

# I. Overview

Our console-based program combines cinema recommendation and booking functionalities. By registering in the system, users can search for movies, get personalized recommendations based on their favorite genre, check if showtimes for a chosen movie are available in cinemas, and book a showtime if it is available.

*Note: To keep the scope clear and manageable, this project demonstrates its features using a sample of synthetic datasets with showtimes limited to November 2024 and movies from only the Sci-Fi, Romance, Fantasy, Musical, and Documentary genres. However, it can be adapted to work with real-world data.*

## II. Installation Instructions

### Obtain the Files

Get the project folder containing all necessary files, including the Python script and JSON data files.

### Install Python

Make sure Python 3.9 or higher is installed on your system.

### Set Up the Data Files

Ensure the data folder is in the same directory as the Python script. The data folder should include:

- users.json (User account data)
- movies.json (Movie information)
- showtimes.json (Showtime details)

**Open the Python script, run it, and start using the program!**

### III. How to Use the Program

#### Start the Program

When the program runs, the main menu will appear first:

```
-- Homepage --  
1. Login  
2. Register  
3. Exit
```

#### Log in to account

- 1) If you already have an account, enter “1” to be directed to the login page, where you must enter your username and password.

```
-- Login --  
Enter your username: user889  
Enter your password: 288  
Login successful!
```

- 2) If you enter incorrect password or the username doesn't exist, the following response will appear:

```
-- Login --  
Enter your username: user889  
Enter your password: password8  
Incorrect username or password. Please try again.
```

- 3) If you don't have an account, enter “2” on the homepage to register. Enter your username, name, surname, password, and favorite genre. Usernames must be unique, so if yours is taken, you'll be asked to try another. Once registered, you can log in.

```
-- Register --
Enter a new username: user889
Enter your first name: Anna
Enter your surname: Nikoghosyan
Enter a new password: 288
Select your preferred genre from: Sci-Fi, Romance, Fantasy, Musical, Documentary
Enter your preferred genre: Fantasy
Registration successful! Returning to the main menu...
```

## Using User Dashboard (Main Functionalities)

After login you will be redirected to the user dashboard:

```
-- User Dashboard --
1. Search Movies
2. View Recommended Movies
3. View Showtimes by Movie
4. Book a Showtime
5. View Booking History
6. View User Info
7. Delete Account
8. Logout
```

### I. Search/get recommended movies

You can search for a movie in two ways: by keyword or by getting recommendations based on the genre you chose during registration. In both cases, you'll see a list of movies with their IDs.

- 1) **Select “1” for search by keyword and enter the keyword:** returns a list of movies containing the keyword, sorted by rankings:

```
-- Search Movies --
Enter a keyword to search for movies: Lost

Movies matching the keyword 'lost':

Movie ID: M017 - Harmony Lost - Romance (Rating: ★★★☆☆ 6.5)
Movie ID: M087 - The Lost City - Fantasy (Rating: ★☆☆☆☆ 2.9)
```

If no movies match the keyword you entered, a message will let you know:

```
-- Search Movies --  
Enter a keyword to search for movies: hdenjkwxnjdje  
No movies found containing the keyword 'hdenjkwxnjdje'.
```

- 2) **Select “2” to get recommendations:** returns a list of movies in your preferred genre, sorted by rankings

```
-- Recommended Movies --  
  
Recommended Movies for You:  
  
Movie ID: M036  
Title: The Phantom's Masquerade  
Genre: Romance  
Rating: ★★★★★ (9.4)  
Director: Denis Villeneuve  
-----  
Movie ID: M038  
Title: The Iron Throne  
Genre: Romance  
Rating: ★★★★★ (8.5)  
Director: Steven Spielberg  
-----
```

After choosing the movie you’d like to watch, note its ID - you’ll need it later.

## II. Choosing showtime and booking it

Next, check if there’s a showtime for that movie in city cinemas in November 2024.

