Introduction to Python

- Abdullah Zayed

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Agenda

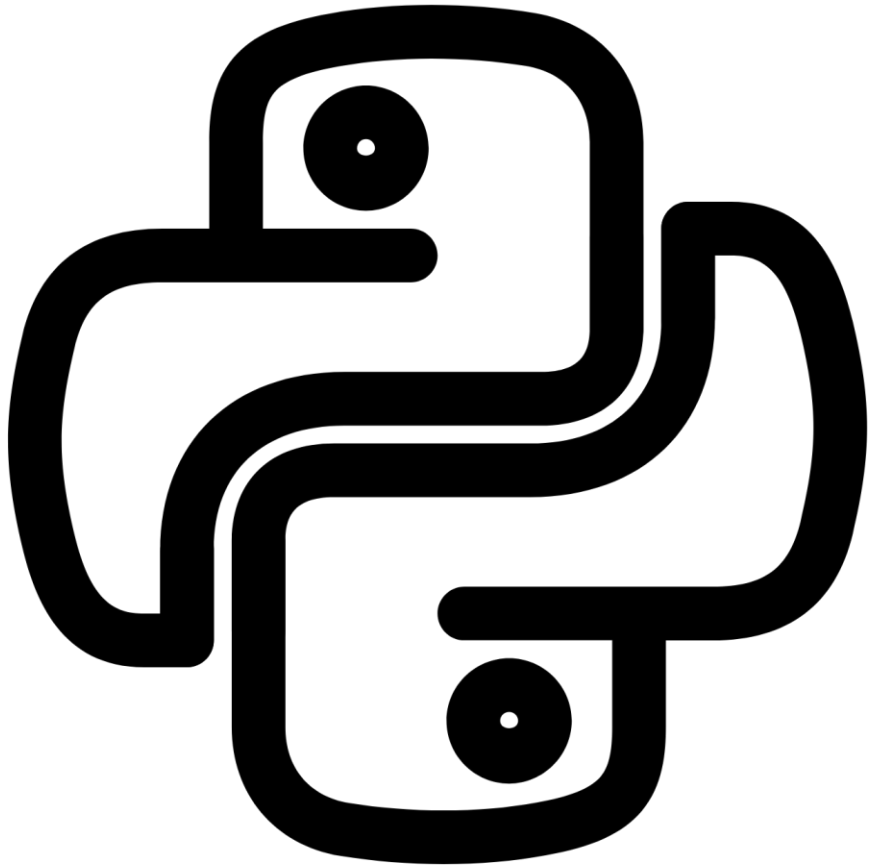
Why Python

How Python Works

How to Run Python

Python Variable

Python Operators



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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.

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Python Creator

GUIDO VAN ROSSUM

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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.

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Why Python?

Java

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

C

```c
#include <stdio.h>
int main() {
   printf("Hello, World!");
   return 0;
}
```

C#

```csharp
public class Program
{
    public static void Main(string[] args)
    {
        System.Console.WriteLine("Hello, World!");
    }
}
```

Python

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

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Python Versions

- Python 2
- Python 3

Python Software Foundation manages these Versions.

