

Day 1



Introduction to Programming and Python:

Programming is a way for us to tell computers what to do. Computer is a very dumb machine and it only does what we tell it to do. Hence, we learn programming and tell computers to do what we are very slow at - computation.

What is Python?

- Python is a dynamically typed, general purpose programming language that supports an object-oriented programming approach as well as a functional programming approach.
- Python is an interpreted and a high-level programming language.

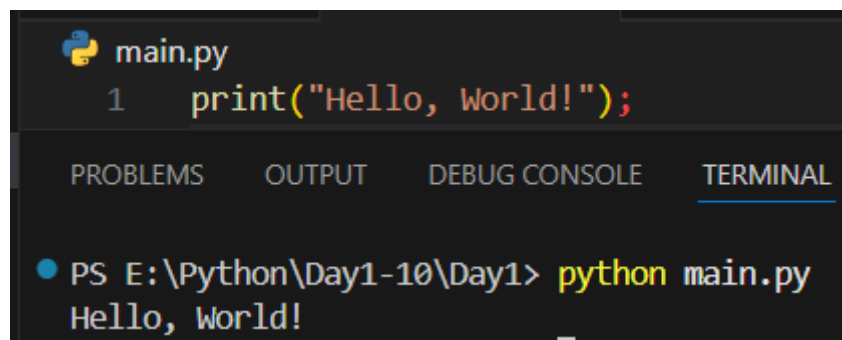
Features of Python:

- Python is simple and easy to understand.
- It is Interpreted and platform-independent which makes debugging very easy.
- Python is an open-source programming language.
- Python provides very big library support. Some of the popular libraries include NumPy, TensorFlow, Selenium, OpenCV, etc.
- It is possible to integrate other programming languages within python.

What is Python used for?

- Python is used in Data Visualization to create plots and graphical representations.
- Python helps in Data Analytics to analyse and understand raw data for insights and trends.
- It is used in AI and Machine Learning to simulate human behaviour and to learn from past data without hard coding.
- It is used to create web applications.
- It can be used to handle databases.

Example: a basic example

A screenshot of a code editor interface. At the top, a file named 'main.py' is open, containing a single line of Python code: `print("Hello, World!");`. Below the code editor, there are four tabs: 'PROBLEMS', 'OUTPUT', 'DEBUG CONSOLE', and 'TERMINAL'. The 'TERMINAL' tab is selected, showing the command prompt 'PS E:\Python\Day1-10\Day1>' followed by the command 'python main.py' and its output 'Hello, World!'.

Modules and Pip:

What are Modules?

Module is like a code library which can be used to borrow code written by somebody else in our python program. There are two types of modules in python:

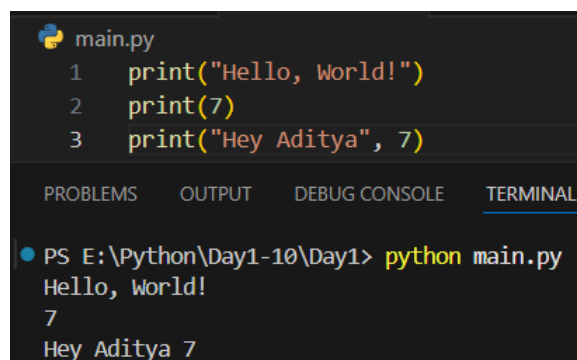
1. Built in Modules - These modules are ready to import and use and ships with the python interpreter. There is no need to install such modules explicitly. e.g., hashlib
2. External Modules - These modules are imported from a third-party file or can be installed using a package manager like pip or anaconda. Since this code is written by someone else, we can install different versions of a same module with time. e.g., TensorFlow

The pip command:

It can be used as a package manager [pip](#) to install a python module. To install a module name 'pandas' we will write:

```
PS E:\Python\Day1-10\Day1> pip install pandas
```

First python program:



The screenshot shows a Python IDE with a file named 'main.py' containing three lines of code: `print("Hello, World!")`, `print(7)`, and `print("Hey Aditya", 7)`. Below the code editor, the 'TERMINAL' tab is active, showing the command `python main.py` being executed. The output of the program is displayed as `Hello, World!`, `7`, and `Hey Aditya 7` on separate lines.

--The End--