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ENGINEERING FACULTY

DEPARTMENT OF COMPUTER ENGINEERING

CME 2210

Object Oriented Analysis and Design

Cinema Control System

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CHAPTER ONE

INTRODUCTION

Cinema-going is one of the most popular out-of-home cultural activities, affecting a serious of social, economic and cultural phenomena in modern societies. Cinemas are considered to be an integral part of cities and they contribute to the definition of a local geography and identity. These days, companies are turning to this type of software to reduce the number of employees and increase company profit. Movie ticket booking has become all the rage, especially among the youngsters and teenagers. However, with technology on the rise, the adults are catching up as well.

Cinema Control System(CCS) controls all back-end functionalities like, movie details, ticket rate and show time and customer information saved in a database. It will improve the traditional process of ticketing. It will show the new release movie information. You will get to know all the details about the movie. You will know about the available show time of the movie. After selecting the desired movie you just have to buy the ticket. The software will print your ticket.

In addition, with this system, the administrator can manage the entire company. For example, it performs general checks on ticket purchases, adding new movies to the vision and removing outdated movies.

ACTORS

The system proposed evolves different actors and interactions, the main actors that we identified are:

- Customer
- Admin
- Guest

EXPECTED OUTCOME

Our project aims to provide a system that maintains the information about the customer details. Cinema hall details, movie schedules, trailers of movies, purchase details and transaction details of the customer. We are trying to do is to make cinema halls more famous and active all over the country by providing facilities to the users that will make ticket purchasing very easy for them. Not only ticket purchasing, but also people can get a vast amount of facilities for better entertainment and enjoyment.

CHAPTER TWO

REQUIREMENTS

2.1 REQUIREMENT COLLECTION AND ANALYSIS

The database-planning phase begins when a customer requests to develop a database project. It is set of tasks or activities, which decide the resources required in the database development and time limits of different activities.

Requirements analysis is done in order to understand the problem, which is to be solved. That is a very important activity for the development of database systems. The data requirements are used as a source of database design. These requirements should be explained in as full and complete configuration as feasible.

In parallel with specifying the data requirements, it is useful to specify the known functional requirements of the application. These consist of user-defined operations that will be applied to the database. The functional requirements are used as a source of application software design.

2.2 Functional requirements:

2.2.1 User Module

User Registration

- User Register with Name, Surname, Phone number (for logging in later), Password, E-mail address.

User Login

- User Login with Phone number and Password.
- User can use the system after Login.

Check Availability

- After Login, User, Can Search Movie from Movie List (Name).
- User can Check Ticket Availability, if Ticket is Available User can Book Ticket.
- User can also check the Movie Running Hours.

Book Ticket

- Then select Number of Seats, Ticket Amount and Type (Student, Adult, Retired) to Book (Seat Number, Ticket Amount, Ticket Type).
- Perform payment transaction (Payment way, Card Number).
- A Conformation Message will be shown on the screen. The content of the message is as shown below: (Film Name, Show Time, Seat Number, Hall Number)

  "Film name - Show Time – Seat Number- Hall Number"

2..2.2 Guest Module

Guest Login

- Guests have to access without security requirements
- Search Movie from Movie List (Name).
- Guest can examine Movie Schedule.
- Guest can switch to the User Mode.

2.2.3 Admin Module

Admin User Login

- Admin User Login with Admin User Name and Password.

Movie Manage

- Admin can Add New Movie (Name, Language, Release Price, Trailer, Poster, Description, Genre, Duration, Director).
- Admin can Edit Old Movie Details (Name, Language, Release Price, Trailer, Poster, Description, Genre, Duration, Director).
- Admin can Delete Movie. (Name).

2.3 Non-Functional requirements

- **Usability**: The system provides a contact menu in interfaces for the customer to interact with the system.
- **Security**: The system provides customer name and password to prevent the system from unauthorized access.
- **Performance**: The system response time for every instruction conducted by the customer must not exceed more than a minimum of 10 seconds.
- **Availability**: The system should always be available for access at 24 hours, 7 days a week.
- Use a GUI interface
- The background color must be light gray.
- The software should be able to run in computers with 512 megabytes of main memory.
- Length of the password must be greater than 6 and less than 12.
- Only allow 10 digits for user phone number, in format xxx-xxx-xx-xx
- User information can't have null information.
- Program must be written in Java programming language.

