**Worksheet: Dictionary Hands-On Exercises**

1. Create and Access a Dictionary

- Create a dictionary called `student` with the following key-value pairs:

Name: 'John Doe'

Age: 21

Subjects: ['Math', 'Science', 'History']

- Access and print:

- The name of the student.

- The age of the student.

- The second subject in the `Subjects` list.

2. Update and Add Items

- Update the `Age` of the student to 22.

- Add a new key-value pair: `Grade: 'A'`.

- Print the updated dictionary.

3. Remove an Item

- Remove the `Subjects` key from the `student` dictionary.

- Print the modified dictionary.

4. Iterating Through a Dictionary

- Using a `for` loop, iterate over the `student` dictionary to print keys and their corresponding values in the format:

Key: Value

5. Using Dictionary Methods

- Use the `keys()`, `values()`, and `items()` methods on the `student` dictionary and print the results.

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6. Nested Dictionaries

- Create a nested dictionary called `classroom` with the following structure:

{

'Student1': {'Name': 'Alice', 'Age': 20, 'Subjects': ['English', 'Biology']},

'Student2': {'Name': 'Bob', 'Age': 22, 'Subjects': ['Math', 'Chemistry']},

'Student3': {'Name': 'Charlie', 'Age': 21, 'Subjects': ['History', 'Physics']}

}

- Access and print:

- The name of `Student2`.

- The subjects of `Student3`.

7. Merge Two Dictionaries

- Given two dictionaries:

dict1 = {'a': 1, 'b': 2}

dict2 = {'b': 3, 'c': 4}

- Merge them into one dictionary such that if a key exists in both, its value in the resulting dictionary is the sum of the values.

Expected output:

{'a': 1, 'b': 5, 'c': 4}

8. i) Check whether “a” in dict 1 as a key

ii) Check whether 4 in dict2 as a value