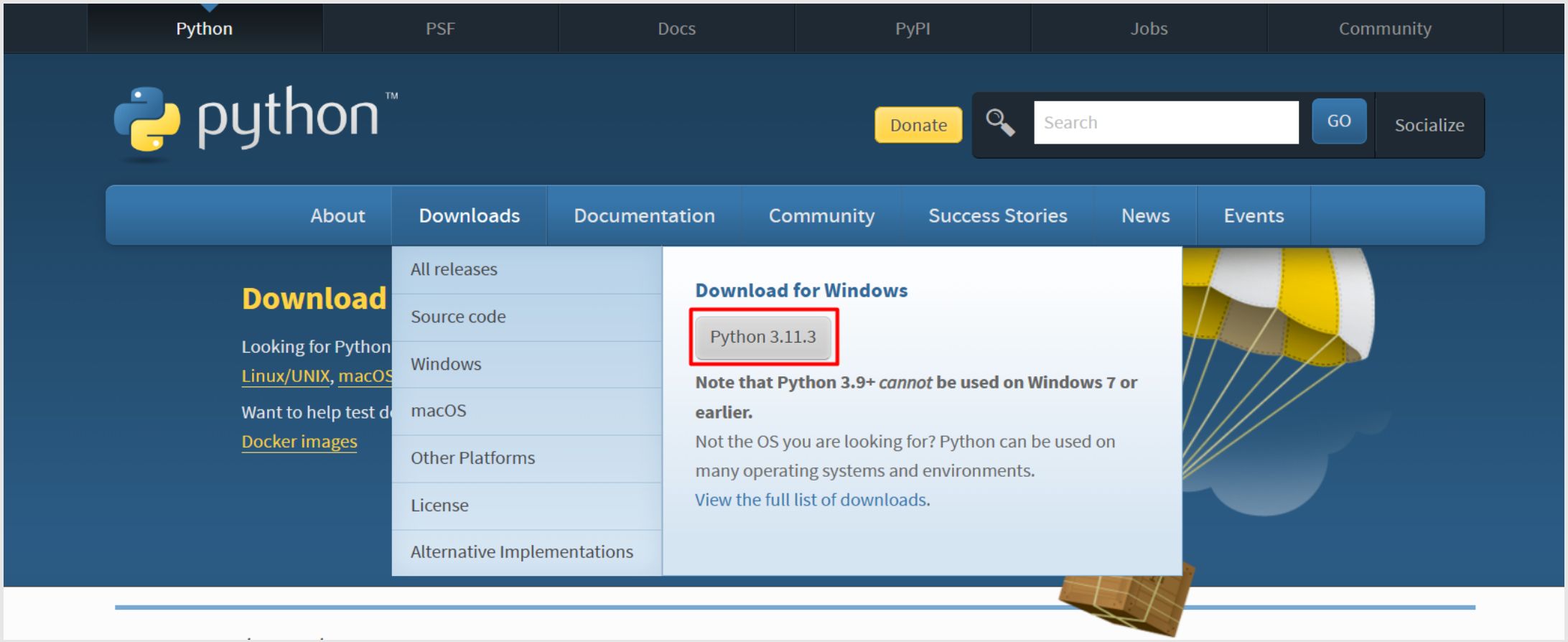
Why we choose Python?

- Easy to learn and read
- Versatile: Web Development, Data Analysis, Scientific Computing, Artificial Intelligence, Machine Learning, Automation



