

# PYTHON INTERNSHIP DAY 2 NOTES

## 1. print() Function

- The print() function is used to display text or the result of expressions on the screen. It's one of the most fundamental functions in Python.

### ✓ **Syntax:**

```
print("Hello, World!")  
print(5 + 3)
```

### ✓ **Output:**

```
Hello, World!  
8
```

- You can print strings, numbers, variables, or even results of operations.
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## 2. input() Function

- The input() function is used to take input from the user. The value returned is always a string.

### ✓ **Example:**

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

### ✓ **Sample Output:**

```
Enter your name: Rahul  
Hello Rahul
```

To convert input to a number, use int() or float():

```
age = int(input("Enter your age: "))
```

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### **3. Data Structures in Python**

- Python provides several built-in data structures. Each has different properties and use cases.

#### ✓ **List**

- Ordered collection of items.
- Mutable (can be changed).
- Allows duplicate values.

#### ✓ **Syntax:**

```
fruits = ["apple", "banana", "cherry"]  
print(fruits[0]) # Output: apple
```

#### ✓ **Common List Operations:**

```
fruits.append("orange") # Adds item at the end  
fruits.remove("banana") # Removes specified item  
print(len(fruits))      # Returns the number of items
```

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#### ✓ **Dictionary**

- A collection of key-value pairs.
- Keys are unique and immutable.
- Values can be any type.
- Unordered in versions before Python 3.7; ordered since 3.7.

#### ✓ **Syntax:**

```
student = {"name": "John", "age": 20}  
print(student["name"]) # Output: John
```

#### ✓ **Common Dictionary Operations:**

```
student["age"] = 21          # Update value  
student["gender"] = "Male"   # Add new key-value pair  
print(student.keys())        # Returns all keys
```

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## ✓ Tuple

- Ordered collection.
- Immutable (cannot be changed after creation).
- Allows duplicate items.

## ✓ Syntax:

```
colors = ("red", "green", "blue")  
print(colors[1]) # Output: green
```

Tuples are used when data must not change throughout the program.

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## ✓ Set

- Unordered collection.
- No duplicate elements.
- Items are unchangeable, but the set itself is mutable (can add/remove items).

## ✓ Syntax:

```
numbers = {1, 2, 3, 3, 2}  
print(numbers) # Output: {1, 2, 3}
```

## ✓ Common Set Operations:

```
numbers.add(4)  
numbers.remove(2)
```

Sets are commonly used for membership tests and removing duplicates.

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## Summary Table

Structure	Ordered	Mutable	Allows Duplicates	Syntax
List	Yes	Yes	Yes	[]
Dictionary	No*	Yes	Keys: No, Values: Yes	{}
Tuple	Yes	No	Yes	()
Set	No	Yes	No	{ } (unique)

\*Dictionaries preserve insertion order in Python 3.7+