

Introduction to Python

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Agenda

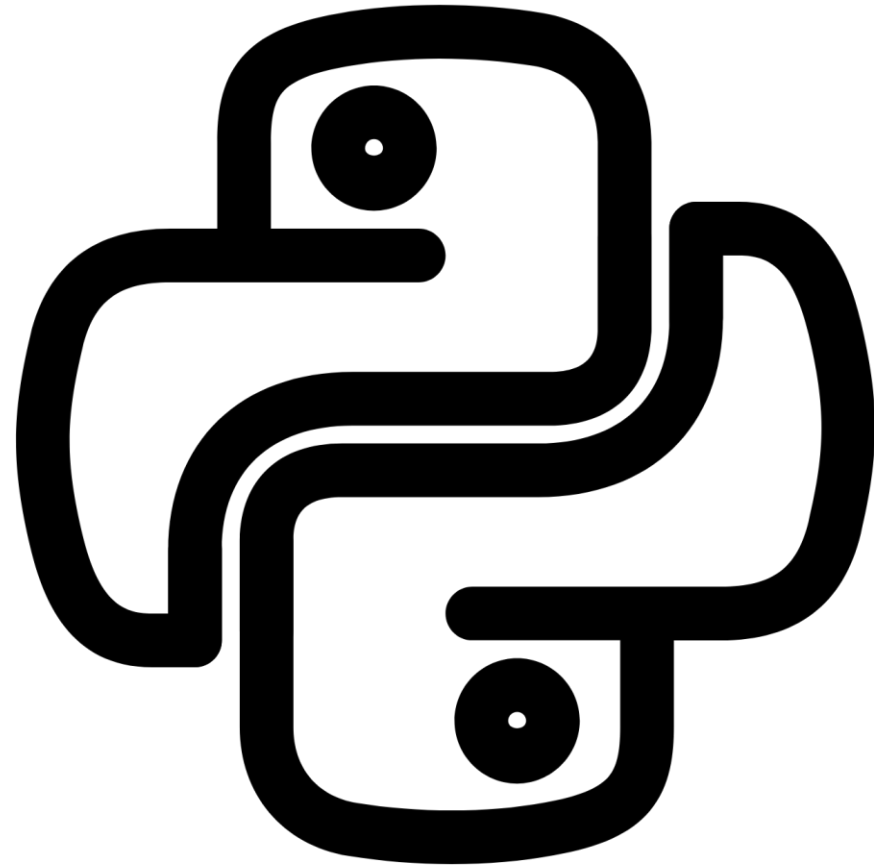
Why Python

How Python Works

How to Run Python

Python Variable

Python Operators





What is Python?

Python is a high-level Programming Language.

Python is like talking to your computer in simple, friendly language rather than shouting instructions in complicated codes.





Python Creator

GUIDO VAN ROSSUM





When Python?

- Web Development
- Software Development
- Game Development
- Machine Learning & AI
- Data Science

Why Python?

Most Popular - Python is like a Swiss Army knife—it has tools for every situation!

Easy to Understand - Think of Python as a conversation with your computer, while Java or C is more like legal paperwork.



Why Python?



Java

```
1 class Main {
2     public static void main(String[] args) {
3         System.out.println("Hello, World!");
4     }
5 }
```



C

```
1 #include <stdio.h>
2 int main() {
3     printf("Hello, World!");
4     return 0;
5 }
```



C#

```
1 public class Program
2 {
3     public static void Main(string[] args)
4     {
5         System.Console.WriteLine("Hello, World!");
6     }
7 }
```



