



Leaders' School & College Chattogram

Class: VIII (English Version)

L#01

Topic Name: Introduction to Python Programming

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Have you Ever Made a Recipe?

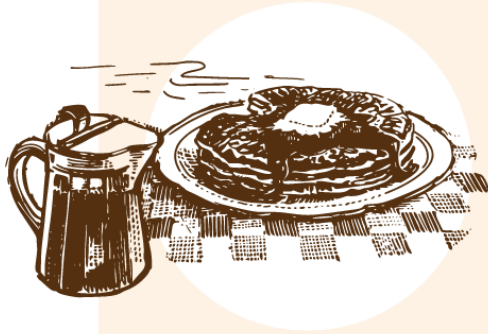


Pancake

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

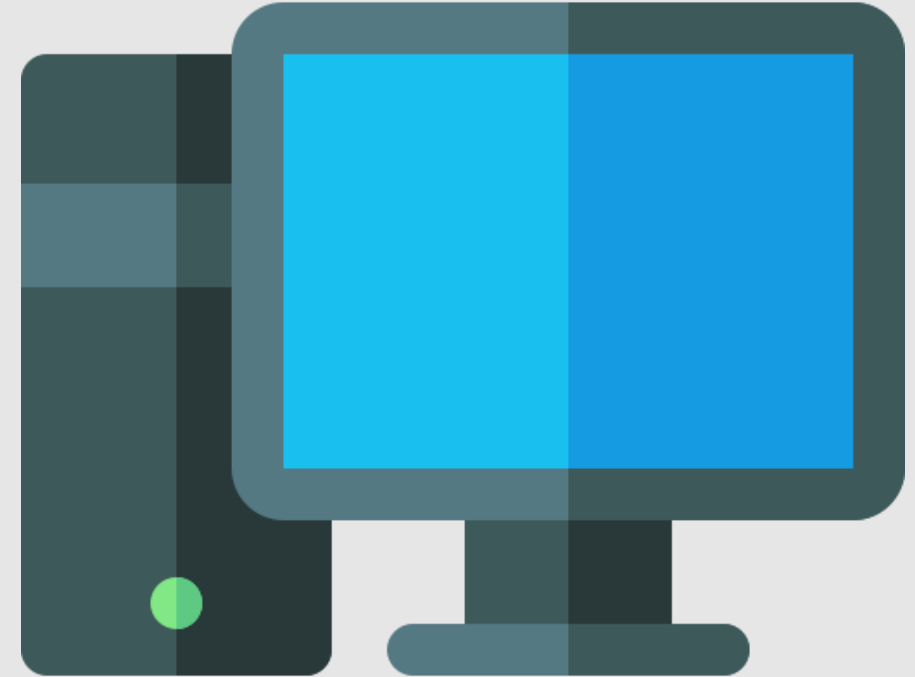
☐ We need to Follow some instructions!

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

What is Programming?