2.4 Specific libraries

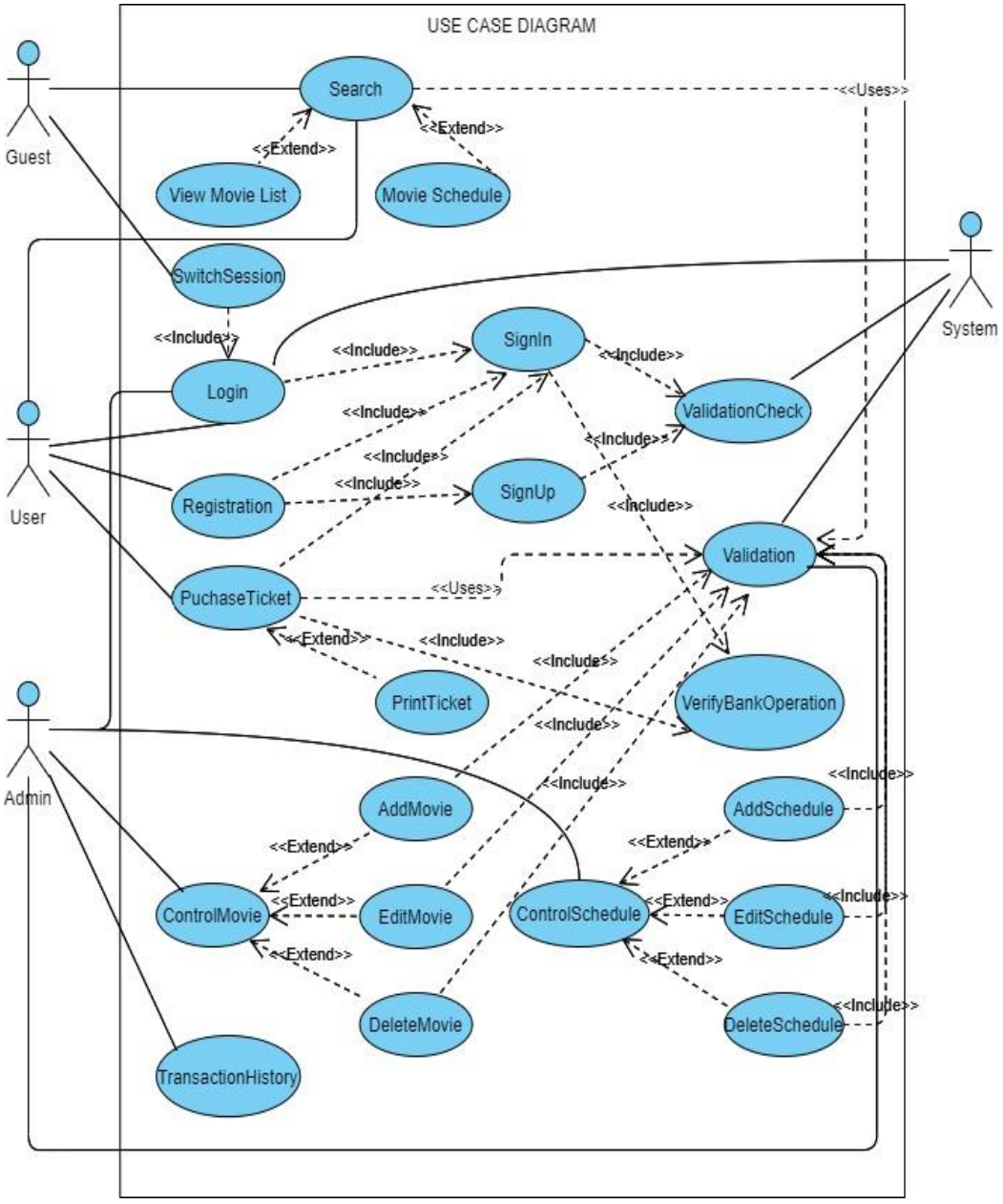
- GUI interface (Swing).
- Date abstract class (java.util.Date).

