

- Hour 1: Variables, Data Types, Input/Output

## 1 Variables in Python

- ◆ What is a Variable?

A **variable** is a name used to store data in memory.

- ◆ **Variable Rules**

- Must start with a letter (a–z, A–Z) or underscore \_
- Cannot start with a number
- No spaces allowed
- Case-sensitive (age and Age are different)
- No need to declare data type explicitly

- ◆ Example

```
python

name = "Rahul"
age = 18
marks = 85.5
```

## 2 Data Types in Python

- ◆ Common Built-in Data Types

Data Type	Description	Example
int	Integer numbers	10, -5
float	Decimal numbers	3.14, 99.5
str	Text / String	"Hello"
bool	True or False	True, False
list	Ordered collection	[1, 2, 3]
tuple	Immutable collection	(1, 2, 3)
dict	Key-value pair	{"a": 1}

Data Type	Description	Example
set	Unique elements	{1, 2, 3}

#### ◆ Checking Data Type

```
x = 10
print(type(x))
```

### 3 Input in Python

#### ◆ input() Function

- Used to take user input
- Input is **always string by default**

```
name = input("Enter your name: ")
print(name)
```

#### ◆ Example

```
name = input("Enter your name: ")
print(name)
```

#### ◆ Type Conversion

```
age = int(input("Enter age: "))
marks = float(input("Enter marks: "))
```

#### Function Converts to

int()     Integer

float()    Decimal

str()     String

bool()    Boolean

## Output in Python

- ◆ `print()` Function

Used to display output on the screen.

- ◆ Examples

```
print("Hello World")  
print("Age:", age)
```

- ◆ Multiple Outputs

```
print("Name:", name, "Age:", age)
```

- ◆ Formatted Output (f-string)

```
print(f"My name is {name} and my age is {age}")
```

## 5 Simple Program Example

```
name = input("Enter name: ")  
age = int(input("Enter age: "))  
  
print("Name:", name)  
print("Age:", age)
```

## Key Points for Exams

- ✓ Python is **dynamically typed**
- ✓ `input()` returns **string**
- ✓ No need to declare data type
- ✓ `print()` is used for output