Day 6

Variables and Data Types

What is a variable?

Variable is like a container that holds data. Very similar to how our containers in kitchen holds sugar, salt etc Creating a variable is like creating a placeholder in memory and assigning it some value. In Python its as easy as writing:

```
a = 1
b = True
c = "Harry"
d = None
```

These are four variables of different data types.

What is a Data Type?

Data type specifies the type of value a variable holds. This is required in programming to do various operations without causing an error.
In python, we can print the type of any operator using type function:

```
a = 1
print(type(a))
b = "1"
print(type(b))
```

By default, python provides the following built-in data types:

1. Numeric data: int, float, complex

- int: 3, -8, 0
- float: 7.349, -9.0, 0.0000001
- complex: 6 + 2i

2. Text data: str

str: "Hello World!!!", "Python Programming"

3. Boolean data:

Boolean data consists of values True or False.

4. Sequenced data: list, tuple

list: A list is an ordered collection of data with elements separated by a comma and enclosed within square brackets. Lists are mutable and can be modified after creation.

Example:

list1 = [8, 2.3, [-4, 5], ["apple", "banana"]]
print(list1)

Output:

[8, 2.3, [-4, 5], ['apple', 'banana']]

Tuple: A tuple is an ordered collection of data with elements separated by a comma and enclosed within parentheses. Tuples are immutable and can not be modified after creation.

Example:

tuple1 = (("parrot", "sparrow"), ("Lion", "Tiger"))
print(tuple1)

Output:

(('parrot', 'sparrow'), ('Lion', 'Tiger'))

5. Mapped data: dict

dict: A dictionary is an unordered collection of data containing a key:value pair. The key:value pairs are enclosed within curly brackets.

Example:

dict1 = {"name":"Sakshi", "age":20, "canVote":True}
print(dict1)

Output:

{'name': 'Sakshi', 'age': 20, 'canVote': True}