CHAPTER THREE

UML DIAGRAMS

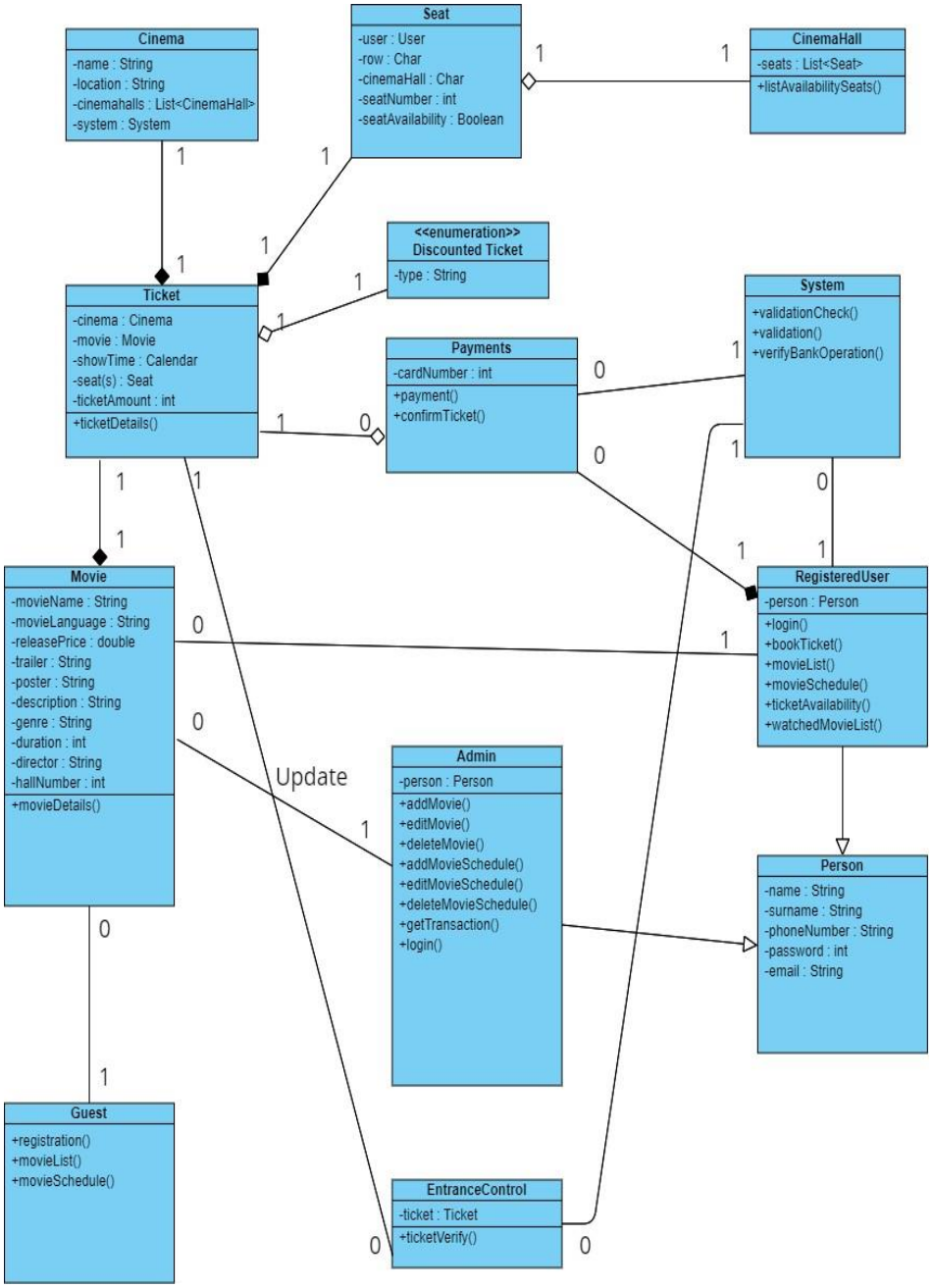
- **USE CASE DIAGRAM**

  Actor and use case description shows the detail description of interaction between the actors and their use cases. The description enables to have a proper understanding of how actor interacts with the system through their use cases.