Python

```
1 print("Hello World!")
```





Python Versions

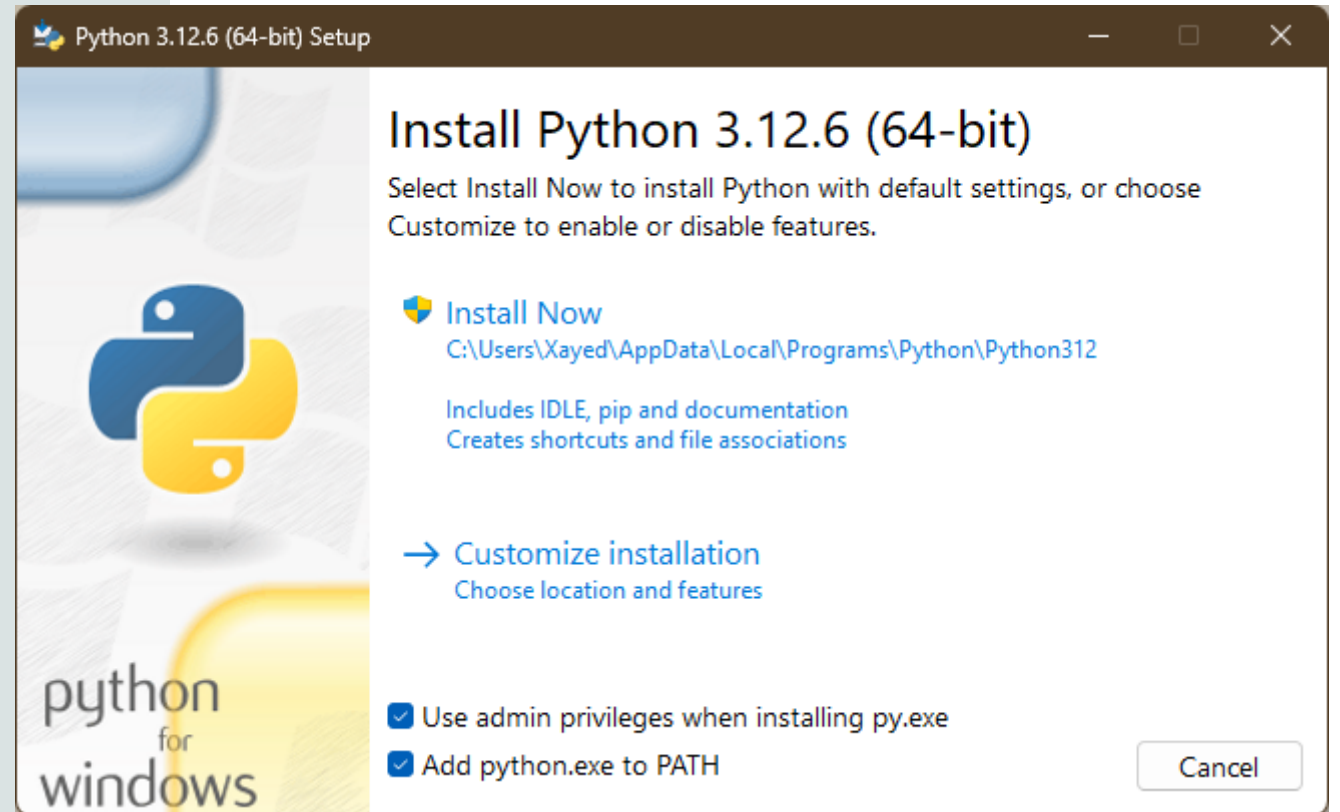
- Python 2
- Python 3

Python Software Foundation manages these Versions.



