



27. Write a mini-project in Python incorporating various programming concepts (loops, functions, lists, modules, validation, testing).

Fitness_Activity_Tracker/

Fitness_Activity_Tracker/data/activities.json

```
In [ ]: {
    "Lalith Kumar": [
        {
            "activity": "Walking",
            "duration": 30,
            "calories": 1000,
            "date": "2025-12-29"
        }
    ]
}
```

Fitness_Activity_Tracker/data/activities.json.py

```
In [ ]: {}
```

Fitness_Activity_Tracker/data/README.txt

```
In [ ]: import json
import os

def load_data(file):
    if not os.path.exists(file):
        return {}
    with open(file, "r") as f:
        return json.load(f)

def save_data(file, data):
    with open(file, "w") as f:
        json.dump(data, f, indent=4)
```

Fitness_Activity_Tracker/data/users.json

```
In [ ]: {
    "Lalith Kumar": "Lalith@123"
}
```

Fitness_Activity_Tracker/data/users.json.py

```
In [ ]: {}
```

Fitness_Activity_Tracker/activities.py

```

In [ ]: from utils import load_data, save_data
        from datetime import datetime

        ACTIVITY_FILE = "data/activities.json"

        def add_activity(user):
            activities = load_data(ACTIVITY_FILE)

            activity = input("Activity (Running, Walking, Cycling): ")
            duration = int(input("Duration (minutes): "))
            calories = int(input("Calories burned: "))

            record = {
                "activity": activity,
                "duration": duration,
                "calories": calories,
                "date": datetime.now().strftime("%Y-%m-%d")
            }

            activities.setdefault(user, []).append(record)
            save_data(ACTIVITY_FILE, activities)

            print("Activity added successfully!")

        def view_activities(user):
            activities = load_data(ACTIVITY_FILE)

            if user not in activities:
                print("No activities found!")
                return

            print("\n--- Your Activities ---")
            for a in activities[user]:
                print(a)

```

Fitness_Activity_Tracker / main.py

```

In [ ]: from users import register_user, login_user
        from activities import add_activity, view_activities
        from reports import activity_summary

        def main_menu():
            print("\n--- FITNESS ACTIVITY TRACKER ---")
            print("1. Register")
            print("2. Login")
            print("3. Exit")

        def user_menu():
            print("\n1. Add Activity")
            print("2. View Activities")
            print("3. Activity Summary")

```

```

    print("4. Logout")

def main():
    while True:
        main_menu()
        choice = input("Enter choice: ")

        if choice == "1":
            register_user()

        elif choice == "2":
            user = login_user()
            if user:
                while True:
                    user_menu()
                    ch = input("Enter choice: ")

                    if ch == "1":
                        add_activity(user)
                    elif ch == "2":
                        view_activities(user)
                    elif ch == "3":
                        activity_summary(user)
                    elif ch == "4":
                        print("Logged out successfully!")
                        break
                    else:
                        print("Invalid choice!")

        elif choice == "3":
            print("Thank you for using Fitness Activity Tracker!")
            break
        else:
            print("Invalid choice!")

#  CORRECT MAIN CHECK
if __name__ == "__main__":
    main()

```

Fitness_Activity_Tracker / reports.py

```

In [ ]: from utils import load_data

ACTIVITY_FILE = "data/activities.json"

def activity_summary(user):
    activities = load_data(ACTIVITY_FILE)

    if user not in activities:
        print("No activities available!")
        return

```

```

total_time = sum(a["duration"] for a in activities[user])
total_calories = sum(a["calories"] for a in activities[user])

print("\n--- ACTIVITY SUMMARY ---")
print("Total Time (minutes):", total_time)
print("Total Calories Burned:", total_calories)

```

Fitness_Activity_Tracker / SDLCproject.py

```

In [ ]: from users import register_user, login_user
        from activities import add_activity, view_activities
        from reports import activity_summary

def main_menu():
    print("\n--- FITNESS ACTIVITY TRACKER ---")
    print("1. Register")
    print("2. Login")
    print("3. Exit")

def user_menu():
    print("\n1. Add Activity")
    print("2. View Activities")
    print("3. Activity Summary")
    print("4. Logout")

def main():
    while True:
        main_menu()
        choice = input("Enter choice: ")

        if choice == "1":
            register_user()

        elif choice == "2":
            user = login_user()
            if user:
                while True:
                    user_menu()
                    ch = input("Enter choice: ")


                    if ch == "1":
                        add_activity(user)
                    elif ch == "2":
                        view_activities(user)
                    elif ch == "3":
                        activity_summary(user)
                    elif ch == "4":
                        print("Logged out successfully!")
                        break

```

```

        else:
            print("Invalid choice!")

    elif choice == "3":
        print("Thank you for using Fitness Activity Tracker!")
        break
    else:
        print("Invalid choice!")

#  CORRECT MAIN CHECK
if __name__ == "__main__":
    main()

```

Fitness_Activity_Tracker / users.py

```

In [ ]: import json
        from utils import load_data, save_data

        USERS_FILE = "data/users.json"

        def register_user():
            users = load_data(USERS_FILE)

            username = input("Enter username: ")
            if username in users:
                print("User already exists!")
                return

            password = input("Enter password: ")
            users[username] = password
            save_data(USERS_FILE, users)

            print("Registration successful!")

        def login_user():
            users = load_data(USERS_FILE)

            username = input("Enter username: ")
            password = input("Enter password: ")

            if username in users and users[username] == password:
                print("Login successful!")
                return username
            else:
                print("Invalid credentials!")
                return None

```

Fitness_Activity_Tracker / utils.py

```

In [ ]: import json
        import os

```

```

def load_data(file):
    if not os.path.exists(file):
        return {}
    with open(file, "r") as f:
        return json.load(f)

def save_data(file, data):
    with open(file, "w") as f:
        json.dump(data, f, indent=4)

```

out put --- FITNESS ACTIVITY TRACKER ---

1. Register
2. Login
3. Exit Enter choice: 2 Enter username: Lalith Kumar Enter password: Lalith@123 Login successful!
4. Add Activity
5. View Activities
6. Activity Summary
7. Logout Enter choice: 2

--- Your Activities --- {'activity': 'Walking', 'duration': 30, 'calories': 1000, 'date': '2025-12-29'}

1. Add Activity
2. View Activities
3. Activity Summary
4. Logout Enter choice: