Lab 7: Dictionary

Task: Monitoring a Solar Home System

Objective

The objective of this task is to practice using Python dictionaries to store, access, and manipulate structured data. Students will learn to create dictionaries, retrieve values, update and remove entries, and use dictionary methods such as .keys(), .values(), and .items() to handle real-world data efficiently.

Task Description

The goal of this task is to monitor a small solar home system installed on the lab roof. Students will create a dictionary for system readings, access specific values like solar power, battery voltage, and load status, update and remove fields, and explore dictionary properties and methods.

Procedure

Created a dictionary reading1 with the following fields: solar power, battery voltage, load status, temperature, and panel current.

Printed the solar power, battery voltage, and load status from the dictionary.

Checked and printed the number of fields in the dictionary.

Removed the "panel_current" field from reading1.

Used .keys(), .values(), and .items() to print all keys, all values, and all key-value pairs.

Observed the structure and content of the dictionary after each operation.

In [1]:
```
reading1 = {
    "solar_power": 500,
    "battery_voltage": 48,
    "load_status": "ON",
    "temperature": 30,
    "panel_current": 10
}

print(reading1["solar_power"])
print(reading1["battery_voltage"])
print(reading1["load_status"])

print(len(reading1))

reading1.pop("panel_current")
```

```
print(reading1.keys())
print(reading1.values())
print(reading1.items())
```

```
500
48
ON
5
dict_keys(['solar_power', 'battery_voltage', 'load_status', 'temperature'])
dict_values([500, 48, 'ON', 30])
dict_items([('solar_power', 500), ('battery_voltage', 48), ('load_status', 'O
N'), ('temperature', 30)])
```