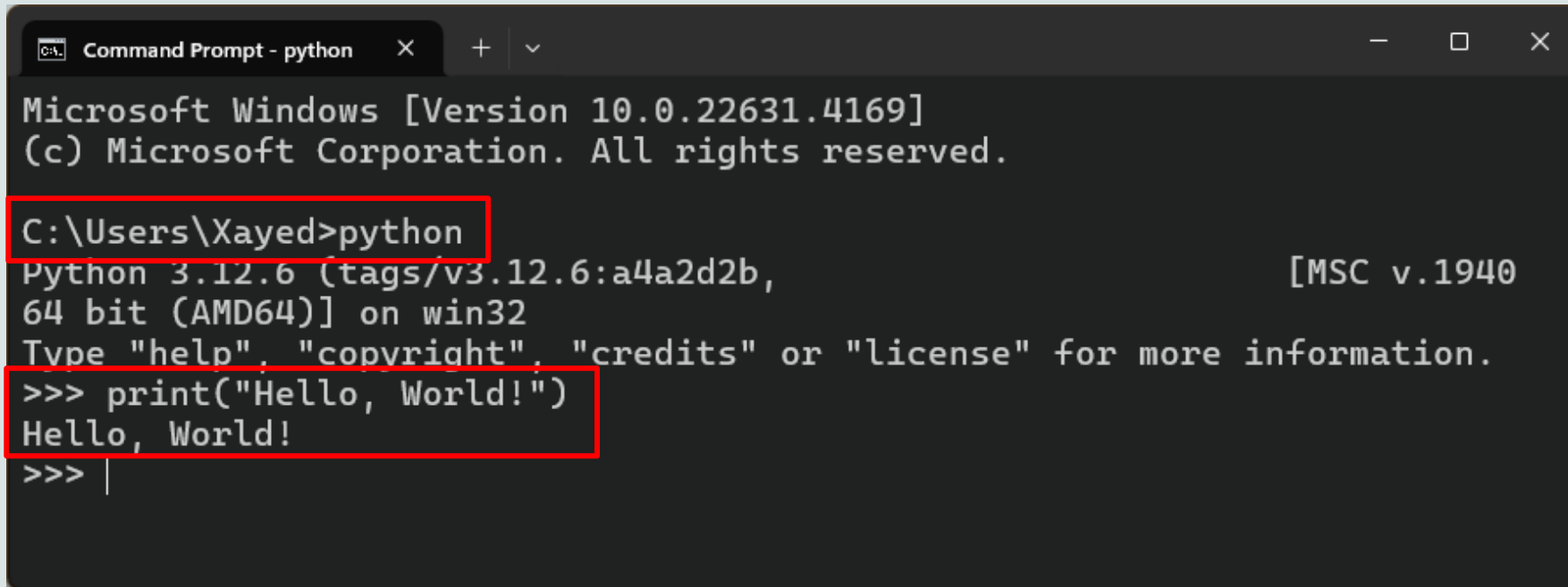
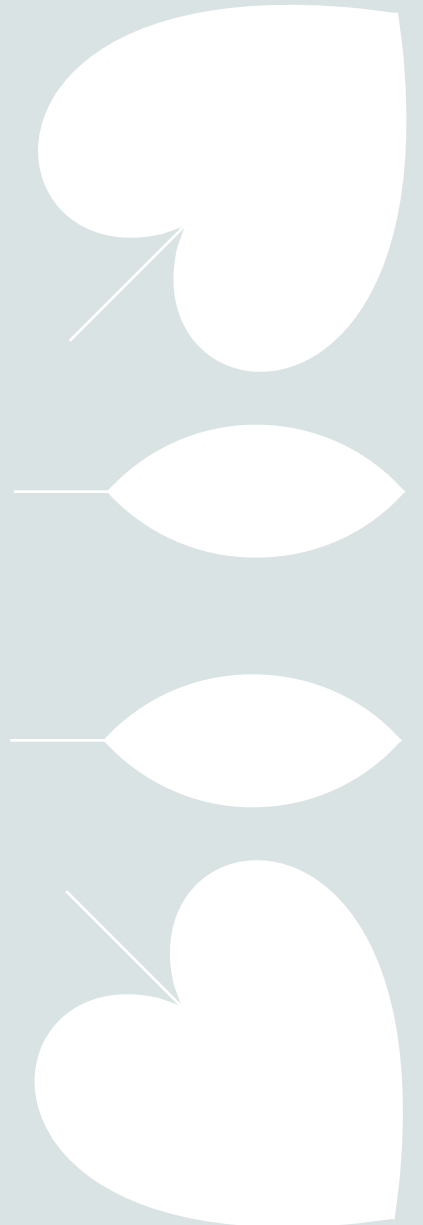
Installing Python

