Leaders' School & College Chattogram

Class: VIII (Enlish Version)

L#01

Topic Name: Introduction to Python Programming

Md. Amin Kaiser

B.Sc. in CSE, DUET

Assistant Teacher(ICT)

E-mail: aminkaiser90@gmail.com

Contents

Have you Ever Made a Recipe?
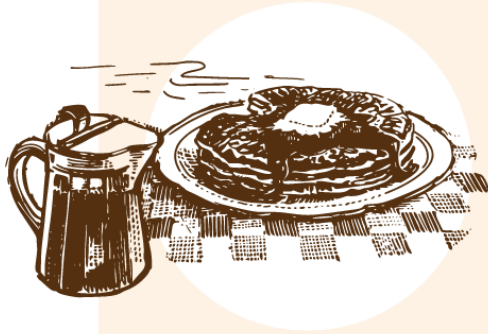

Pancake
Easy Recipe

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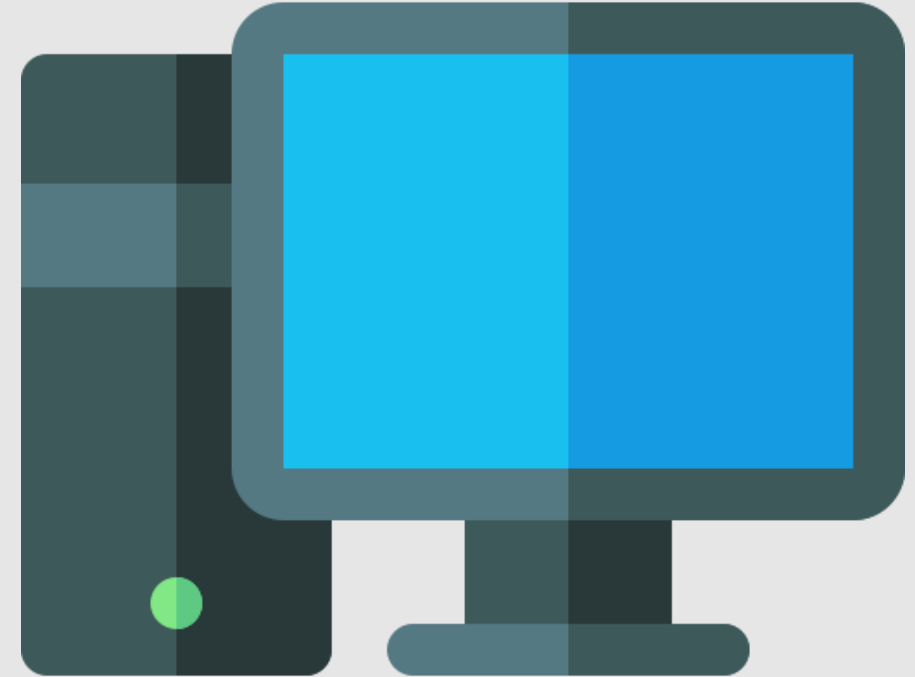
❑ **We need to Follow some instructions!**

❑ **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?

