🧠 Topic 9: JSON in Python

🔹 Definition

JSON (JavaScript Object Notation) is a format to store and exchange data.
Python uses the **json module** to parse and generate JSON.

🔹 Example + Output

```
import json


data = '{"name": "Maverick", "age": 25}'

parsed = json.loads(data)

print(parsed['name'])
```

Output:

```
Maverick
```

```
python_dict = {"city": "Hargeisa", "population": 1000000}

json_str = json.dumps(python_dict)

print(json_str)
```

Output:

```
{"city": "Hargeisa", "population": 1000000}
```

🔹 Challenges

Solved Challenge 1: Load JSON string and print age

```
import json

data = '{"name": "Ali", "age": 30}'

parsed = json.loads(data)

print(parsed['age'])
```

Solved Challenge 2: Convert Python dict to JSON string

```
import json

d = {"fruit": "banana", "price": 5}

print(json.dumps(d))
```

Your 18 Challenges:

1. Parse JSON with multiple keys.
2. Access nested JSON value.
3. Convert list to JSON.
4. Convert JSON string to dict and modify.
5. Write JSON to a file.
6. Read JSON from a file.
7. Pretty-print JSON string.
8. Convert JSON string to tuple.
9. Extract all keys from JSON.
10. Extract all values from JSON.
11. Check if key exists in JSON.
12. Update value in JSON dict.
13. Delete key from JSON dict.
14. Merge two JSON objects.
15. Serialize dict with indentation.
16. Serialize list of dicts.
17. Deserialize JSON to dict and access nested list.
18. Deserialize JSON with special characters.