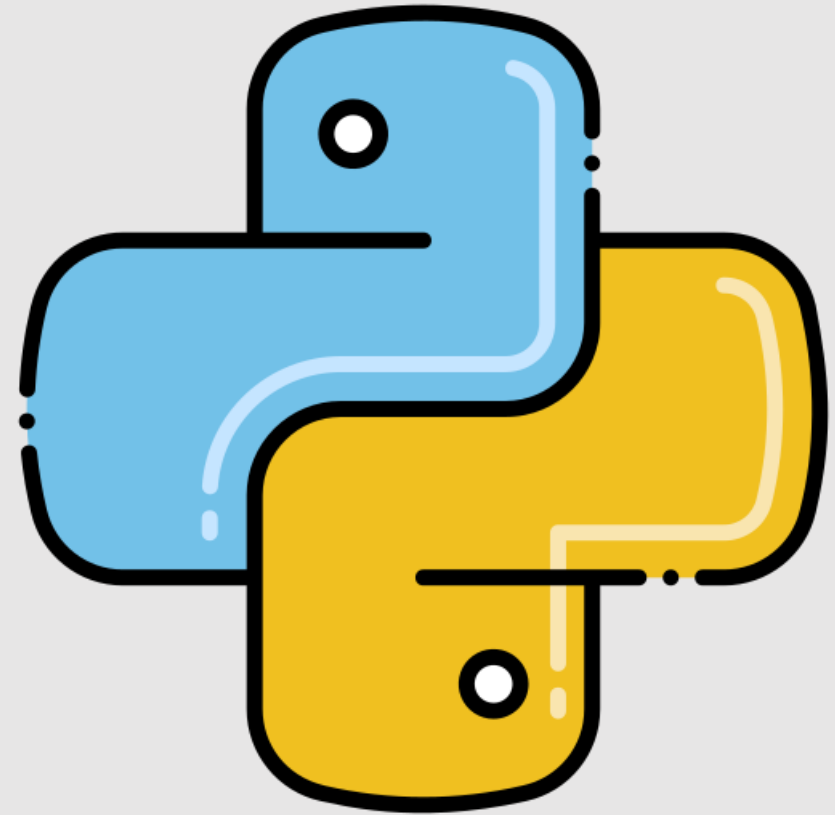
- ☐ **Computer only understand 0 and 1**
- ☐ **We need to give instructions to a computer on what to do**
- ☐ **Program is a set of instructions to do a particular task**



What is Programming Language?



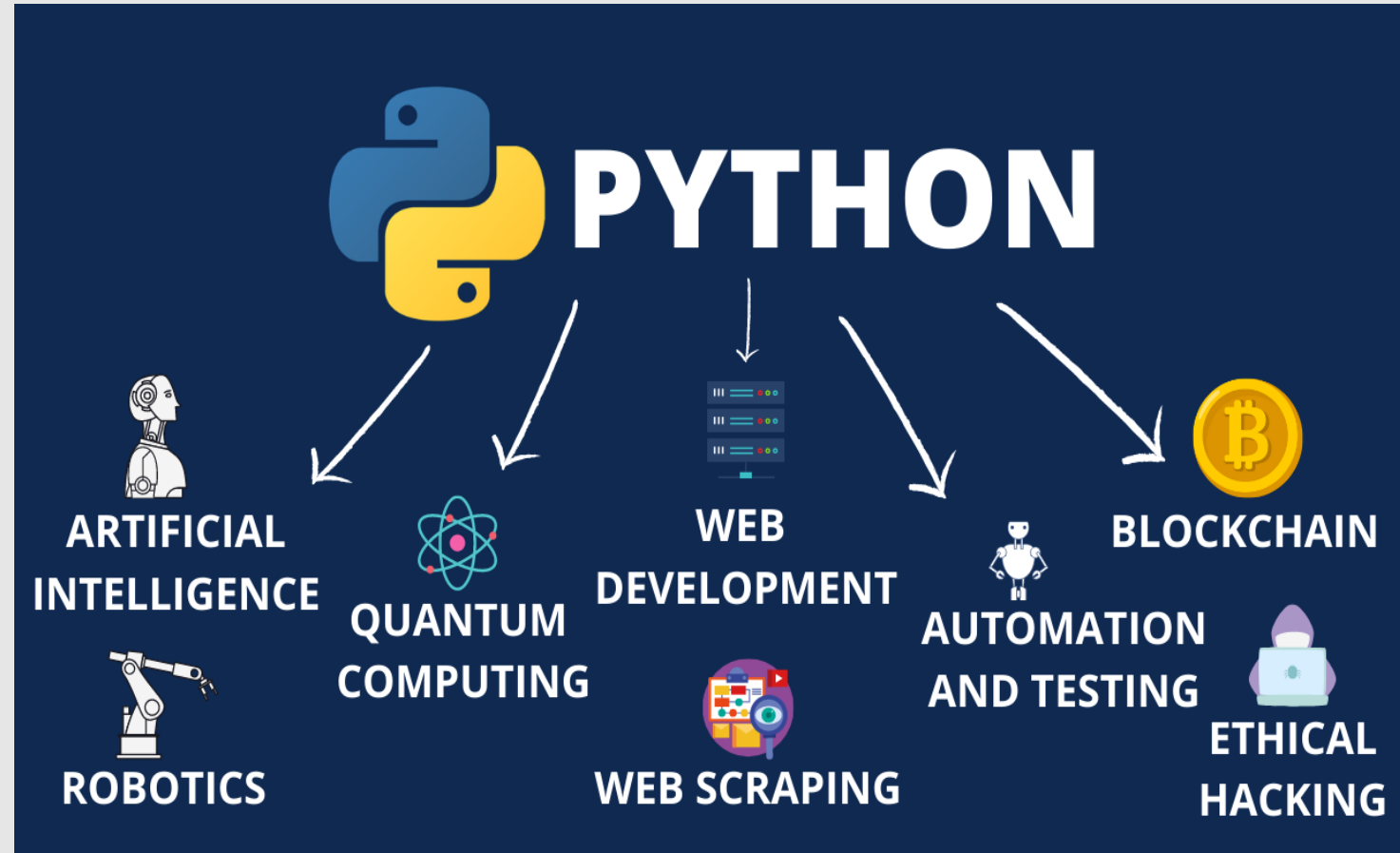
- ☐ We use language to communicate with each other
- ☐ To communicate with computer: for giving instructions, we need to use a language
- ☐ Python is one kind of Programming Language
- ☐ C, C++, Java, C#, JavaScript etc.



