Variables and Data Types in Python

A variable in Python is a symbolic name that is a reference or pointer to an object in memory. Data types define the kind of value a variable can hold. Python is dynamically typed, so you do not need to declare the type explicitly.

1. Rules for Naming Variables

Rule	Example ∎	Example ∎
Can contain letters, digits, _	age_1	1age
Cannot be a Python keyword	total_sum	class, if
Should start with letter or _	_data, value1	#data
Case-sensitive	Name ≠ name	-

2. Python Built-in Data Types

Category	Data Types
Numeric Types	int, float, complex
Sequence Types	list, tuple, range
Text Type	str
Set Types	set, frozenset
Mapping Type	dict
Boolean Type	bool
Binary Types	bytes, bytearray, memoryview
None Type	NoneType

3. Summary Table

Data Type	Example	Mutable
int	10	No
float	10.5	No
str	'Hello'	No
list	[1, 2, 3]	Yes
tuple	(1, 2, 3)	No
set	{'a', 'b'}	Yes
dict	{'key': 'value'}	Yes
bool	True / False	No
NoneType	None	No

4. Wrap-Up

1. Variables are used to store values in Python and are dynamically typed.
2. Python has rich built-in data types categorized as Numeric, Sequence, Set, Mapping, Boolean, Binary, and None.
3. Know the difference between mutable and immutable data types for effective coding.
4. Type conversion helps with flexibility and compatibility between different data types.