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Installing Python

WHAT TO FOCUS ON

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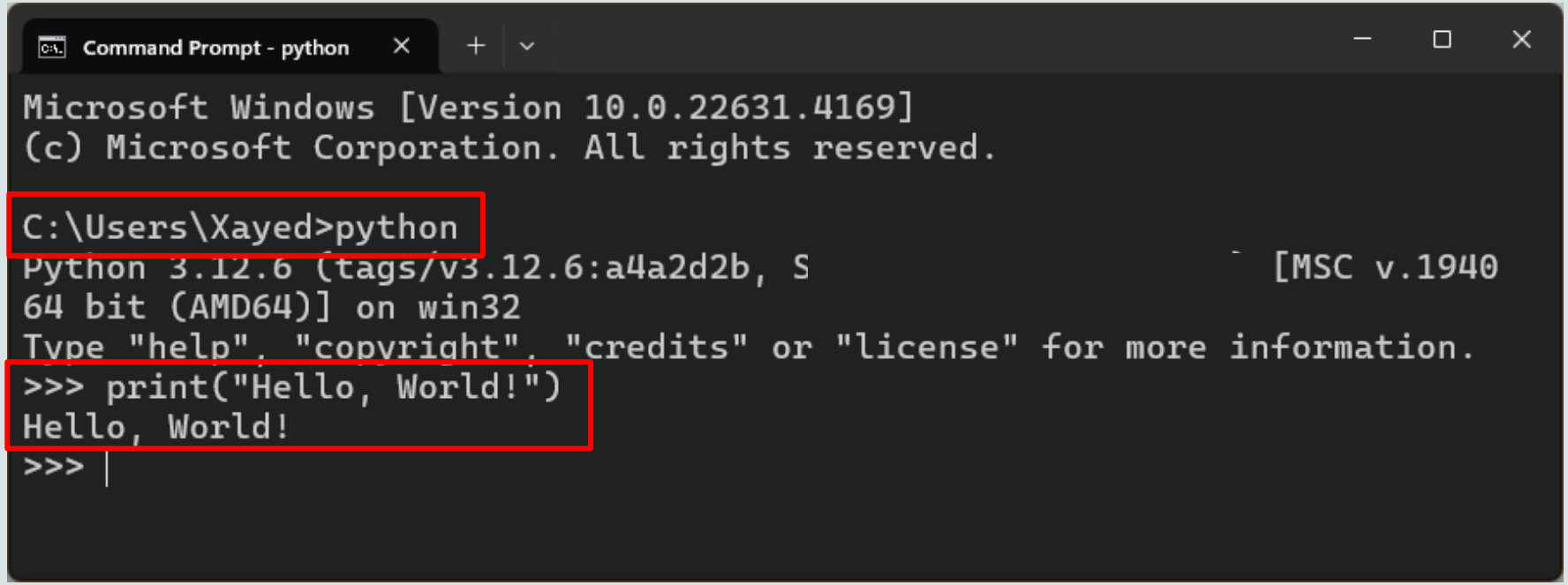
Running Python from Terminal

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



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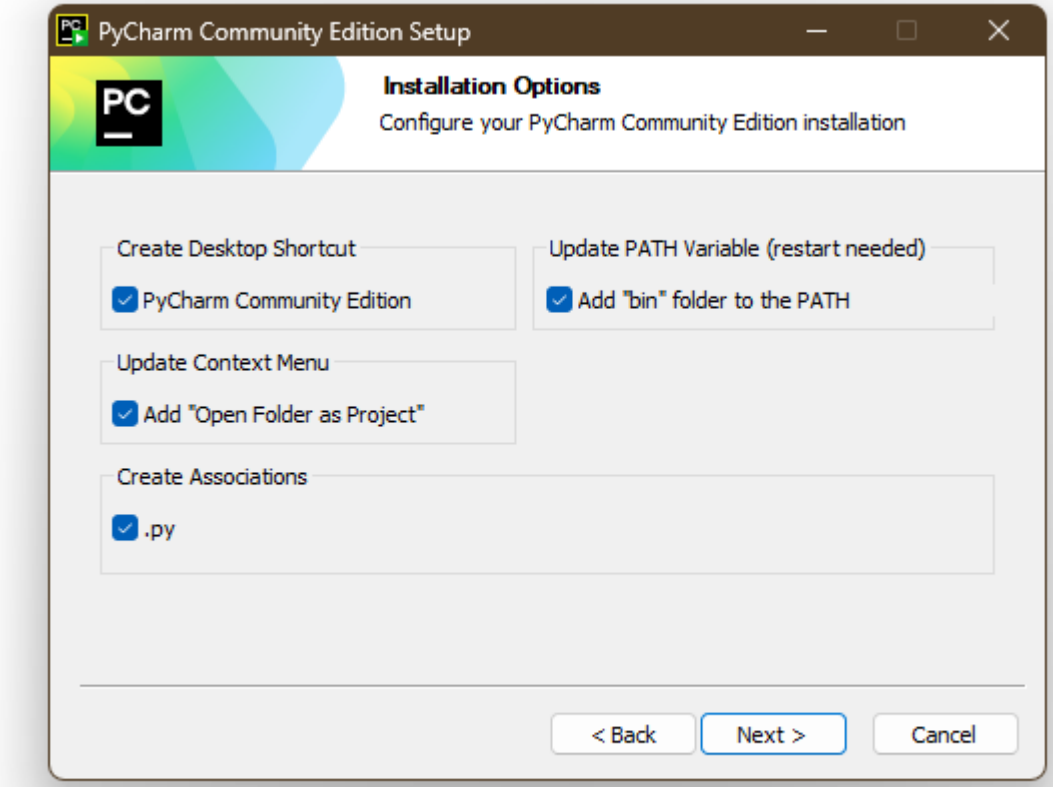
Installing PyCharm for Python