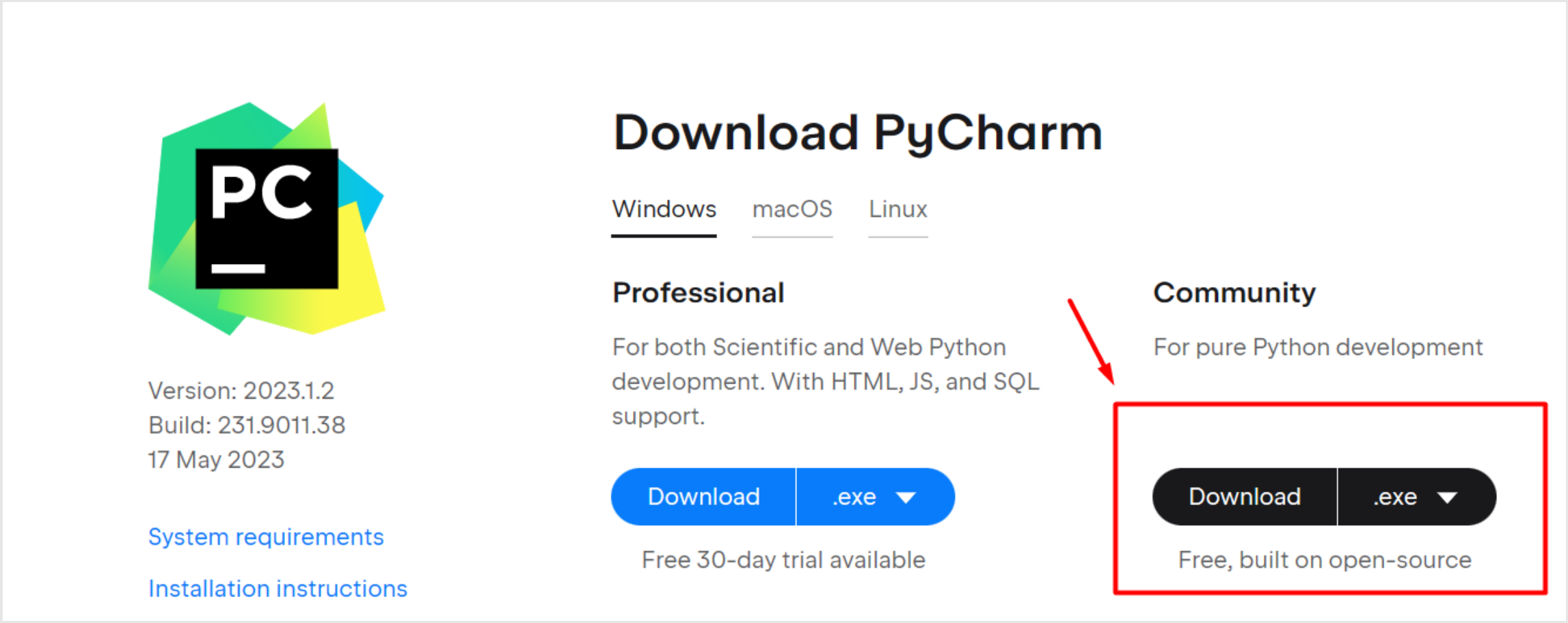
Creating Environment: Installing Python and PyCharm