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❑ **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.**
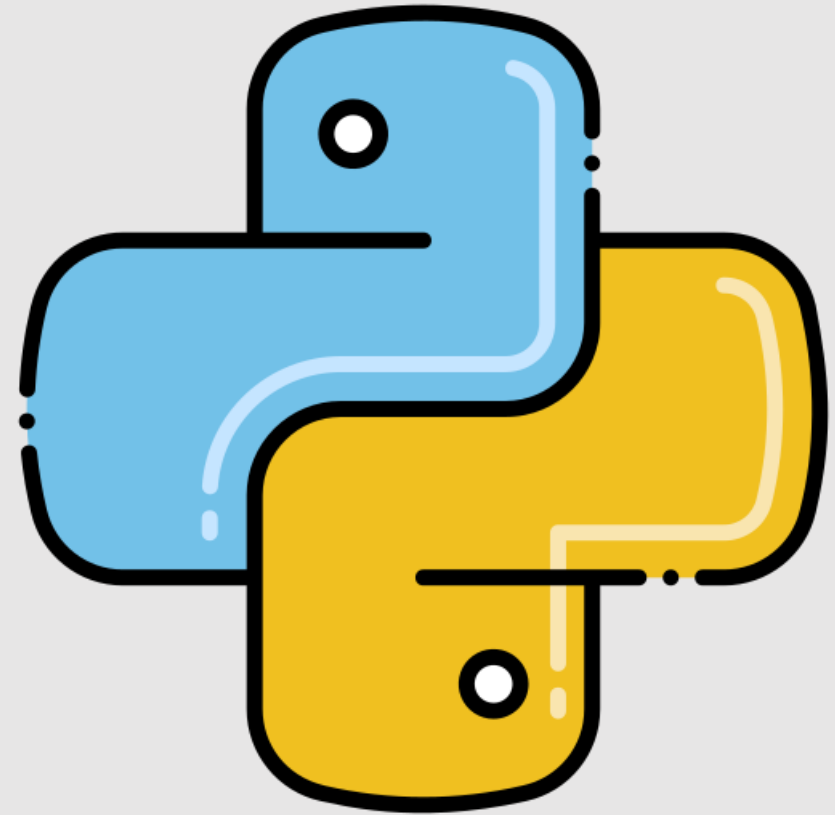
Why we choose Python?

- ❑ **Easy to learn and read**