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/> -

The screenshot shows the Python.org website. The top navigation bar includes links for Python, PSF, Docs, PyPI, Jobs, and Community. The main header features the Python logo, a 'Donate' button, a search bar, and a 'Socialize' button. Below the header is a secondary navigation bar with links for About, Downloads, Documentation, Community, Success Stories, News, and Events. The 'Downloads' section is active, displaying a list of download options: All releases, Source code, Windows, macOS, Other Platforms, License, and Alternative Implementations. The 'Windows' option is highlighted with a red box. To the right of the list, a 'Download for Windows' section provides a note that Python 3.9+ cannot be used on Windows 7 or earlier, and offers a link to view the full list of downloads. The background of the page features a large image of a yellow and white parachute.

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Download for Windows

Python 3.11.3

Note that Python 3.9+ cannot be used on Windows 7 or earlier.

Not the OS you are looking for? Python can be used on many operating systems and environments.
[View the full list of downloads.](#)

Creating Environment: Installing Python and PyCharm



❑ **To install PyCharm: visit**

<https://www.jetbrains.com/pycharm/download/>



Version: 2023.1.2
Build: 231.9011.38
17 May 2023

[System requirements](#)

[Installation instructions](#)

Download PyCharm

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Professional

For both Scientific and Web Python development. With HTML, JS, and SQL support.