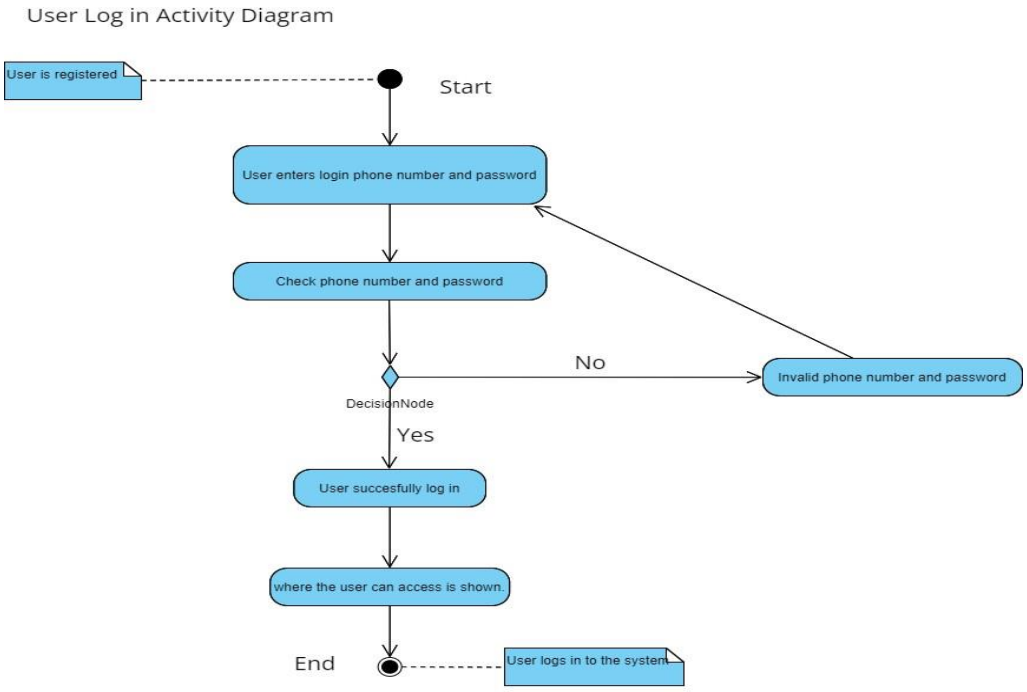
- **CLASS DIAGRAM**

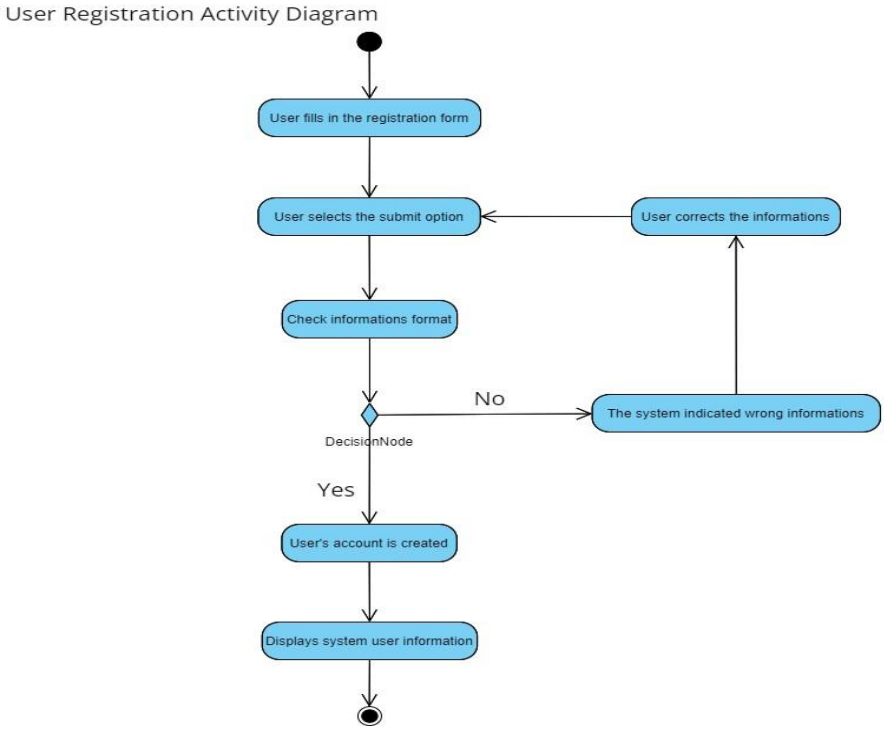
  The class diagram is the main building block, a number of classes are identified and grouped together in a class diagram which helps to determine the statically relations between those objects.



- **ACTIVITY DIAGRAM**

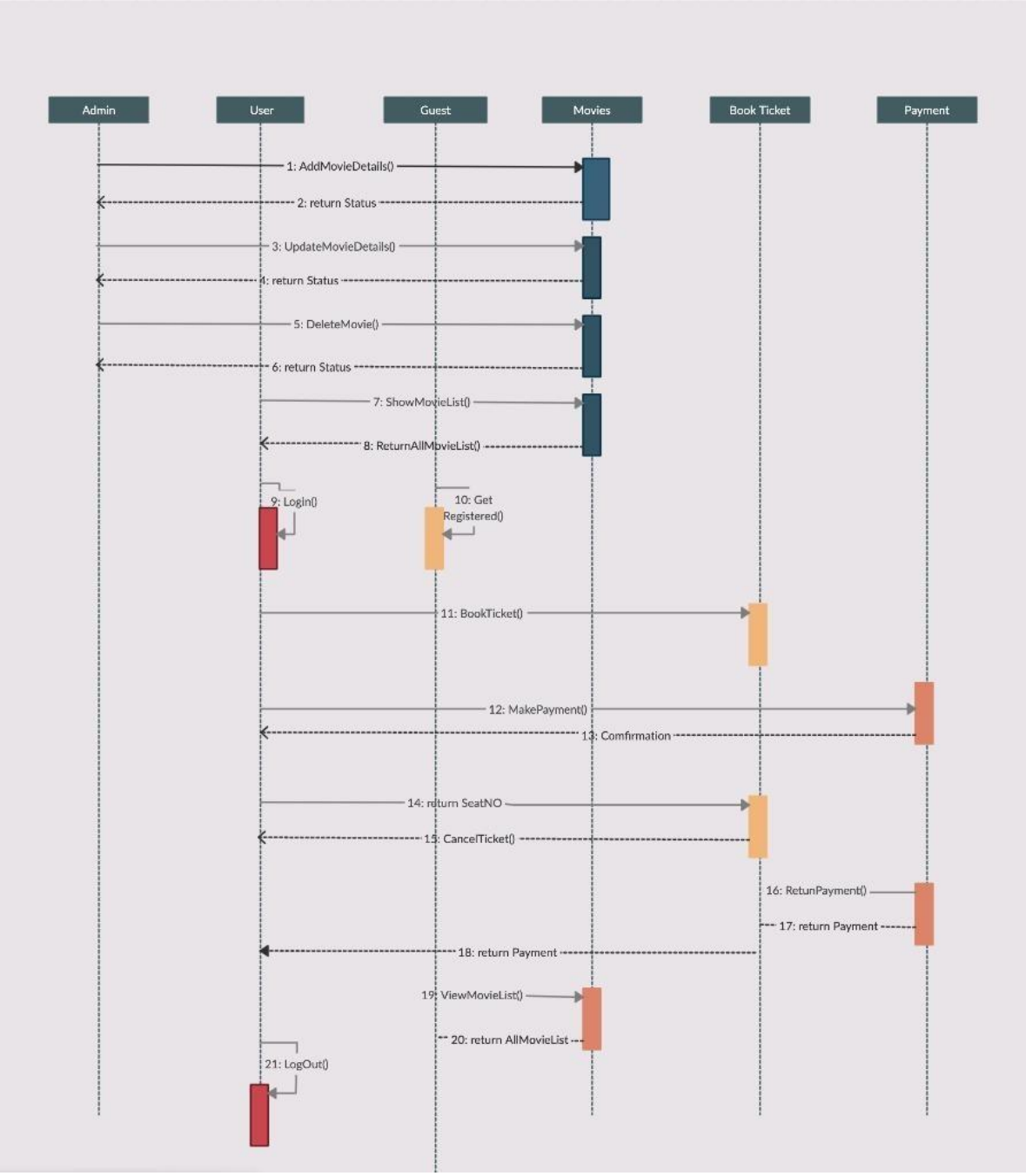
  Activity diagrams graphically represent the sequential business and operational workflows of a system. It is a dynamic diagram that shows the activity and the event that causes the object to be in the particular state. The workflows from activity diagram will serve as guide for system navigation in the final design phase of the system.





