Mutable & Immutable Data Types 🔄🔐

Immutable Data Types 🚫✏️

Definition: Data types that **cannot** be changed after declaration.

```python
my_num = 896542587
print(my_num)
print(id(my_num))
my_num = 896543587
print(my_num)
print(id(my_num))
```

🔹 **Immutable types:**

```
int, float, str, tuple, frozenset
```

Mutable Data Types ✏️

Definition: Data types that **can** be changed after declaration.

```python
my_list = [1,2,3,4,5,9]
print(my_list)
print(id(my_list))
my_list.append(10)
print(my_list)
print(id(my_list))
```

◆ **Mutable types:**

```
list, dict, set, bytearray
```

id() Function 🔍

Used to fetch the memory address of an object.

Input & Output Operations 🎤📢

input() Function ⌨️

Used to take user input.

```python
data = input("Enter the data: ")
print(data)
print(type(data))

✅ **Example:** Taking two numbers from the user and adding them.

num1 = int(input("Enter the number 1: "))
num2 = int(input("Enter the number 2: "))
print(num1 + num2)
```

3

print() Function 🖨️

General Syntax:

```
print(data, sep=" ", end="\n")
```

📝 Defaults:

- sep = " " (space as separator)

- end = "\n" (new line after printing)

◆ **Printing Examples:**

```
✅  **Empty Print:**
print()

✅  **Single Data:**

print('data1')

✅  **Multiple Data:**

print('data1', 'data2', sep="-", end="\n")
print('Data3')
```

✅ Formatted Output:

```python
print("I am a Python programmer")
name = "Mahesh"
course = "Python"
college = "Besant"
print("name", name, "course", course, "college", college)
print("name {} course {} college {}".format(name, course, college))
print(f"name {name} course {course} college {college}")
```

eval() Function 🎯

Used to convert input data into its original data type.

```python
#**Example:** Taking student data using eval()
name = input("Enter the name:")
subject = input("Enter the subject name: ")
marks = eval(input("Enter the marks: "))
percentage = eval(input("Enter the percentage: "))
print(name)
print(type(name))
print(subject)
print(type(subject))
print(marks)
print(type(marks))
print(percentage)
print(type(percentage))
```