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.exe ▼

Free 30-day trial available

Community

For pure Python development

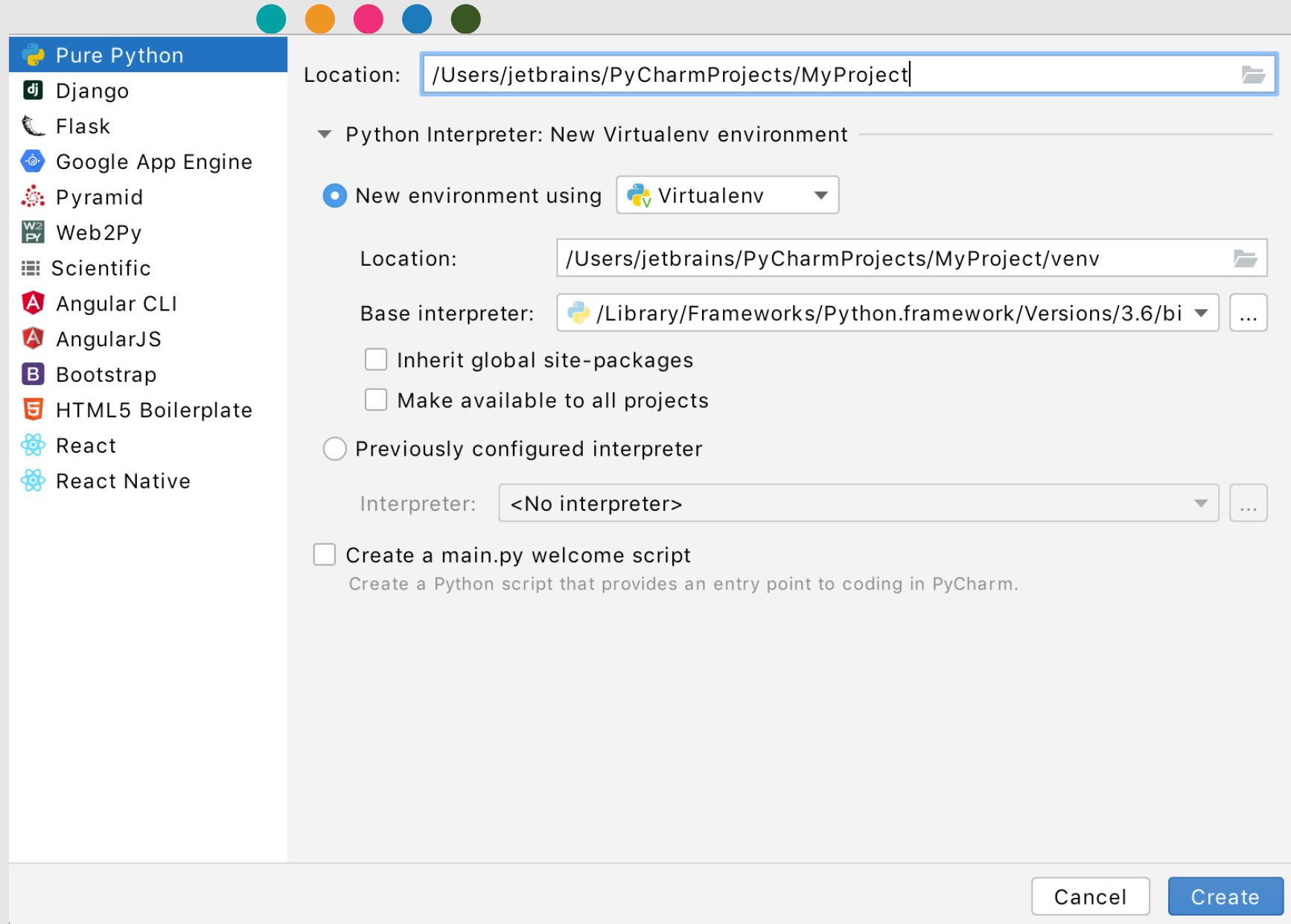
Download

.exe ▼

Free, built on open-source

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.

