

MovieTheaterReservation

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a project for course "Basics of Programming - Exercise"

1. Topic Description

An application for maintaining a movie theater reservation system. The system has the following minimum requirements:

- The theater has several (differently sized) halls
- The theater shows several movies at the same time
- Each hall has several screenings a day
- A customer can reserve a seat for any show (provided there is room in the hall)
- The administrator can add movies and screenings as well as browse reservations

2. Solution Principle

Users interact with the system via graphical interface.

The system uses an object-oriented design, abstracting entities into classes.

Data persistence is achieved through file storage system.

3. Project Structure

Data Model Module: core system entities

Entities	Comment
Cinema	model of cinemas
ScreeningRoom	model of screening rooms
Movie	model of movies
Screening	model of screenings

Entities	Comment
Reservation	model of reservation orders

Business Logic Module: implement core functions

Entities	Comment
ReservationManager	Handle reservation-related operations
AdminManager	Handles administrator operations

Data Storage Module:

Entities	Comment
DataStorage	Responsible for loading and saving data

User Interface Module:

Entities	Comment
CinemaApp	App with UI

4. External Libraries Used

Usage	Library
Data Storage	json
Graphical User Interface	tkinter

Usage	Library
DateTime Handling	datetime
Data Validating	re

5. User Process

User Reservation Process User → Select Movie → Select Screening → Choose Seats → Confirm Reservation → System Validation → Generate Reservation Code → Save Data

Administrator Add Screening Process Administrator → Login → Select "Add Screening" → Input Movie, Time, Screening Room → System Validation → Save Data

Admin Account: admin

Admin password: admin123

6. Something to be improved

It could be better to add a scroll bar in the app UI; Due to the data connection, the app do not have the delete funtion (e.g. User cannot delete Movie or Rooms). If the app use Database Systems, the problem could be solved easily.