In the user dashboard, select “3” and enter the ID of the movie you’re interested in. If showtimes are available, you’ll see:

```
-- View Showtimes by Movie --  
Enter the movie ID: M005  
Showtimes for Movie: Echoes of Eternity:  
S116 - 2024-11-04 18:45 (Seats Available: 30) - Starlight Cinema  
S004 - 2024-11-25 15:15 (Seats Available: 30) - Grand Theater
```

If there are no showtimes for the movie you wanted to watch, you’ll see:

```
-- View Showtimes by Movie --  
Enter the movie ID: M008  
There is no showtime for selected movie.
```

After selecting a showtime, note its ID. Choose “4” and enter the ID. If seats are available, you can book the showtime:

```
-- Book a Showtime --  
Enter the showtime ID: S116  
Successfully booked a showtime!
```

However, if there are no available seats or showtime ID doesn’t exist, the system will notify you:

```
-- Book a Showtime --  
Enter the showtime ID: S003  
Unfortunately, the showtime is not available for booking.
```

### III. User Account Management

#### 1) Booking History

You can view your booking history by selecting “5”:

```
-- Booking History --  
Movie: The Crimson Tide - Starlight Cinema - 2024-11-19 20:30  
Movie: Echoes of Eternity - Starlight Cinema - 2024-11-04 18:45  
Movie: The Starless Sky - Starlight Cinema - 2024-11-20 19:00  
Movie: The Starless Sky - Starlight Cinema - 2024-11-20 19:00
```

#### 2) User Information

Additionally, you can view your account information by entering “6” in the user dashboard.

```
-- User Information --  
Name: Anna Nikoghosyan  
Username: user884  
Preferred Genre: Fantasy  
Registration Date: 2024-12-10 19:16:25
```

### 3) Delete Account

If you wish to delete your account, enter “7” in the user dashboard and confirm by typing “y.”

```
Are you sure you want to delete your account? (y/n): y  
Account successfully deleted!
```

### 4) Log out

To log out, simply enter “8” in the user dashboard, and you’ll be redirected to the main menu. To exit the program, enter “3” from the main menu.

## IV. Datasets

The program relies on the following JSON files for data:

1. **users.json:** Stores registered user information. The dataset is updated when a new user registers or the user deletes an account.

Features:

- *user\_id*: Unique string of the format "U001"
- *name*: String
- *surname*: String
- *username*: Unique string
- *password*: String
- *preferred\_genres*: String containing one from (Sci-Fi, Romance, Fantasy, Musical, Documentary)
- *registration\_date*: Timestamp.
- *booked\_showtimes*: List of booked showtime IDs (initially empty).

Example:

```
{
  "user_id": "U0001",
  "name": "Tigran",
  "surname": "Sargsyan",
  "username": "tigran629",
  "password": "TIG#4129!",
  "preferred_genres": "Documentary",
  "registration_date": "2024-12-08 09:07:38",
  "booked_showtimes": [
    "S140",
    "S199"
  ]
}
```

2. **movies.json:** Predefined dataset, contains details of 100 movies. The genre of the movies from (Sci-Fi, Romance, Fantasy, Musical, Documentary). The dataset is not mutable.

Features:

- *Movie\_id*: Unique string of the format “M005”
- *Title*: String
- *Genre*: String (one of the following: Sci-Fi, Romance, Fantasy, Musical, Documentary)
- *Director*: String
- *Rating*: Float
- *Release\_date*: String

Example:

```
{
  "Movie_id": "M011",
  "Title": "Melody of Life",
  "Genre": "Romance",
  "Director": "James Cameron",
  "Rating": 7.5,
  "Release_date": "2019-07-09"
}
```

3. **showtimes.json:** Manages movie showtimes and seat availability for November 2024 in limited cinemas. Updates when a user books a showtime, resulting in a decrease in available seats

Features:

- *showtime\_id*: String of the format "S006"
- *movie\_id*: String of the format "M008" coming from movies.json
- *cinema\_name*: String
- *showtime*: String
- *available\_seats*: Integer, the number of seats available for the showtime. Initially set to 30 for each showtime. Decreases by 1 each time a user books a seat.