WHAT TO FOCUS ON



Running Python from Terminal

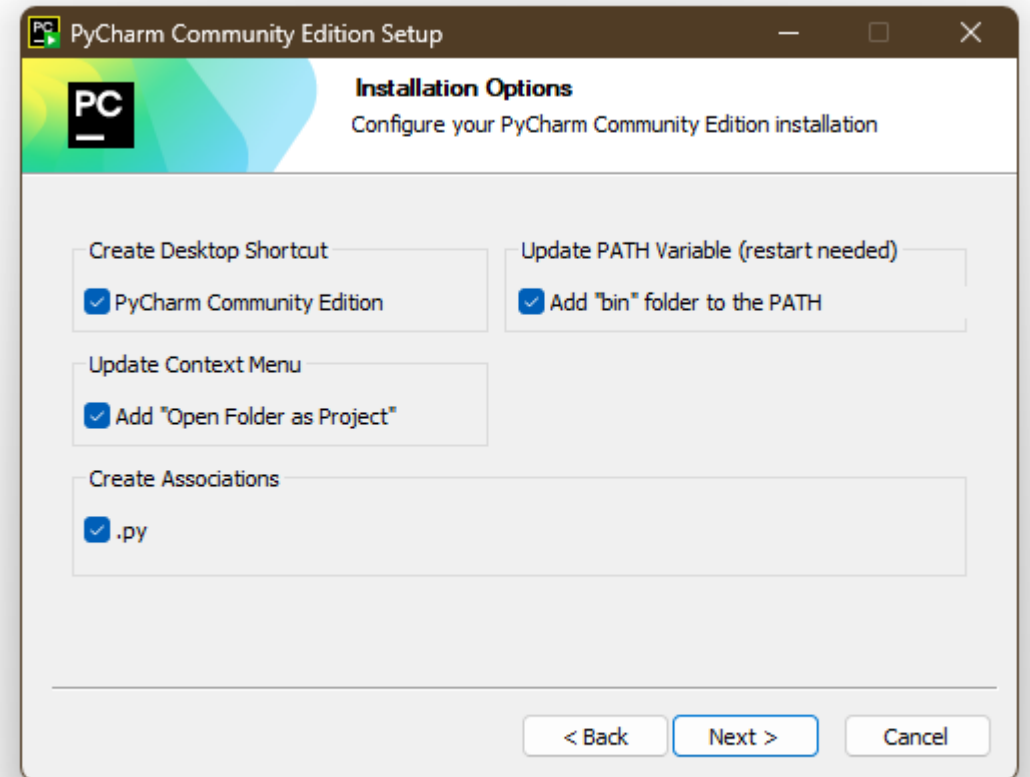
Python's interactive mode lets you write code line by line in the terminal.

A screenshot of a Windows Command Prompt window titled "Command Prompt - python". The window shows the output of running the 'python' command. The text is as follows:
Microsoft Windows [Version 10.0.22631.4169]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Xayed>python
Python 3.12.6 (tags/v3.12.6:a4a2d2b, [MSC v.1940
64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>> print("Hello, World!")
Hello, World!
>>> |
The command prompt and the first two lines of output are highlighted with red boxes.



Installing PyCharm for Python

WHAT TO FOCUS ON





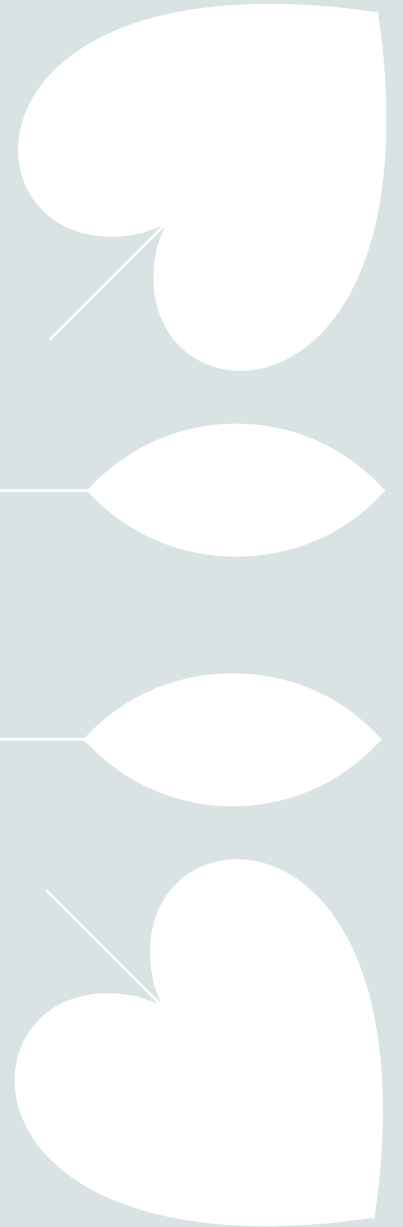
Run Your First Python Code

NOW, HOW CAN WE RUN OUR CODE?


