ASSINGNMENT-4(3)

Exercise 1: Reading a JSON File

1. Create a JSON file named `data.json` with the following content:

   ```json
   {
       "name": "John Doe",
       "age": 30,
       "city": "New York",
       "skills": ["Python", "Machine Learning", "Data Analysis"]
   }
   ```

2. Write a Python script to read and print the contents of the JSON file.

Program:

```
import json

file_path = "C:\\Users\\Megha Syam\\Documents\\data.json"

data = {
    "name": "John Doe",
    "age": 30,
    "city": "New York",
    "skills": ["Python", "Machine Learning", "Data Analysis"]
}
with open(file_path, "w",) as file:
        json.dump(data, file)


with open('file_path', 'r') as file:
        data = json.load(file)

        print(data)
```

Exercise 2: Writing to a JSON File

1. Create a Python dictionary representing a person's profile:

```python
profile = {
    "name": "Jane Smith",
    "age": 28,
    "city": "Los Angeles",
    "hobbies": ["Photography", "Traveling", "Reading"]
}
```

2. Write a Python script to save this data to a JSON file named `profile.json`.

Program:

import json

profile = {

    "name": "Jane Smith",

    "age": 28,

    "city": "Los Angeles",

    "hobbies": ["Photography", "Traveling", "Reading"]

}

file_path = "C:\\Users\\Megha Syam\\Documents\\profile.json"

with open('profile.json', 'w') as file:

    json.dump(profile, file)

Exercise 3: Converting CSV to JSON

1. Using the `students.csv` file from the CSV exercises, write a Python script to read the file and convert the data to a list of dictionaries.

2. Save the list of dictionaries to a JSON file called `students.json`.

Program:

```python
import csv
import json

with open('students.csv', 'r') as csv_file:
    csv_reader = csv.DictReader(csv_file)
    students = list(csv_reader)

with open('students.json', 'w') as json_file:
    json.dump(students, json_file)
```

Exercise 4: Converting JSON to CSV

1. Using the `data.json` file from Exercise 1, write a Python script to read the JSON data.

2. Convert the JSON data to a CSV format and write it to a file named `data.csv`.

Program:

```python
import json
import csv
with open('data.json', 'r') as json_file:
    data = json.load(json_file)

with open('data.csv', 'w', newline='') as csv_file:
    csv_writer = csv.writer(csv_file)
    header = data.keys()
    csv_writer.writerow(header)
    csv_writer.writerow(data.values())
```

Exercise 5: Nested JSON Parsing

1. Create a JSON file named `books.json` with the following content:

```json
```

```
  {
     "books": [
        {"title": "The Great Gatsby", "author": "F. Scott Fitzgerald", "year": 1925},

        {"title": "War and Peace", "author": "Leo Tolstoy", "year": 1869},

        {"title": "The Catcher in the Rye", "author": "J.D. Salinger", "year": 1951}

     ]

  }
  ```
```

2. Write a Python script to read the JSON file and print the title of each book.

**Program:**

```python
import json
books= [
        {"title": "The Great Gatsby", "author": "F. Scott Fitzgerald", "year": 1925},
        {"title": "War and Peace", "author": "Leo Tolstoy", "year": 1869},
        {"title": "The Catcher in the Rye", "author": "J.D. Salinger", "year": 1951}
     ]

with open('books.json', "w",) as file:
        json.dump(books, file)

with open('books.json', 'r') as file:
   data = json.load(file)
   for book in data:
      print(book['title'])
```