- **SEQUENTIAL DIAGRAM**

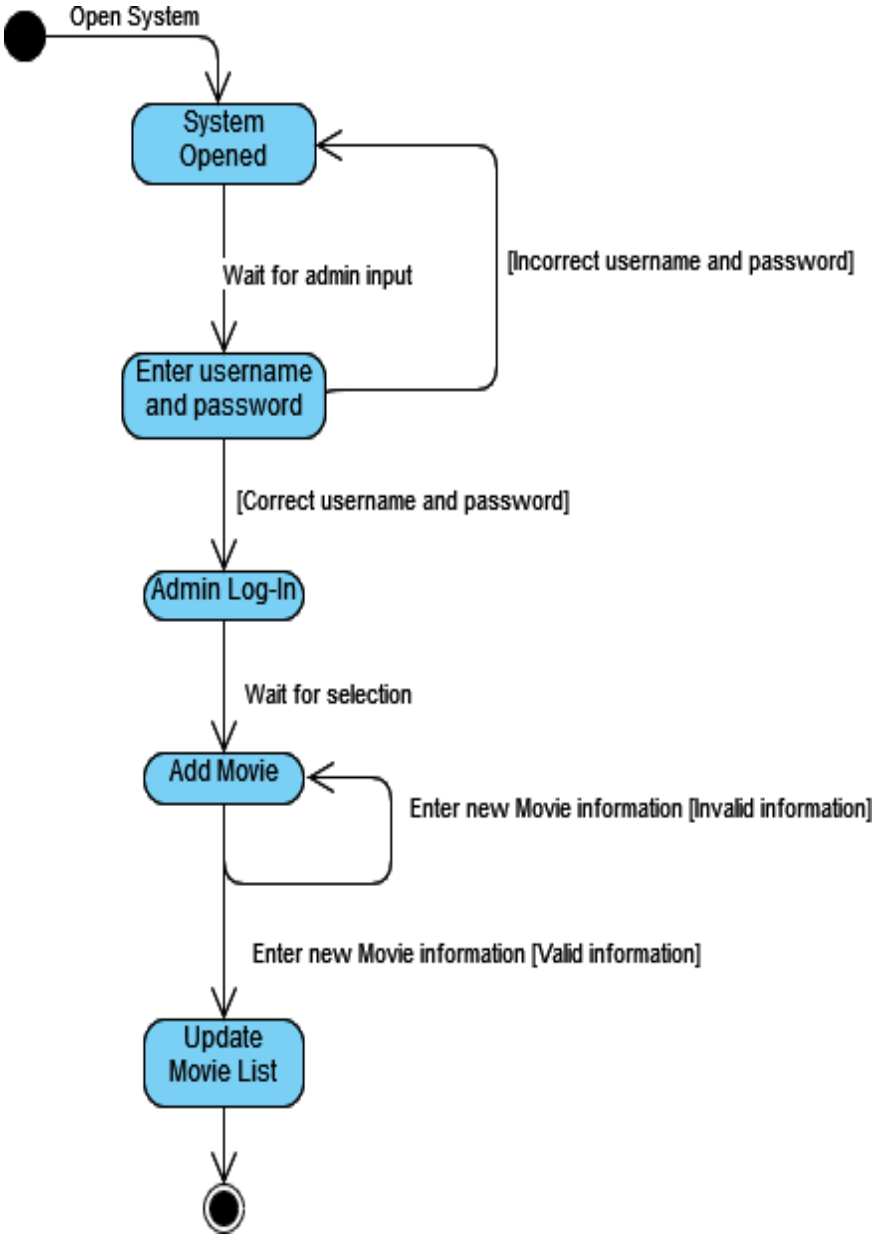
  Sequence diagrams are used to demonstrate the behavior of objects in a use case by describing the objects and the messages they pass. It provides a graphical representation of object interactions over time. Sequence diagrams show an actor, the objects and components they interact with in the execution of a use case. One sequence diagram represents a single Use Case 'scenario' or events. Sequence diagrams show the flow of messages from one object to another, and as such correspond to the methods and events supported by an object.