Python Variable

The variable is simply a magic box that can contain only one item at a time.

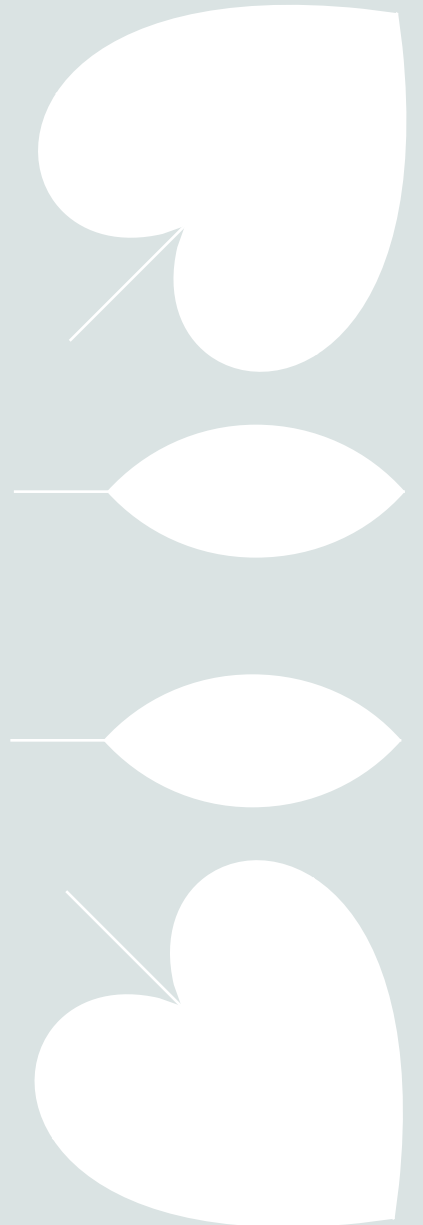
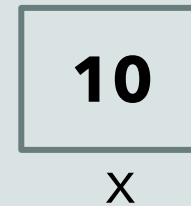
It is like a labeled box where you keep something, and you can change what's inside later.



Python Variable



```
main.py  
  
x = 10
```



Python Variable



main.py

```
x = 10
```

```
y = 20
```

10

x

20

y



Python Variable



main.py

```
x = 10
```

```
y = 20
```

```
y = 30
```

10

x

30

y



Variable Naming Rules for Python

- Can only contain alpha-numeric characters and underscores.
- Must start with a letter or the underscore character.
- Must not be a reserved keyword.
- Variable names are case-sensitive.





Python Basic Data Types

- Text Types: **str**
- Numeric Types: **int**, **float**, complex
- Sequence Types: list, tuple, range
- Mapping Type: dict
- Boolean Type: **bool**



Taking Input in Python

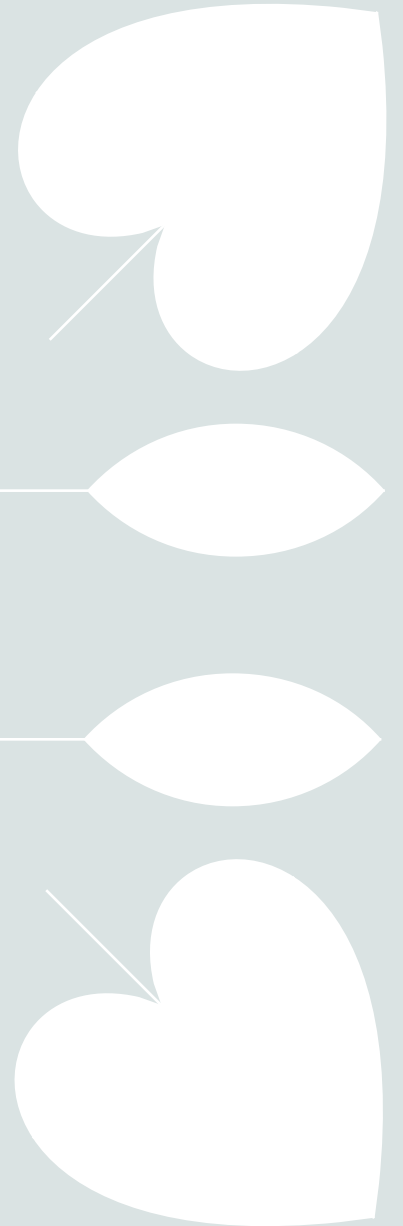
ITS TIME TO TAKE INPUT & MAKE THE APP
PERFECT