- ❑ **Versatile: Web Development, Data Analysis, Scientific Computing, Artificial Intelligence, Machine Learning, Automation**
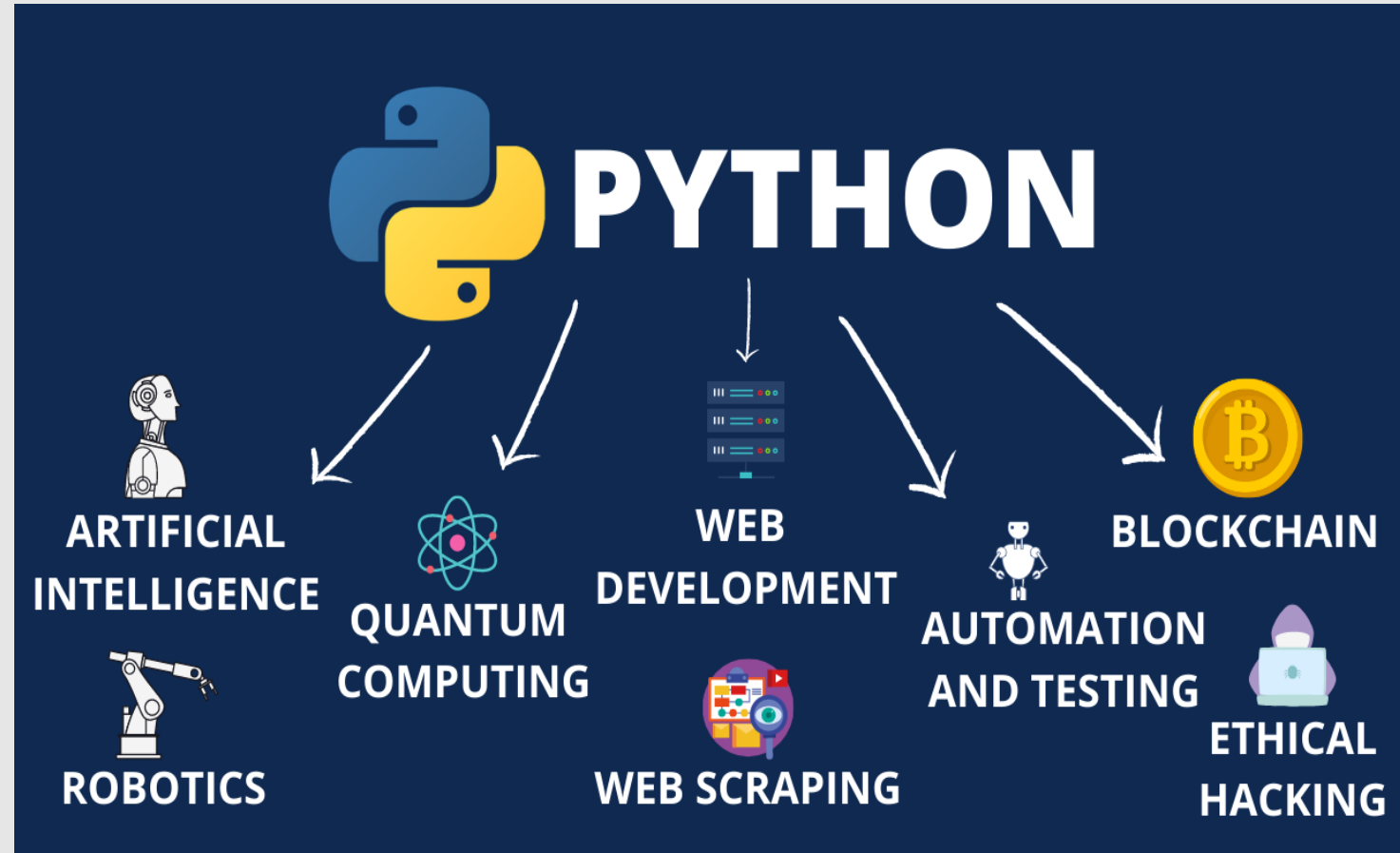
Creating Environment: Installing Python and PyCharm