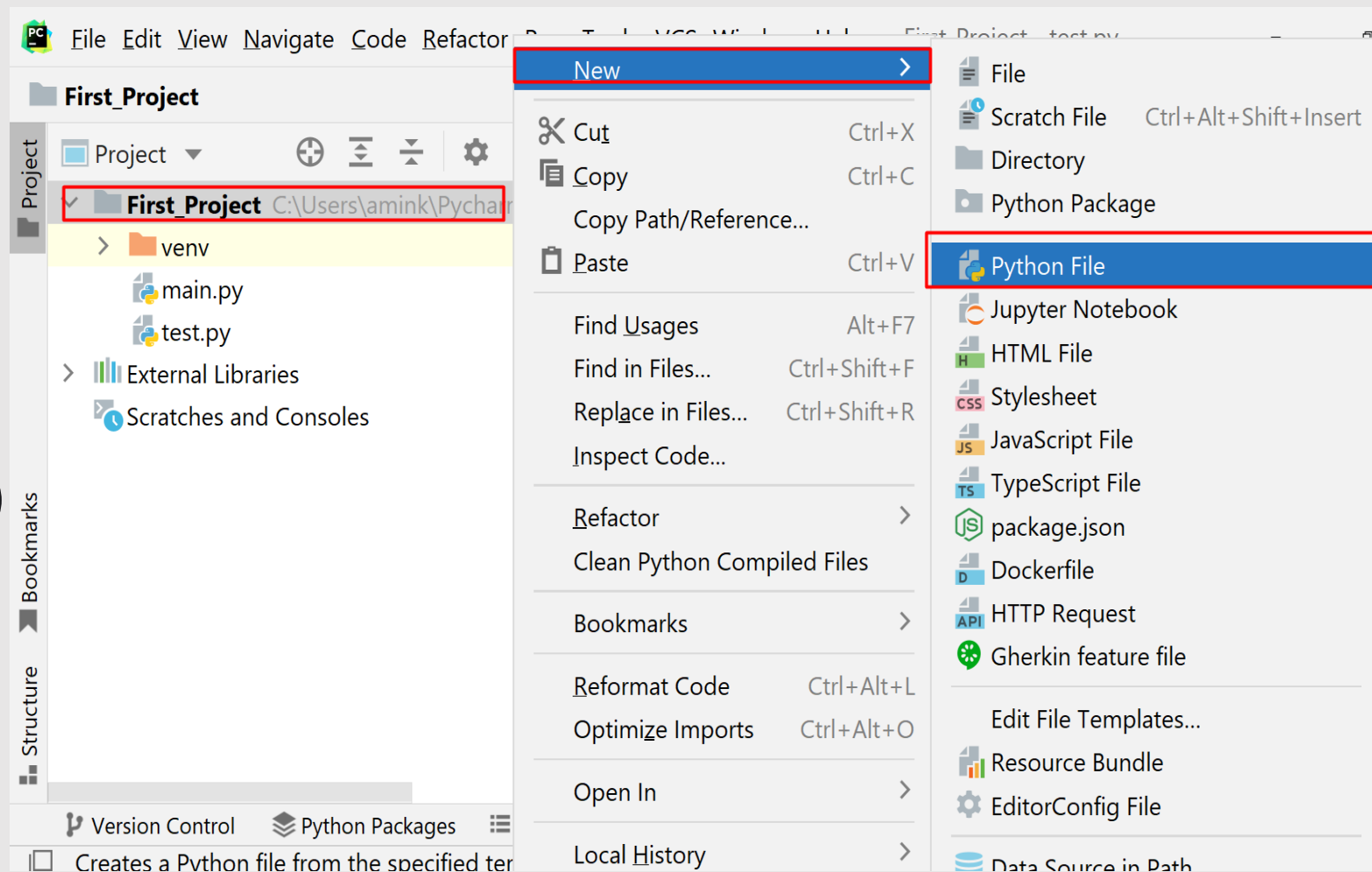
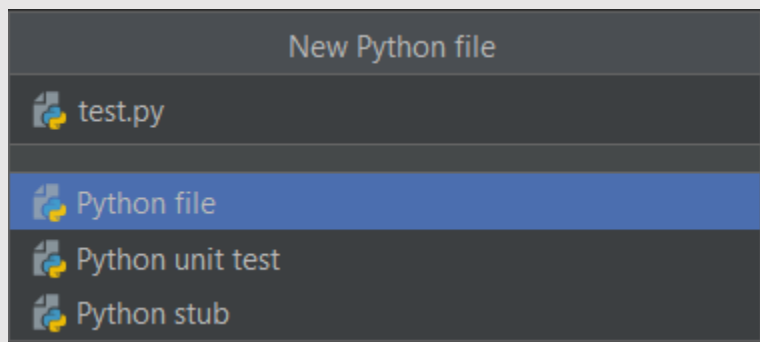


Creating Environment: Your First Python Project



❑ 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!




