Programming Skills - Python

Learn the basics of Python Programming

Day - 5

Dictionaries

Agenda

5.1. Brief Recap

A brief recap of what we discussed yesterday.

5.2. Introduction to Dictionaries

What they are, why they are used, and how to use them.

5.3. Creating Dictionaries

Syntax to create dictionaries.

5.4. Accessing and Modifying Dictionaries

Syntax to access and modify dictionaries.

Agenda

5.5. Methods

Learn the various methods that come with dicts.

5.6. Iterating through Dictionaries

Through keys, values, and key-value pairs.

5.7. When to use Dictionaries

Understanding when to prefer dictionaries over other data structures.

5.1. Brief Recap

5.2. Introduction to Dictionaries

Dictionaries

What are they?

A dictionary is a collection of key-value pairs. They are unordered and mutable.

Why are they used?

To store associative data. They are also efficient for lookup operations using keys.

How to use it?

```python
my_dict = {
    "name": "Alice",
    "age": 25,
    "city": "New York"
}
```

5.3. Creating Dictionaries

Creating Dictionaries

Empty dictionary:
```
empty_dict = {}
```

Dictionary with elements:
```
student = {
    "name": "John",
    "age": 20,
    "grade": "A"
}
```

5.4. Accessing and Modifying Dictionaries

Accessing Dictionaries

Accessing by key:

```
print(student["name"])
```

Modifying Dictionaries

Modifying a value:
```
student["age"] = 21
```

Add a new key-value pair:
```
student["branch"] = "CSE"
```

5.5. Methods

.get()

Safely access values.

```python
print(student.get("name"))
# Output: John

print(student.get("address", "NA"))
# Default value: NA
```

.pop()

Remove a key-value pair by key.

```python
student.pop("age")
# Removes "age" key
```

.update()

Add or modify multiple key-value pairs.

```
student.update({"age": 22, "grade": "B"})
```

5.6. Iterating Through Dictionaries

Iterating through Keys

Example:

```python
for key in student:
    print(key)
```

Iterating through Values

Example:

```python
for value in student.values():
    print(value)
```

Iterating through Key-Value Pairs

Example:

```python
for key, value in student.items():
    print(f"{key}: {value}")
```

5.7. When to use Dictionaries

Dictionary Operations

- Use dictionaries when you need to store associative data.

- Efficient for lookup operations using keys.

- Common use cases: JSON data, mapping data (e.g., student records, product info).

Q&A

Thank You!