Type Conversion / Casting in Python

Type Conversion is converting one data type to another.

Two types of type conversion:

- Explicit Conversion (Manual Conversion)
- Implicit Conversion (Automatic Conversion)



Type Conversion / Casting in Python



Explicit

```
1 a = 15
2 print(type(a))
3
4 b = int(a)
5 print(type(b))
```



Implicit

```
1 a = 15
2 print(type(a))
3
4 b = a + 3.14
5 print(type(b))
```

Python is Dynamically Typed Language



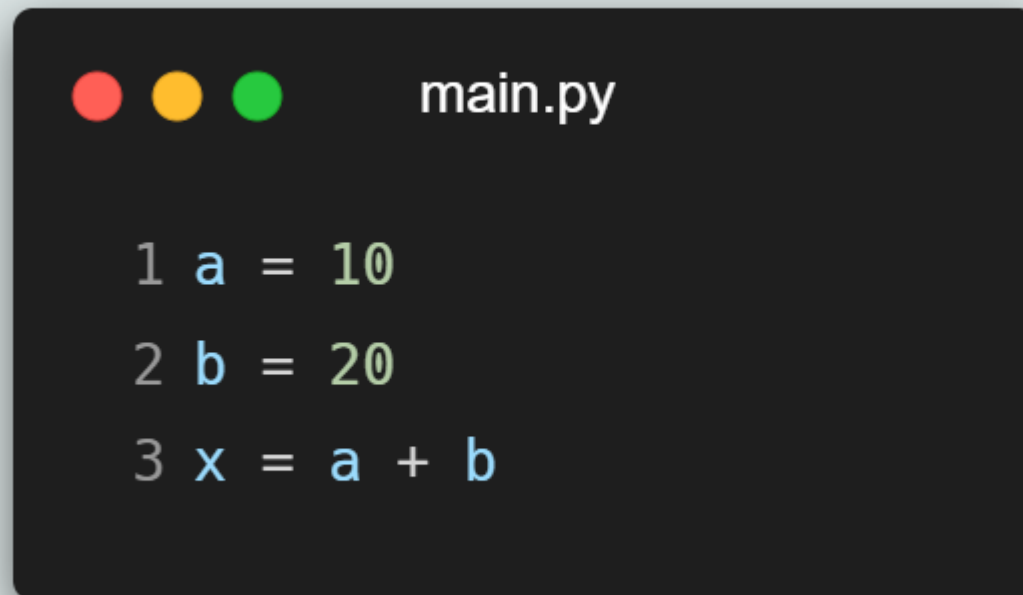
Python assigns types automatically on variables based on the value.

It even replaces the old type.