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❑ **To install Python: visit**

https://www.python.org/downloads/ -

Creating Environment: Installing Python and PyCharm

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

☐ 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.
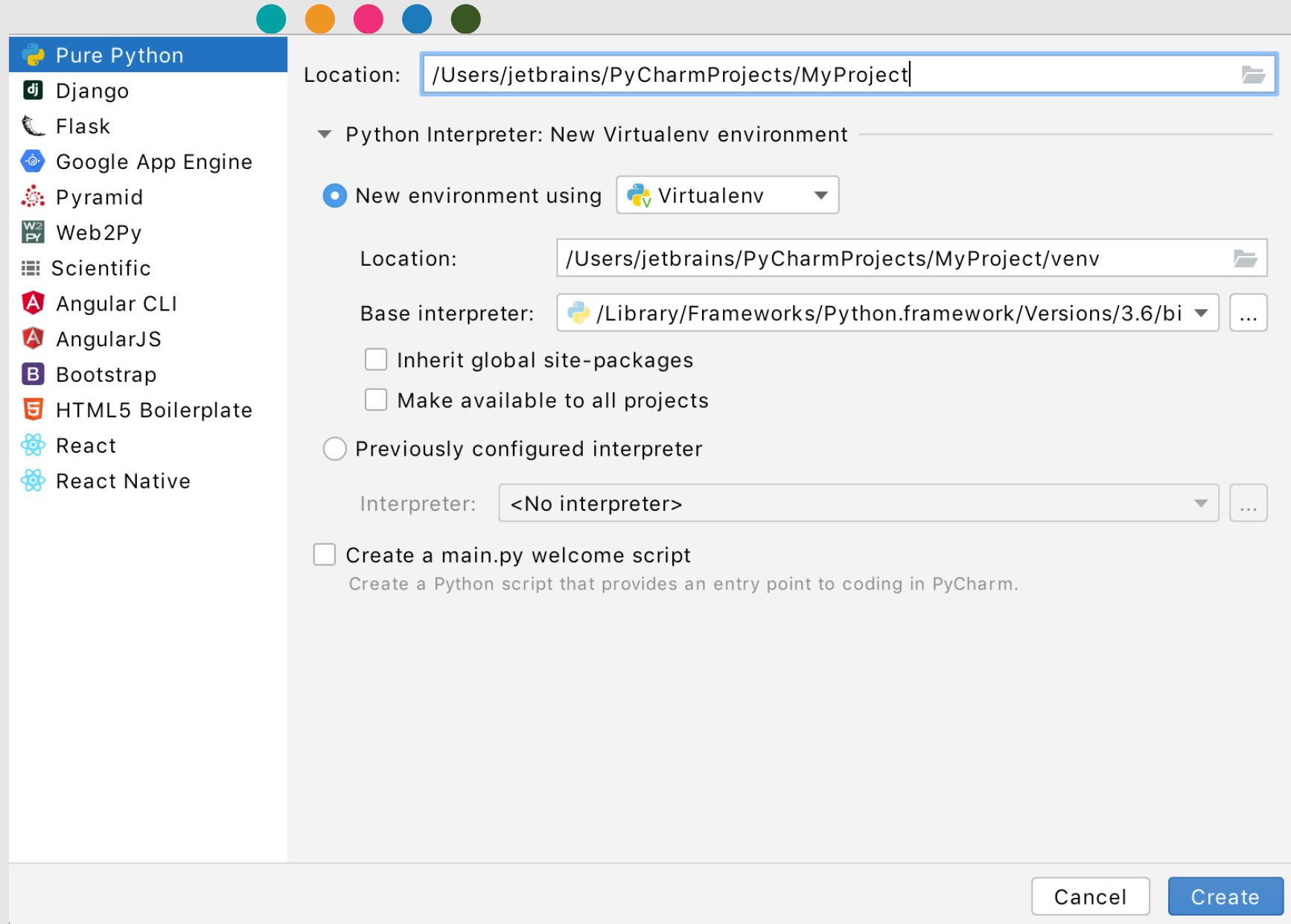
Creating Environment: Your First Python Project