- **To install Python: visit**
  https://www.python.org/downloads/ -



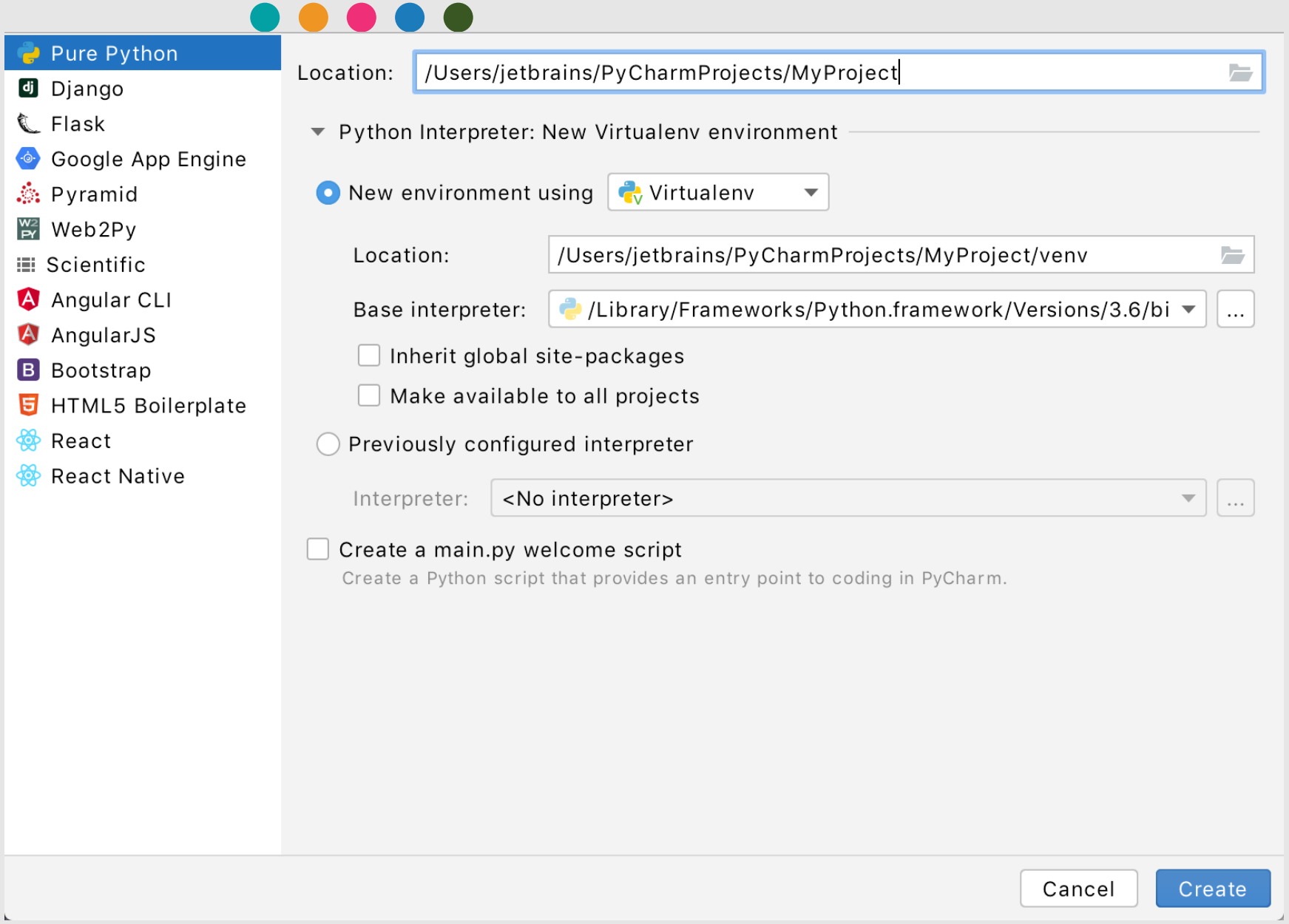
Creating Environment: Installing Python and PyCharm

- **To install PyCharm: visit**
  https://www.jetbrains.com/pycharm/download/



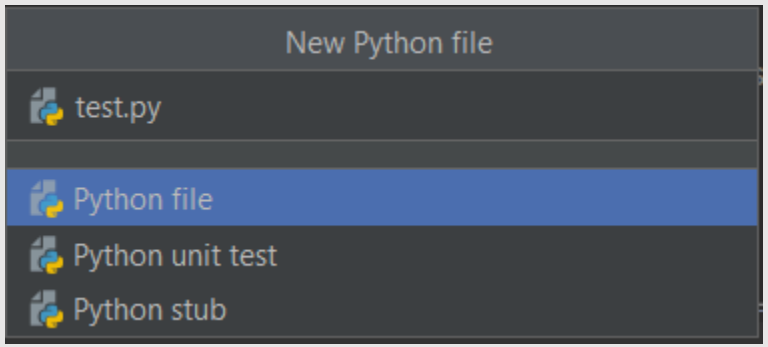
Creating Environment: Your First Python Project

