



## Assignment: Data Types in Python



### Objective:

To understand and apply Python's fundamental data types: `int`, `float`, `str`, `bool`, `list`, `tuple`, `set`, and `dict`. This assignment aims to build familiarity with operations, type conversion, and real-world usage



## Level 1 – Easy



### Task 1: Identify the Data Type

Create variables with the following values and print their types using `type()`:

```
a = 25
b = 3.14
c = "Hello"
d = True
```



### Task 2: Type Conversion

- Convert `a = "100"` to an integer and add 50 to it
- Convert `b = 75.5` to a string and concatenate with `" kg"`



### Task 3: Basic Operations

- Add two integers
- Multiply a float and an integer
- Concatenate two strings
- Use a boolean in a condition (`if True:`)



## Level 2 – Medium



### Task 4: List Operations

Create a list of 5 fruits:

- Print the list
- Add one more fruit
- Remove the third item
- Sort the list



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### Task 5: Tuple and Set

- Create a tuple of 3 numbers
- Create a set from a list of numbers with duplicates
- Show how sets remove duplicates
- Add an element to the set



### Task 6: Dictionary Usage

Create a dictionary for a student:

```
student = {  
    "name": "John",  
    "age": 21,  
    "grades": [85, 90, 78]  
}
```

Print the student's name and average grade

Add a new key "passed": True



## Level 3 – Hard



### Task 7: Nested Data Structures

Create a list of dictionaries to store data for 3 students. Each student should have:

- Name
- Roll number
- Marks (as a list)

Print the name of the student with the highest average marks.



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### Task 8: Real-Life Data Usage

Create a dictionary to represent a shopping cart:

```
cart = {  
    "apple": 2,  
    "banana": 5,  
    "milk": 1  
}
```

- Add a new item to the cart
- Change the quantity of “banana”
- Remove “milk”
- Print the total number of items