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☐ 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)**
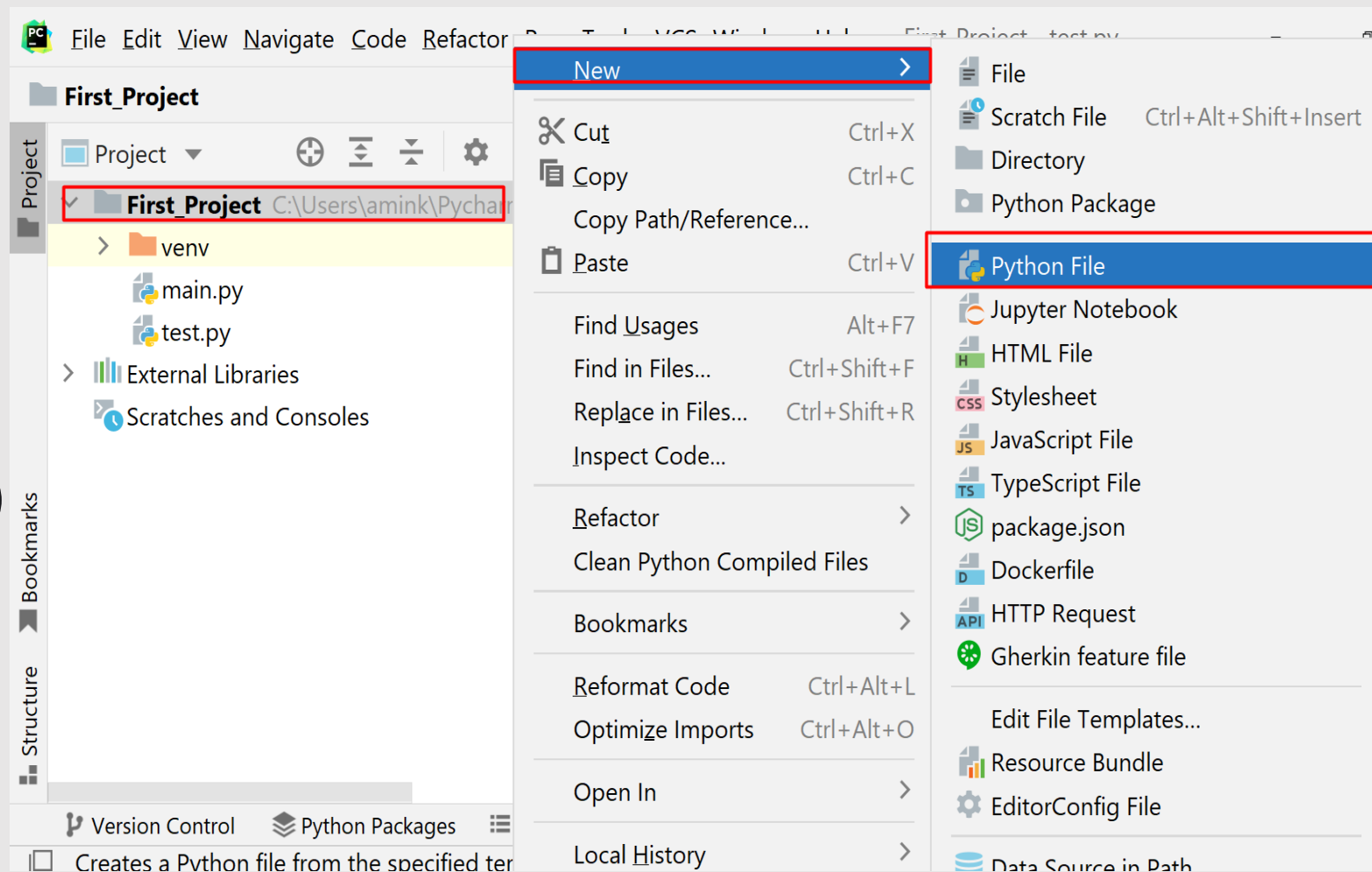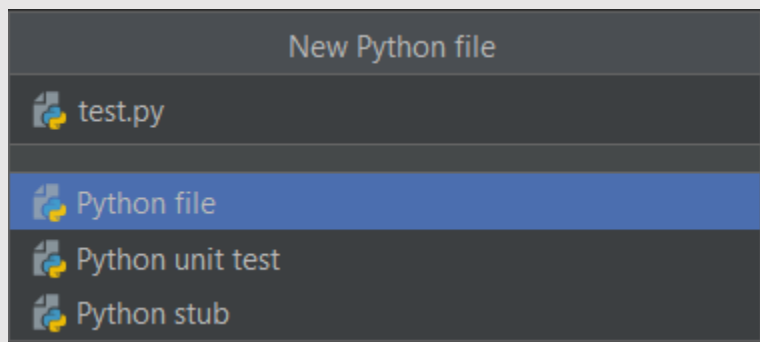
Your First Python Program: Print a Message!