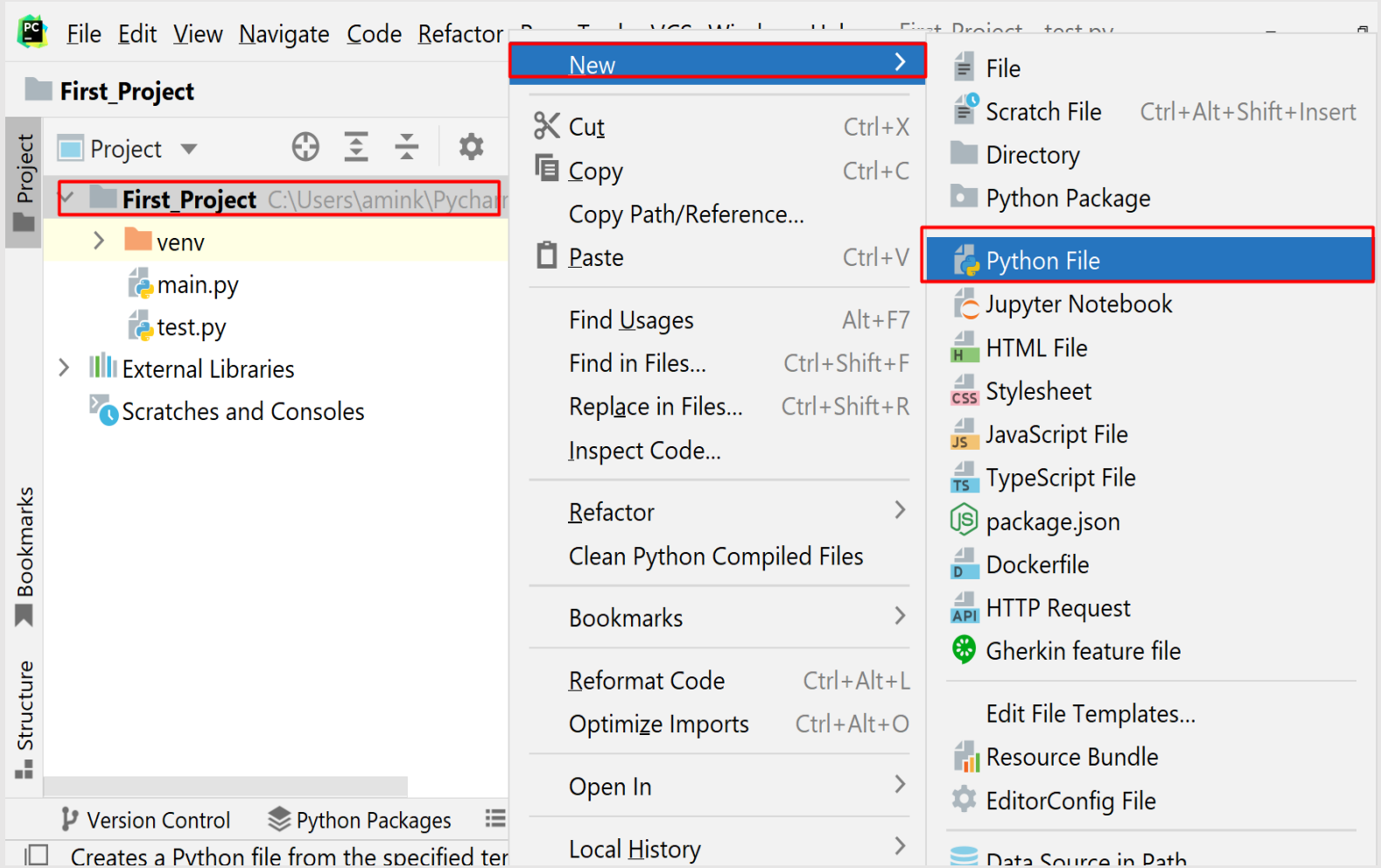
- If you're on the Welcome screen, click **New Project.**
- If you've already got any project open, choose **File | New Project** from the main menu.



Creating Environment: Your First Python Project

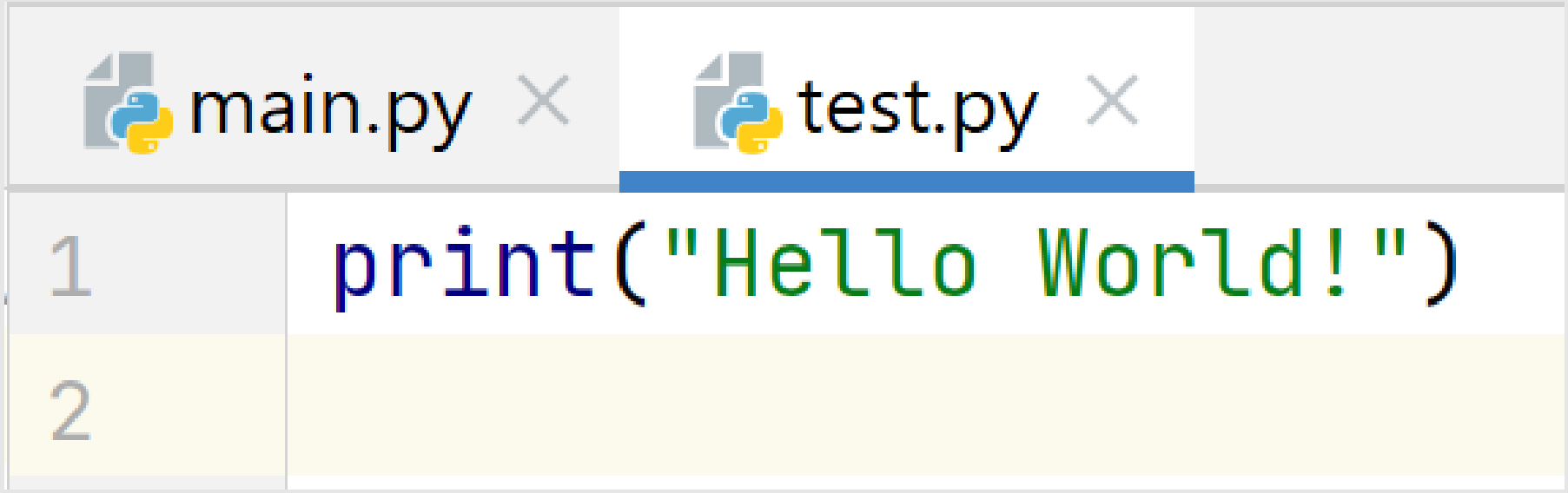
- In the **Project** tool window, select the project root (typically, it is the root node in the project tree), right-click it, and select **File | New> Python File**
- **Type a File name.py(test.py)**