- **STATE DIAGRAM**

  A state diagram is used to represent the condition of the system or part of the system at finite instances of time. It's a behavioral diagram and it represents the behavior using finite state transitions. So simply, a state diagram is used to model the dynamic behavior of a class in response to time and changing external stimuli.

State Diagram For Admin Login and Adding Movie



CHAPTER FOUR

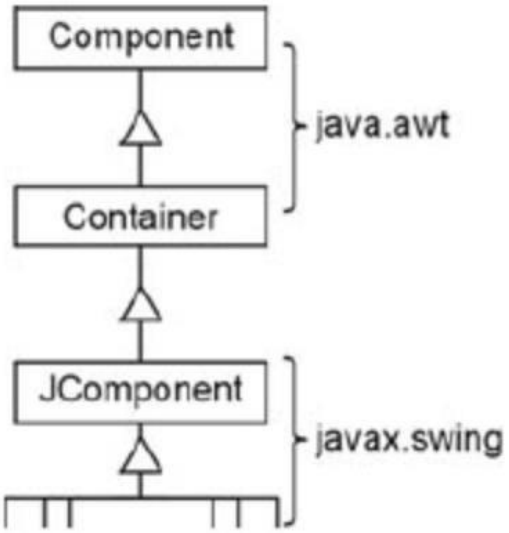
4.1 Implementation

1)Front End

Java, Swing, AWT the most commonly used libraries. Also we used Java util. Date class that represents a particular moment in time, with millisecond precision since the 1st of January 1970 00:00:00 GMT (the epoch time).

To create a graphical interface for an application, you need to use special components of the Swing library, called top-level containers. They are operating system windows that host user interface components.

Following AWT, Sun has developed a graphical component library, Swing, written entirely in Java. 2D is used for rendering, which brings with it several advantages at once. The set of standard components far exceeds AWT in variety and functionality. Swing makes it easy to create new components by inheriting from existing ones, and supports a variety of styles and skins.



The creators of the new Swing user interface library did not "reinvent the wheel" and chose AWT as the basis for their library. Of course, we were not talking about the use of specific heavyweight AWT components (represented by the Button, Label, and the like classes). Only lightweight components provided the required degree of flexibility and controllability. The inheritance diagram shows the relationship between AWT and Swing.

The abstract Component class is the base class for all AWT components and describes their main properties. A visual component in AWT is rectangular, can be

displayed on the screen, and can be interacted with by the user.Of course, to build a modern graphical user interface, you need to work with colors.

The component has two properties that describe colors, foreground and background colors. The first property specifies what color to display labels, draw lines, etc. The second one sets the background color that is used to fill the entire area occupied by the component before the appearance is drawn.

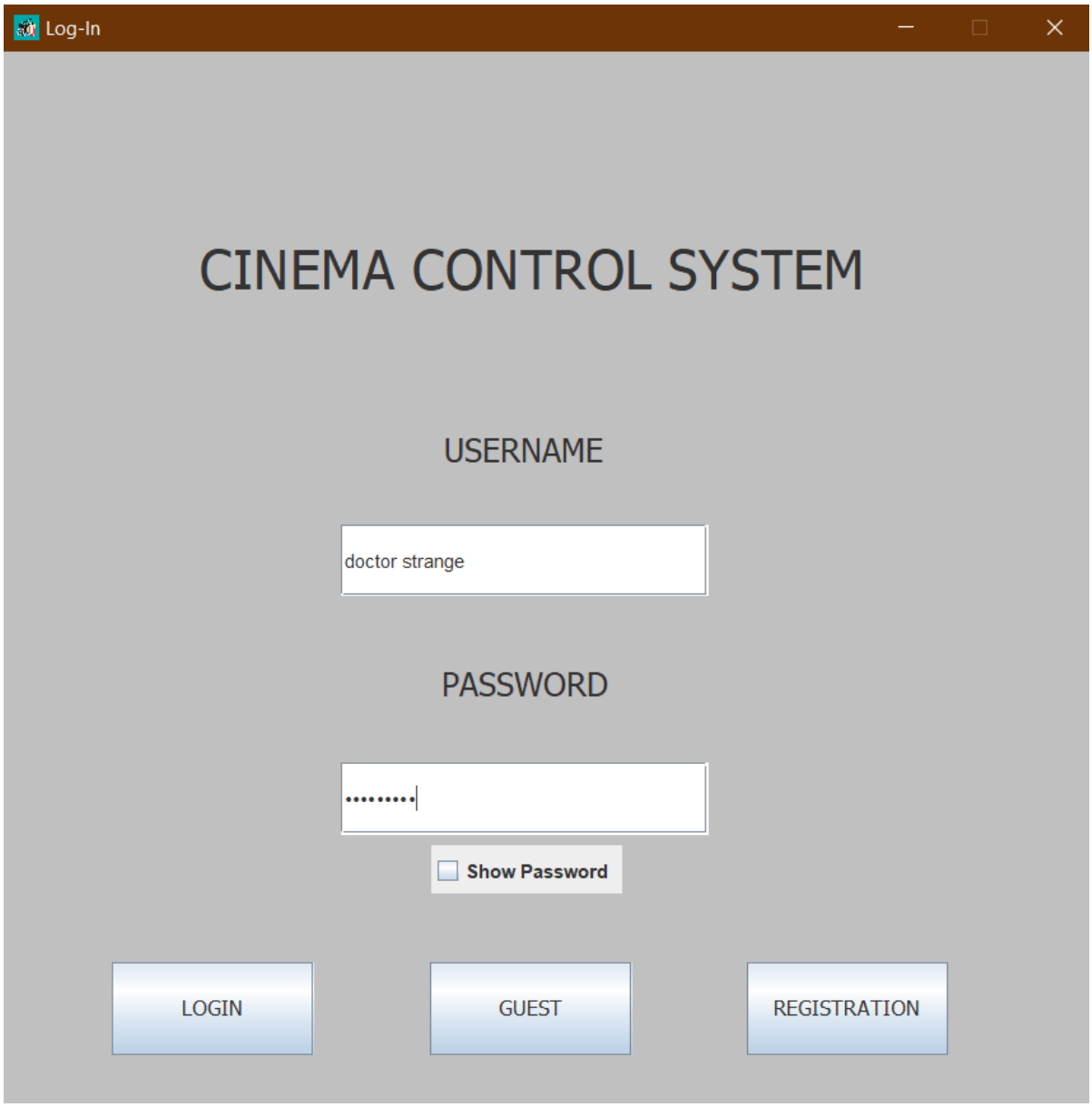
To specify a color in AWT, a special Color class is used. This class has a fairly extensive functionality, so let's look at the main characteristics.