Example

```
{
  "showtime_id": "S010",
  "movie_id": "M021",
  "cinema_name": "Grand Theater",
  "showtime": "2024-11-18 21:45",
  "available_seats": 30
}
```

## V. Implemented Functions

### 1) Utility Functions

#### **load\_datasets():**

Loads data from JSON files for users, movies, and showtimes. Returns the data as three separate lists or dictionaries:

- **users** from **users.json**
- **movies** from **movies.json**
- **showtimes** from **showtimes.json**



### **save\_datasets(users, showtimes=None):**

Saves user data to the users.json file. If showtimes is provided (in case of booking when available seats decrease), it also updates the showtimes.json file with the new showtime data.

## 2) User Management Functions

### **register\_user(users, showtimes):**

Allows a new user to register with the system.

- Ensures the username is unique.
- Collects user details: username, password, name, surname, and preferred genre.
- Validates the selected genre against the predefined list of valid genres.
- Assigns a unique user ID and records the registration date.
- Saves the updated user data to the `users.json` file via `save_datasets(users, showtimes=None)`

### **login\_user(users):**

Enables an existing user to log in by verifying their username and password.

- Returns the user's data if the credentials are correct.
- Informs the user of incorrect credentials and allows retrying.

### **delete\_account(users, user):**

Confirms and deletes the logged-in user's account.

- Removes the user's data from the `users.json` file via `save_datasets(users, showtimes=None)`
- Asks the user to confirm deletion 'y/n?'

### **view\_user\_info(user):**

Displays the personal details of the logged-in user:

- Full name, username, preferred genre, and registration date

## 3) Movie Management Functions

### **search\_movies(movies):**

Searches for movies by a keyword in their title.

- Displays matching movies along with their genre, rating (as stars and numerical), and movie ID.

- Informs the user if no matches are found.

#### **view\_recommended\_movies(user, movies):**

Recommends movies to the user based on their preferred genre.

- Filters movies by the user's preferred genre and sorts them by rating in descending order.
- Displays detailed information about each recommended movie, including title, genre, director, rating (as stars and numerical), and movie ID.
- Alerts the user if no recommendations are available.

### 4) Showtime Management Functions

#### **view\_showtimes\_by\_movie(showtimes, movies):**

Displays available showtimes for a specific movie.

- Prompts the user to enter the movie ID.
- Lists showtimes with available seats, sorted by date and time.
- Includes details such as the showtime ID, date and time, cinema name, and available seats.
- Informs the user if no showtimes are found for the selected movie.

#### **book\_showtime(user, showtimes):**

Allows a user to book a seat for a specific showtime.

- Prompts the user to enter the showtime ID.
- Reduces the available seats for the showtime by one if seats are available and adds the showtime ID to the user's list of booked showtimes via **save\_datasets(users, showtimes)**
- Confirms a successful booking or notifies the user if the showtime is unavailable.

#### **view\_booking\_history(user, showtimes, movies):**

Displays the user's booking history.

- Lists all movies the user has booked, including the movie title, cinema name, and showtime.
- If a booking ID cannot be matched with a showtime, it notifies the user of the missing data.
- Informs the user if no bookings exist in their history.

## 5) Main function

### **main():**

Combines all the functions defined in sections 1-4 and controls the application flow

*Homepage:* Login, register, or exit

*User Dashboard:* Options: search movies, view recommendations, manage showtimes (view/book), check booking history, view/delete account, or logout

*Data Handling:*

- Loads datasets at startup
- Saves updates after bookings or account changes
- Ends on user exit

## VI. Conclusion

This program makes it easy for users to find, get recommendations, and book movies in cinemas. This project uses synthetic data with a limited range of genres and showtimes for November 2024 to demonstrate its functionality in a straightforward way. The design is flexible, so it can be expanded to handle more data or features in the future.