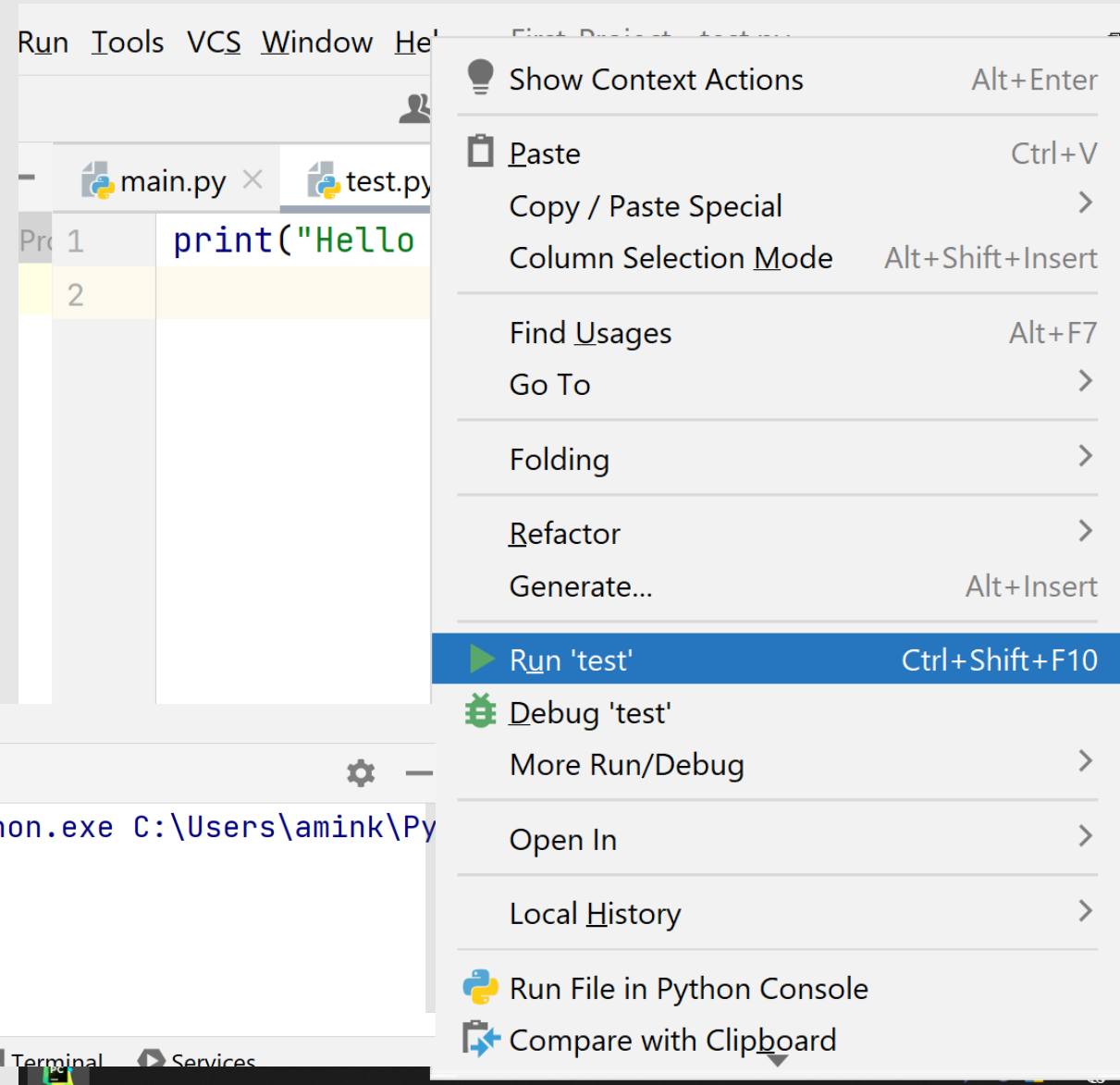
❏ `print("Your Message")`

	 <code>main.py</code> ×	 <code>test.py</code> ×
1	<code>print("Hello World!")</code>	
2		

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	<code>print(10+5)</code>	
2	<code>print(10-5)</code>	
3	<code>print(10*5)</code>	
4	<code>print(10/5)</code>	
5		