WHAT TO FOCUS ON



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Run Your First Python Code

NOW, HOW CAN WE RUN OUR CODE?

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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.

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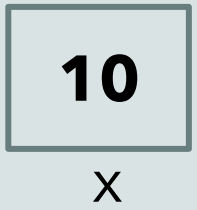
Python Variable

main.py

```
x = 10
```



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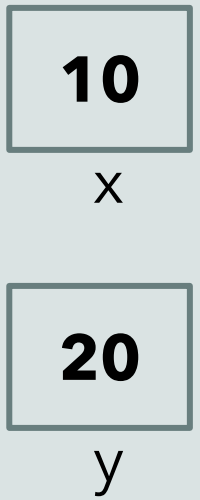
Python Variable

main.py

```
x = 10
y = 20
```



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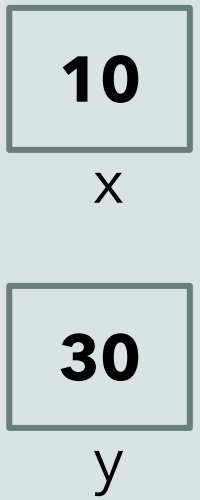
Python Variable

main.py

```
x = 10
y = 20
y = 30
```



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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.

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Python Basic Data Types

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

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Taking Input in Python

ITS TIME TO TAKE INPUT & MAKE THE APP PERFECT

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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)

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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))
```

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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))
```

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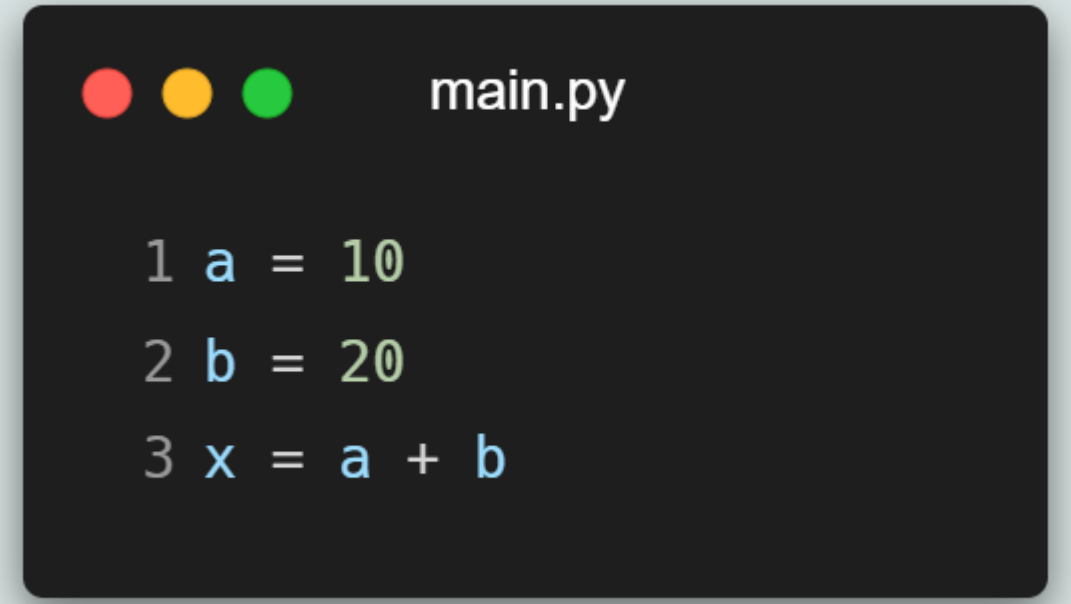
Python Statement

