

# Python Basics — Professional Guide

## 1. What is Python?

Python is a high-level, interpreted, general-purpose programming language. Python emphasizes code readability using clear and straightforward syntax, making it a great choice for beginners and professionals.

## 2. Python Data Types

Python supports multiple data types.

- **Numeric:** int, float, complex
- **Text:** str
- **Boolean:** bool
- **Sequence:** list, tuple, range
- **Mapping:** dict
- **Set Types:** set, frozenset
- **Binary:** bytes, bytearray, memoryview

Python allows dynamic typing, meaning variables can change type during execution.

## 3. Variables in Python

Variables are containers for storing data values. Python does not require explicit declaration—assigning a value automatically creates a variable.

### **Example:**

```
x = 10
name = "Ashim"
```

Variable Naming Rules:

- Must start with a letter or underscore (`_`)
- Cannot start with a number
- Case-sensitive (age and Age are different)
- Cannot use reserved keywords

## 4. Comments in Python

Comments help make code readable.

**Single-line Comment:**

```
# This is a comment
```

**Multi-line Comment:**

```
'''
```

```
This is a multi-line comment
```

```
'''
```

Comments do not affect program execution and are ignored by the interpreter.