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❑ print("Your Message")

🐍 main.py ✕	🐍 test.py ✕	
1	print("Hello World!")	
2		

Run Your Program

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☐ 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:

```
Run Tools VCS Window Help
```

main.py ✕   test.py

```
1  print("Hello
2
```

Show Context Actions   Alt+Enter

Paste   Ctrl+V

Copy / Paste Special   ›

Column Selection Mode   Alt+Shift+Insert

Find Usages   Alt+F7

Go To   ›

Folding   ›

Refactor   ›

Generate...   Alt+Insert

▶ Run 'test'   Ctrl+Shift+F10

🐞 Debug 'test'

More Run/Debug   ›

Open In   ›

Local History   ›

🐍 Run File in Python Console

Compare with Clipboard

Run: 🐍 test ✕   ⚙ ─

```
C:\Users\amink\PycharmProjects\First_Project\venv\bin\python.exe C:\Users\amink\Py
Hello World!

Process finished with exit code 0
```

Version Control   ▶ Run   Python Packages   ☰ TODO   Python Console   Problems   Terminal   ▶ Services

Mathematical Operations on print()

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main.py ✕   **test.py** ✕

```python
print(10+5)
print(10-5)
print(10*5)
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?
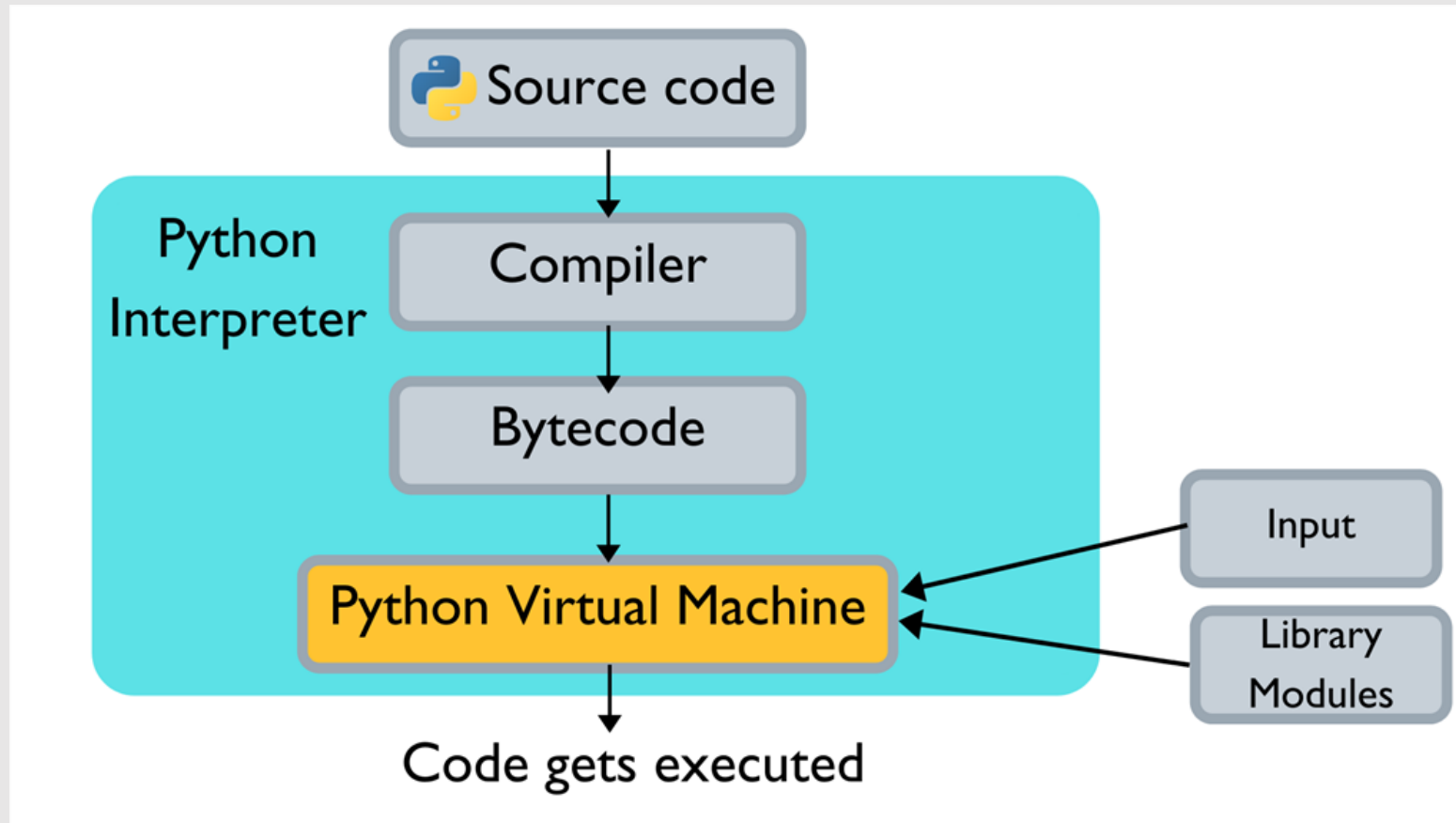
Test!

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

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

Solution!

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

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

More About print()

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❏ 10x Print Your Name: Simple Solution!

```python
5    print("Amin" * 10)
```

❏ 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!

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

❑ Output:

Amin   Amin   Amin   Amin   Amin   Amin   Amin   Amin   Amin   Amin

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❑ 10x Print Your Name: Simple Solution!

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

❑ Output:

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

...
```

Comments on Python

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❑ 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.

```
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

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❑ 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.

```python
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

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

```python
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