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



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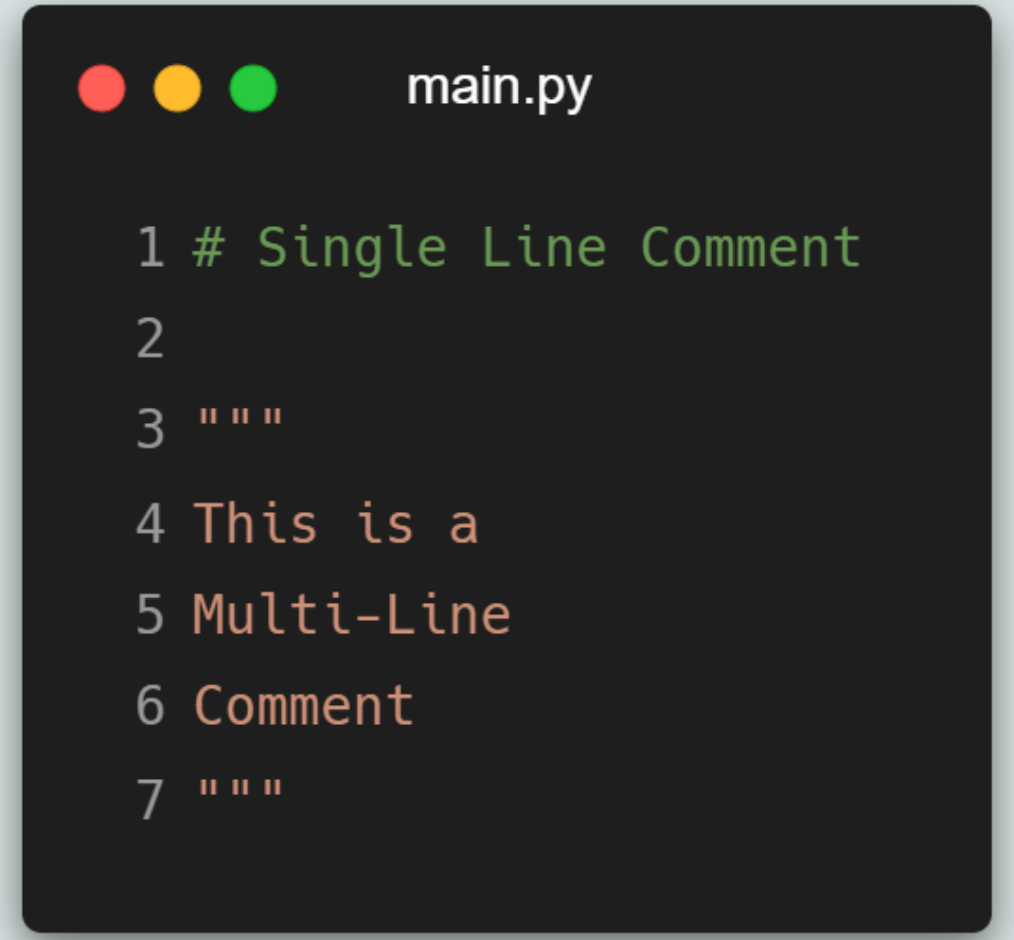
Python Comment

Two types:

- Single Line Comment
- Multi-Line Comment

Comments are only used to describe a block of code.



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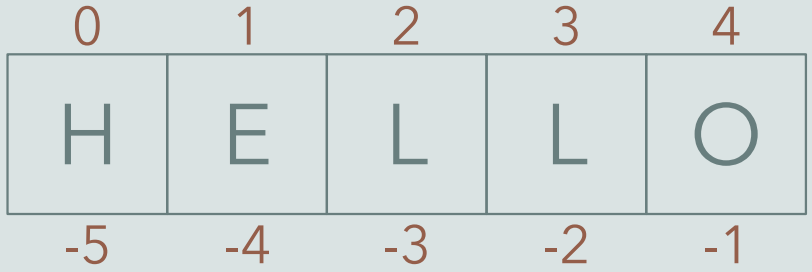
String in Python



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
```

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Python Operators

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

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Arithmetic Operators in Python

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

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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.

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Thank you

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