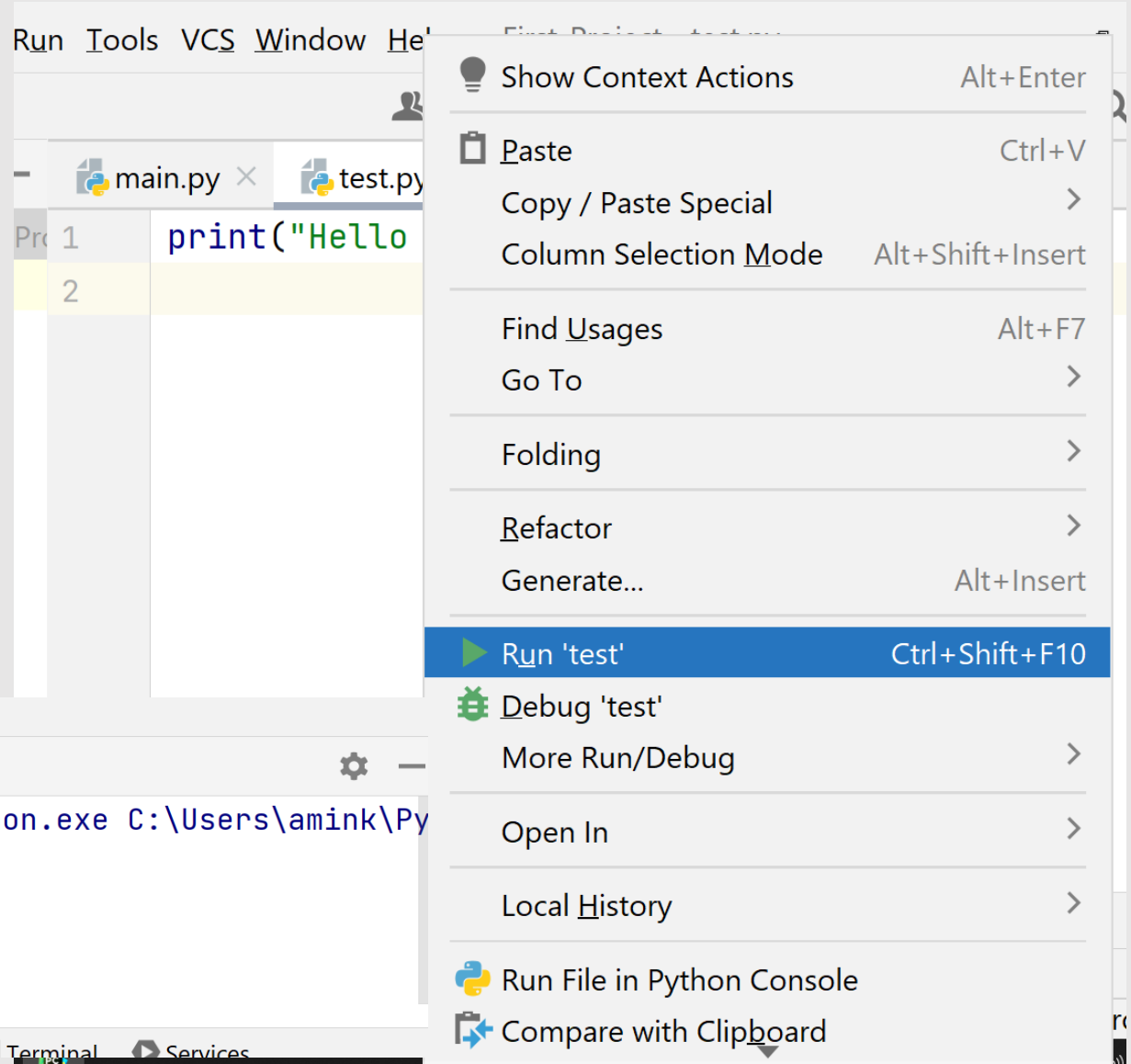
Your First Python Program: Print a Message!

