🧮 Assignment: Dictionary in Python

🎯 **Objective:**
To understand how to create, access, modify, and utilize Python dictionaries effectively in real-world programming.

🟢 Level 1 – Easy

✅ Task 1: Create a Simple Dictionary

Create a dictionary named `student` with the following keys and values:

```
{
    "name": "Alice",
    "age": 20,
    "grade": "A"
}
```

- Print all keys and values
- Access and print the student's name

✅ Task 2: Modify and Add Items

- Update the `age` to 21
- Add a new key `"passed"` with the value `True`
- Remove the `"grade"` key

✅ Task 3: Dictionary Length and Membership

- Use `len()` to print the number of key-value pairs
- Check if `"name"` exists as a key
- Check if `"Alice"` exists as a value

🟡 Level 2 – Medium

✅ Task 4: Loop Through a Dictionary

Create a dictionary of 5 countries and their capitals.
Loop through the dictionary to print each country and its capital.

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✅ Task 5: Nested Dictionary

Create a nested dictionary to represent two employees:

```
employees = {
    "emp1": {"name": "John", "age": 30, "dept": "IT"},
    "emp2": {"name": "Jane", "age": 25, "dept": "HR"}
}
```

- Print the name of `emp2`
- Add a new key `"salary"` to `emp1`

✅ Task 6: Use of `get()` and `update()`

- Use `get()` to retrieve a value safely
- Use `update()` to add multiple keys at once to a dictionary

🔴 Level 3 – Hard

✅ Task 7: Dictionary from Two Lists

Given two lists:

```
keys = ["id", "name", "email"]
values = [101, "Mark", "mark@example.com"]
```

- Combine them into a dictionary using `zip()` and `dict()`

✅ Task 8: Word Frequency Counter

Take a string input from the user and count the frequency of each word using a dictionary.

✅ Task 9: Dictionary Comprehension

Create a dictionary where keys are numbers from 1 to 10 and values are their squares.

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✅ Task 10: Remove Duplicates Using Dictionary

Given a list with duplicate values:

names = ["Alice", "Bob", "Alice", "Tom", "Bob"]

- Remove duplicates using a dictionary and print the unique names