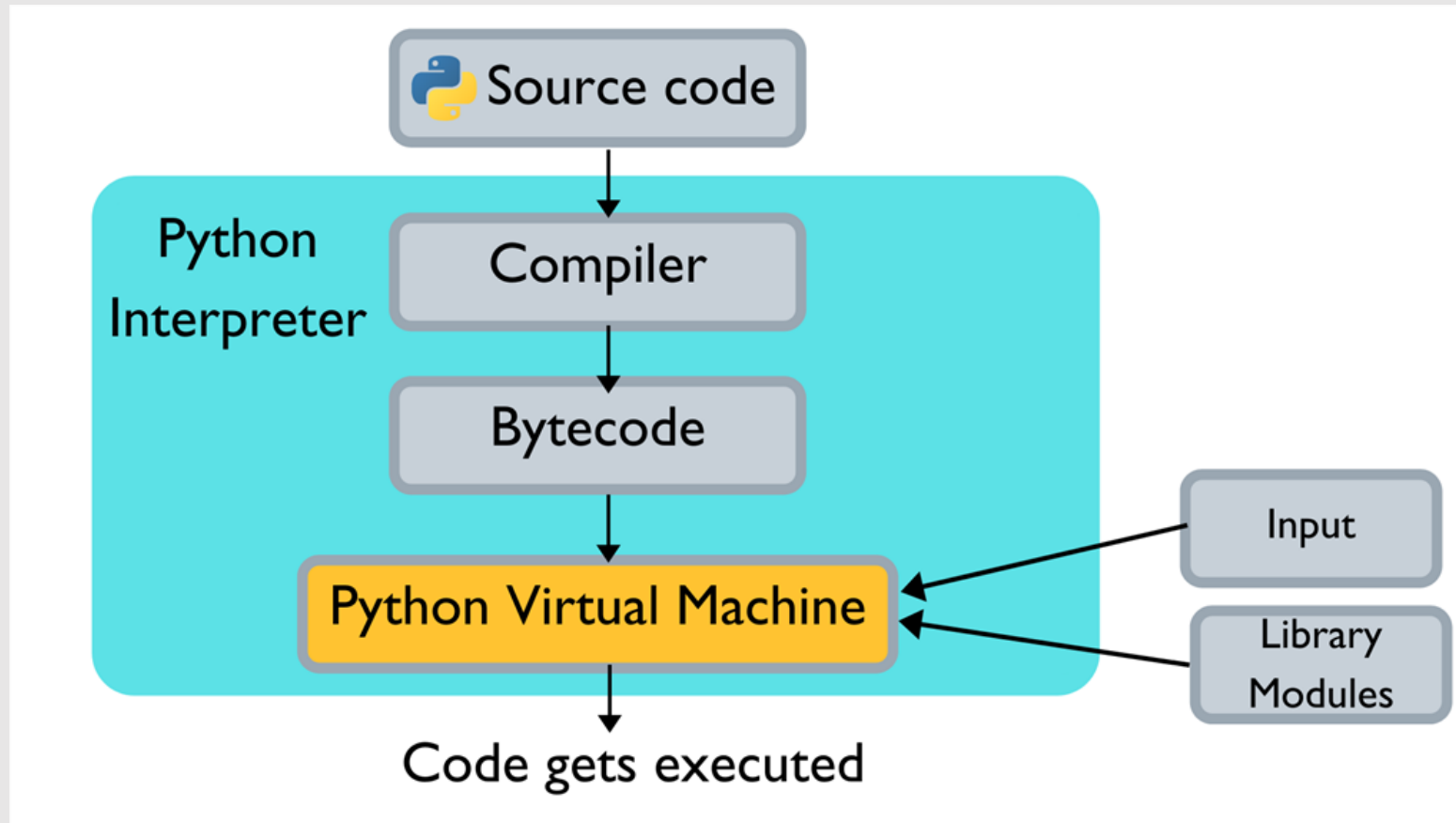
Output:

↑	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!

A screenshot of a code editor interface. At the top, there are two tabs: 'main.py' and 'test.py'. The 'test.py' tab is active and highlighted with a blue underline. Below the tabs, the code editor shows a single line of Python code: `print("Amin" * 10)`. The code is color-coded: 'print' is blue, the opening parenthesis is blue, 'Amin' is green, the asterisk is blue, and '10' is blue. The closing parenthesis is blue. A yellow line number '5' is visible on the left side of the code line. Below the code line, there is a small orange circle.

❑ Output:

AminAminAminAminAminAminAminAminAminAminAmin

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