- print("Your Message")



Run Your Program

- Right-click the editor and select **Run 'test'** from the context menu
- Press Ctrl+Shift+F10
- Since this Python script contains a main function, you can click an icon  in the gutter.
- Output:



Mathematical Operations on print()

main.py | test.py

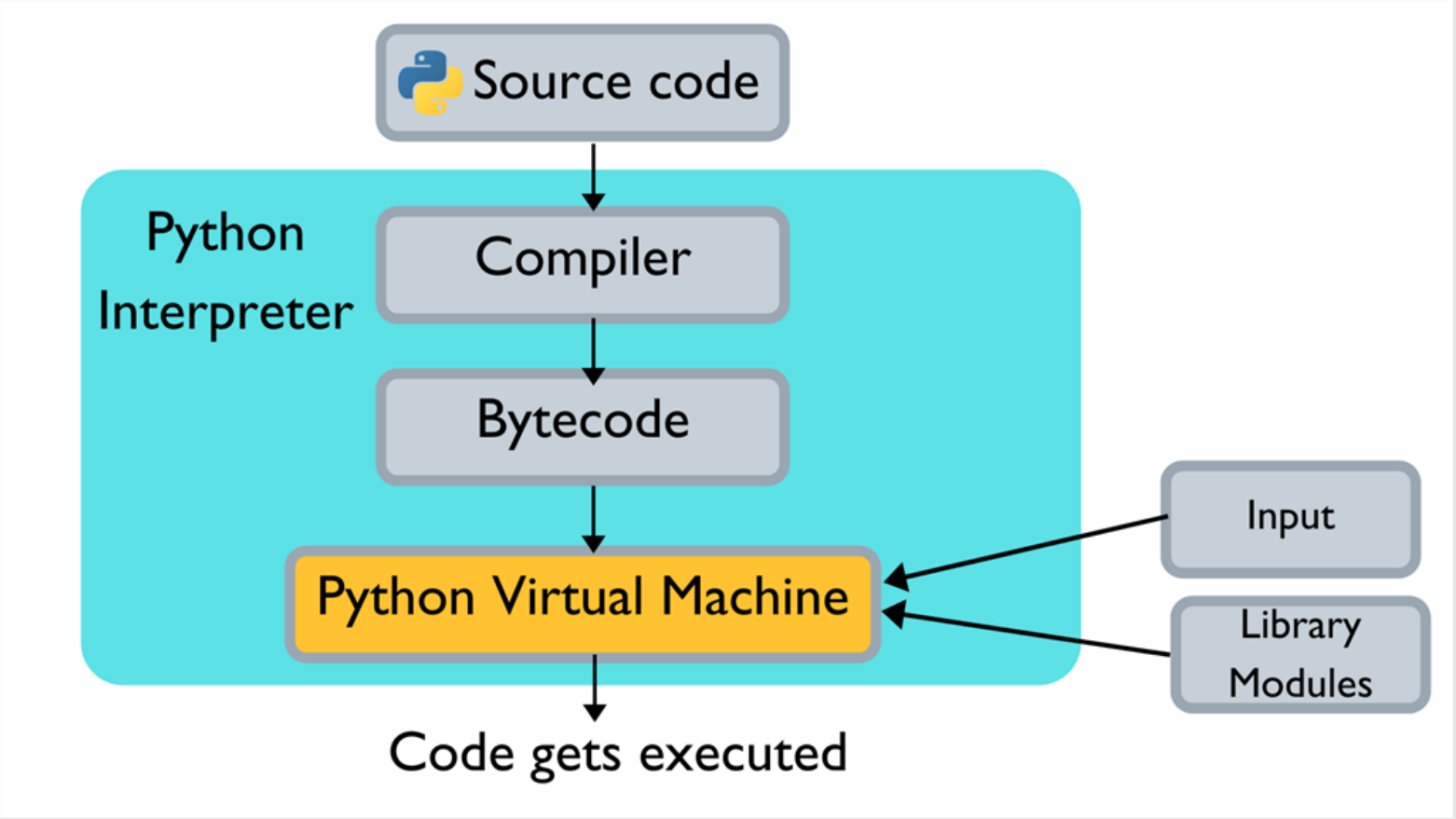
```
1  print(10+5)
2  print(10-5)
3  print(10*5)
4  print(10/5)
```

