Lab 11: Dictionary Comprehension

Task: Performing Dictionary Transformations Using Comprehensions

Objective

The objective of this task is to practice using Python dictionary comprehensions to create, filter, swap, and transform dictionary entries efficiently.

Task Description

The goal of this task is to use dictionary comprehensions to handle small classroom datasets quickly and concisely. Students will create new dictionaries, filter existing ones, swap keys and values, and modify values using simple expressions.

Procedure

1. Create a dictionary from a list

Created a list of names: names = ["Ali", "Sara", "Bilal"].

Used a dictionary comprehension to map each name to its length: {name: len(name) for name in names}.

Printed the resulting dictionary.

Filter a dictionary using comprehension

2. Given dictionary of scores: scores = {"Ali": 55, "Sara": 82, "Bilal": 40, "John": 90}.

Used a comprehension to select students scoring 60 or above: {k: v for k, v in scores.items() if v >= 60}.

Printed the filtered dictionary.

3. Swap keys and values

Given dictionary: pairs = {"a": 1, "b": 2, "c": 3}.

Used a comprehension to swap keys and values: {v: k for k, v in pairs.items()}.

Printed the swapped dictionary.

4. Transform dictionary values

Given prices: prices = {"pen": 10, "book": 50, "bag": 100}.

Applied a 10% discount using a comprehension: {k: v * 0.9 for k, v in prices.items()}.

Printed the updated dictionary.

1. Create a dictionary from a list

```
In [1]: names = ["Ali", "Sara", "Bilal"]
        name_lengths = {name: len(name) for name in names}
        print(name_lengths)
```

```
{'Ali': 3, 'Sara': 4, 'Bilal': 5}
```

2. Filter a dictionary using comprehension

```
In [4]: scores = {"Ali": 55, "Sara": 82, "Bilal": 40, "John": 90}
        passed = {k: v for k, v in scores.items() if v >= 60}
        print(passed)
```

```
{'Sara': 82, 'John': 90}
```

3. Swap keys and values

```
In [3]: pairs = {"a": 1, "b": 2, "c": 3}
        swapped = {v: k for k, v in pairs.items()}
        print(swapped)
```

```
{1: 'a', 2: 'b', 3: 'c'}
```

4. Transform dictionary values

```
In [2]: prices = {"pen": 10, "book": 50, "bag": 100}
        discounted = {k: v * 0.9 for k, v in prices.items()}
        print(discounted)
```

```
{'pen': 9.0, 'book': 45.0, 'bag': 90.0}
```