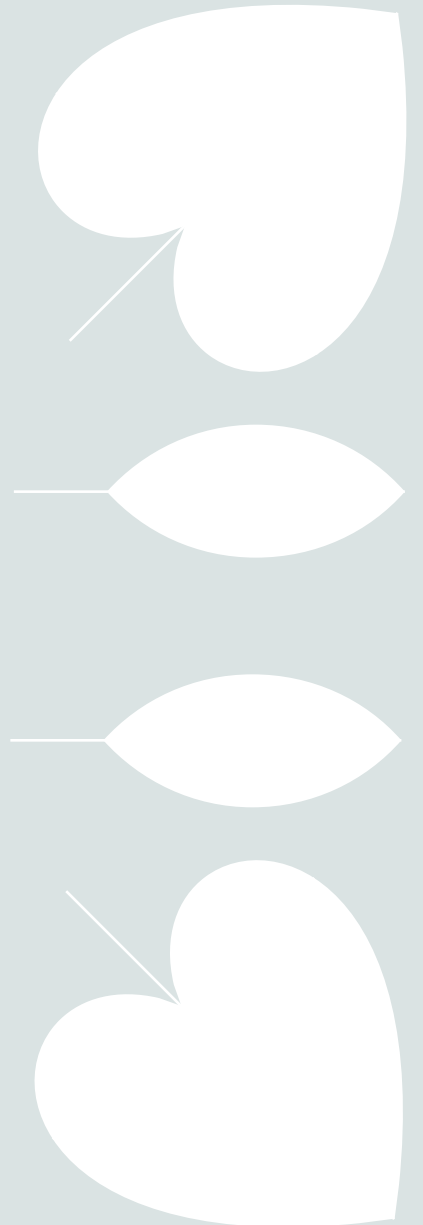
```
main.py  
  
1 a = 15  
2 print(type(a))  
3  
4 a = "hello"  
5 print(type(a))
```

Python Statement

A statement is a line / multiple lines of code giving a single instruction to your computer.



```
1 a = 10
2 b = 20
3 x = a + b
```




Python Comment

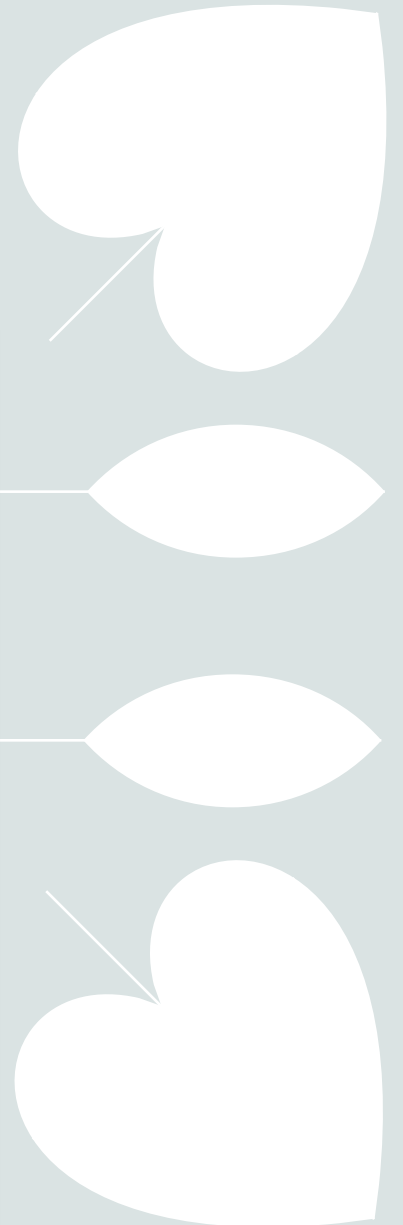
Two types:

- Single Line Comment
- Multi-Line Comment

Comments are only used to describe a block of code.



```
1 # Single Line Comment
2
3 """
4 This is a
5 Multi-Line
6 Comment
7 """
```



String in Python

| | | | | |
|----|----|----|----|----|
| 0 | 1 | 2 | 3 | 4 |
| H | E | L | L | O |
| -5 | -4 | -3 | -2 | -1 |

A string is a collection of characters.

Can be accessed & sliced by index.

```
main.py

1 a = "hello world"
2
3 print(a[1]) # e
4
5 print(a[1:4]) # ell
6
7 print(a[6:-1]) # worl
```





Python Operators

LET'S KNOW SOME MORE OPERATORS THAN WE'VE
ALREADY USED IN PREVIOUS CODES



Arithmetic Operators in Python

| Operator | Name |
|----------|----------------|
| + | Addition |
| - | Subtraction |
| * | Multiplication |
| / | Division |
| % | Modulus |
| ** | Exponentiation |
| // | Floor Division |



Some Practice Problems in Python

- Make a program that receives two numbers as input and shows the sum of those two numbers.
- Make a program to take two numbers and swap them.



Thank you

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