**Class 02:Understanding Python Data Types**

1. **What is Data?**

Ans: **Data** means **information** — any facts, figures, or details we can store, process, or

analyze.

1. **What is Data Type?**

Ans: A **data type** tells **what kind of data** a value is. It defines **what operations** can

be done with the data and **how much memory** it uses.

Example: -

age = 20

name = "Tonmoy"

height = 5.9

1. **Comment Code**

Ans: Any code used between 3 quotation(“ “ “ x=10” ” ”) marks is a comment code.

1. **Python Data Types**

Python has different types of data to handle **text, numbers, true/false, collections,**

**etc.**

- **Numeric (int,float)**

Example-

x=15

y=20.55555

print(x+y)

- String (Single Quotes,Double Quotes, Triple Single Quotes)

Example-

singleQString='Upskill for a Better Career'

doubleQString="Upskill for a Better Career"

tripleSQString='''Upskill for a Better Career'''

- **Sequence (list,tuple)**

**List:**

Example-

# 0->1->2->3->4

ForWhom=["Tonmoy","Turjo","Mugdho","Moho","Tripto"]

print(cities[4])

output is Tripto

**Tupl**

Tuple is a list.

Example-

# 0->1->2->3->4

#-4>-3>-2>-1>0

ForWhom=("Tonmoy","Turjo","Mugdho","Moho","Tripto")

1. print(cities[4])

output is Tripto

2. print(cities[-1])

output is Tripto

**- Mapping/ Dictionary Key: Value pair**

**Ans:** In Python, **mapping** means **connecting one thing (key) to another (value)** — like a relationship. A **dictionary** is a **collection of key-value pairs**.

Example-

info = {

"name": "Tonmoy",

"age": 20,

"city": "Bogura"

}

**- Set**

**Ans:** There is on random sequence here.

A set is a built-in collection data type that:

* Stores multiple values
* Does NOT allow duplicates
* Has no order (elements are not indexed)

**- Boolean (True,False)**

Work by true false data

is\_raining = True

is\_sunny = False

print(is\_raining) # Output: True

print(is\_sunny) # Output: False.

**- None**

**Ans:**

None is a special built-in constant in Python.  
It represents the absence of a value or nothing.

x = None

print(x) # Output: None

1. **Checking Data Types**

**Ans:**

X=10;

Print(type(x))

**6. Mutable & Immutable Data Type**

- **What is Immutable(int,float,string,tuple)**

Ans: cannot change the value once it is created Immutable.

x=10

print(id(x))

x=10

print(id(x))

x=10

print(id(x))

- **What is Mutable (List,Dictionaries,Sets)**

**Ans:** In Python, some data types are **mutable**, meaning you can **add, remove, or change** their elements **without creating a new object**.

**Example:**

cities=["Dhaka","Rangpur","Rajshahi","Barisal"]

print(cities)

print(id(cities))

cities[0]="Delhi"

print(cities)

print(id(cities))