❑ Output:

```
C:\User
15
5
50
2.0
```

How Python Code is Executed?

- We are writing our code that's human-readable, but we know computers only understand 0/1. So how do computers understand our code?



Test!

- Print Your Name, Roll, Class, School Name on Output Screen

```
Name: Amin Kaiser
Roll: 03
Class: 08
School Name: Leaders' School and College
```

Solution!

- Print Your Name, Roll, Class, School Name on Output Screen

```
print("Name: Amin Kaiser")
print("Roll: 03")
print("Class: 08")
print("School Name: Leaders' School and College")
```

More About print()

- 10x Print Your Name: Simple Solution!

- Output:

```
AminAminAminAminAminAminAminAminAminAmin
```

Escape Sequences

- Escape sequences allow you to insert special characters in strings.
- Put a backslash (\) before the character you want to escape.
- \n: Newline
- \t: Tab
- \": Double Quote
- 10x Print Your Name: Simple Solution!

```
print("Amin \t" * 10)
```

- Output:

```
Amin    Amin    Amin    Amin    Amin    Amin    Amin    Amin    Amin    Amin
```

Escape Sequences: New Line

- 10x Print Your Name: Simple Solution!

```
print("Amin \n" * 10)
```

- Output:

```
Amin
Amin
Amin
Amin
Amin
Amin
...

...
```

Comments on Python

- Used to include explanatory or descriptive text within the code that is not executed as part of the program
- They are intended to provide additional information to readers and developers of the code.
- Single Line Comments: Start with #

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

- Multi-line Comments:

```
"""
This is a multi-line comment.
It spans across multiple lines.
"""
```

Variables

- Variables are used to store values in memory
- Python does not require you to explicitly declare the data type of a variable.
- When you assign a value to a variable, Python automatically assigns a data type based on the value.

  You can assign a value to a variable using the assignment operator (=).

  The general syntax is:

variable_name = value

```
message = "Hello, world!"
```

Variables: Some Rules to Follow

- Variable names must start with a letter or underscore (_), but not with a number.
- Variable names can only contain letters, numbers, and underscores.
- Variable names are case sensitive. For example, "myVar" and "myvar" are two different variables.
- You cannot use reserved keywords as variable names, such as "if," "while," "for," "and," "or," "not," and "else.“
- It's a good practice to use descriptive and meaningful variable names, so it's easy to understand the purpose of the variable.

Variables: Some Rules to Follow

```
my_var = 5
myVar = 6
_myvar = 7
1var = 5 # variable name cannot start with a number
my-var = 6 # variable name cannot contain hyphen
if = 7 # variable name cannot be a reserved keyword
```

Data Types

- Integer: Whole numbers without decimals (e.g., 5, -10).
- Float: Real numbers with decimals (e.g., 3.14, -2.5).
- String: A sequence of characters (e.g., "Hello", 'Python').
- Boolean: Represents either True or False.

```
student_count = 1000  # Integer
grade = 3.69    # Float
is_passed = True    # Boolean
course_name = "Python Programming"  # String
print(student_count)
print(grade)
print(is_passed)
print(course_name)
```

Check Data Type

- type(): function is used to determine the type of an object.

```
student_count = 1000  # Integer
grade = 3.69     # Float
is_passed = True     # Boolean
course_name = "Python Programming"  # String
print(type(student_count))
print(type(grade))
print(type(is_passed))
print(type(course_name))
```

Q/A Session