4.2 Back End

After the program is run, if a new registration is to be made, the login information obtained from the registration process is kept in the name, password, email and phonenumber txt file. We also kept our movie list in txt file. There are movies in this file before the program is run. If a new movie is added to the system or an existing movie is deleted, the file is updated instantly. Additionally, the purchased seats, movies and movie sessions are also kept in a txt file. Thus, if the seats in a particular session are already taken when the program is closed and reopened, it still appears as not available for the seats when the program is run again. As a result, we have user , movie list, session txts.

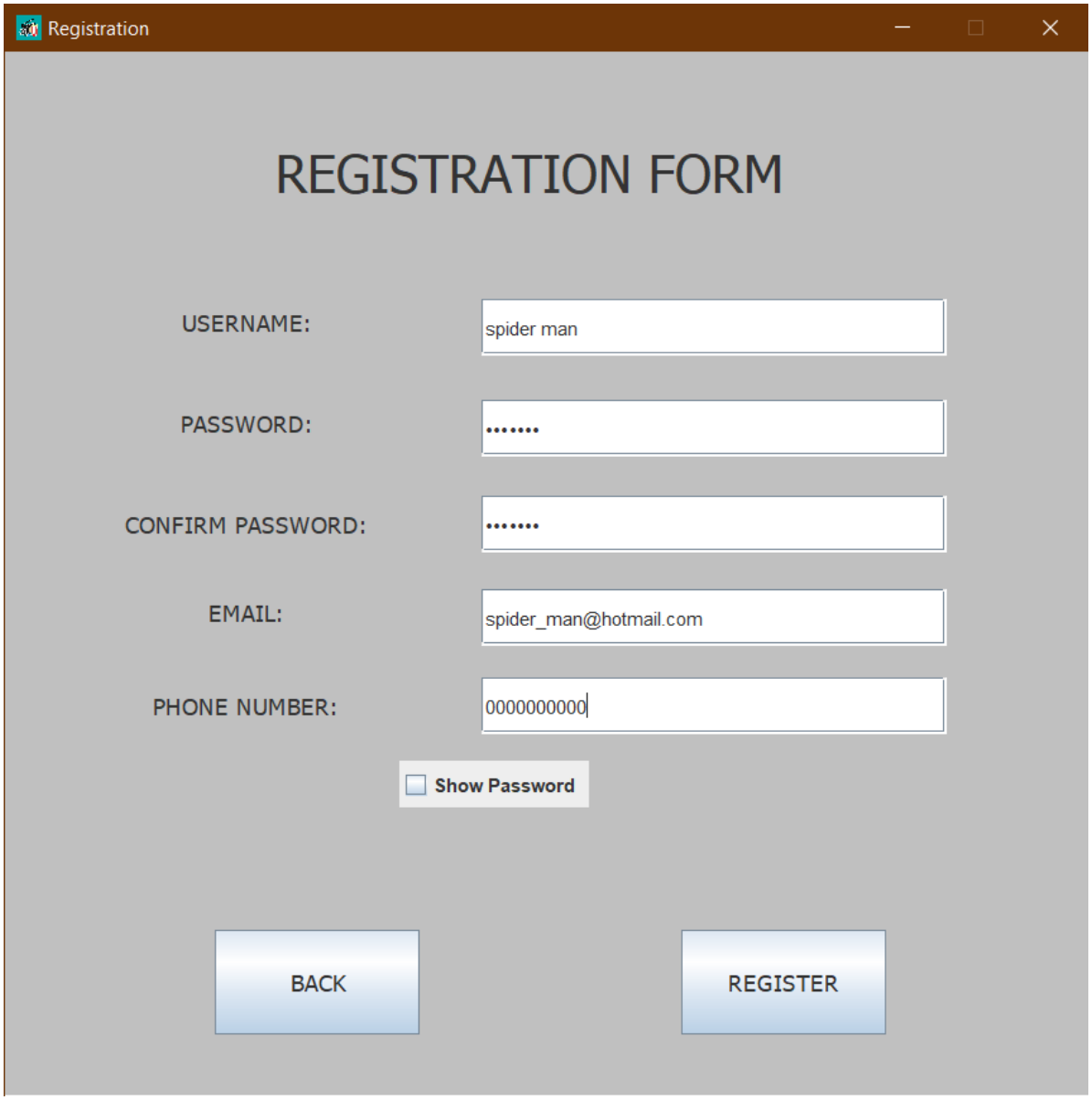
4.3 User interface

1) First screen



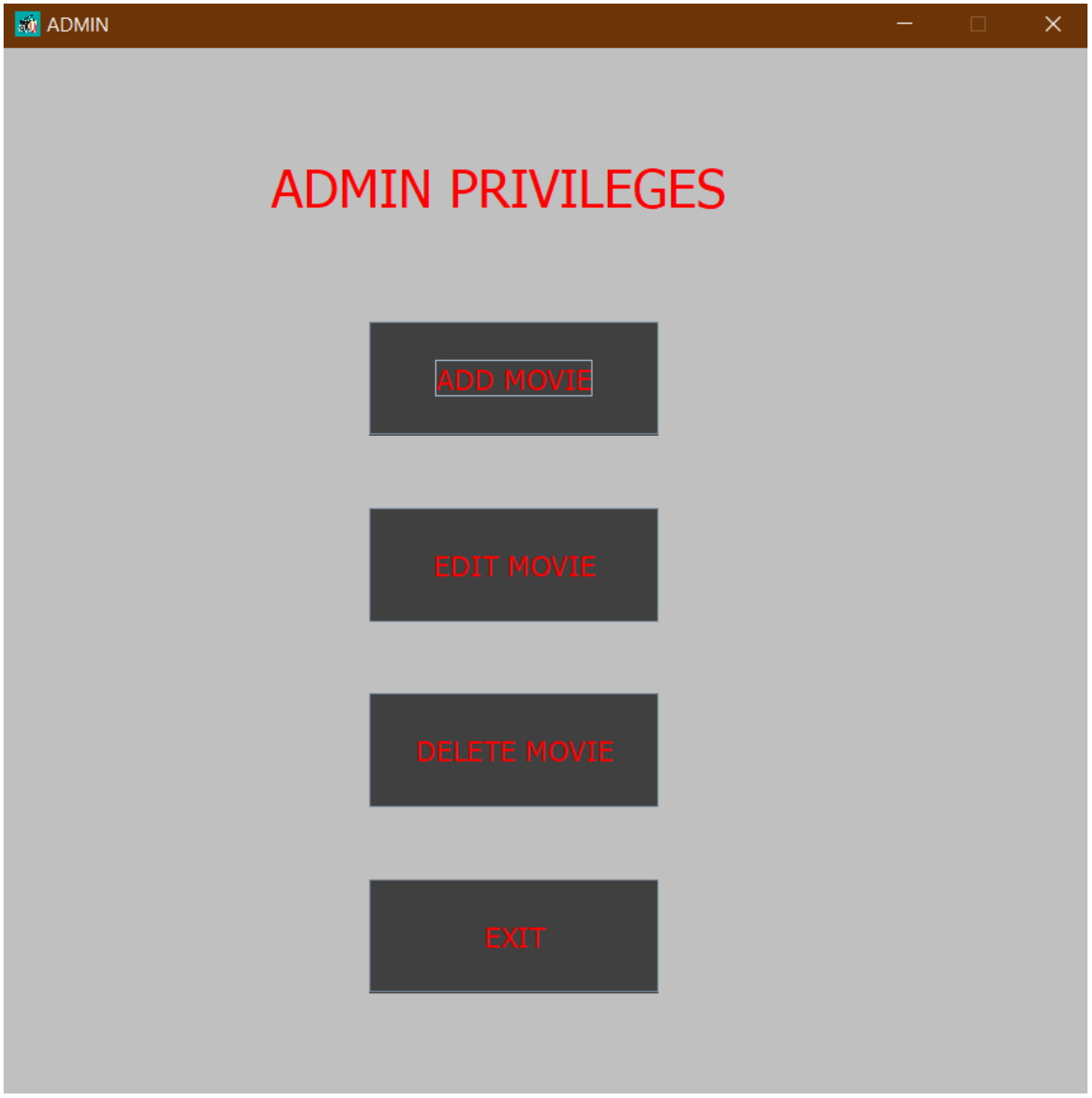
First screen is also a main screen of the application, where user have some choices as perform LogIn, Registration and visit as a guest. Also admin via first screen can enter to admin mode by entering system and perform specific operations.

2) Registration screen



If user clicks registration button on the first screen, registration window pop up. Here user need to fill all text fields with information and clisk on Register button in way to finish registration process.

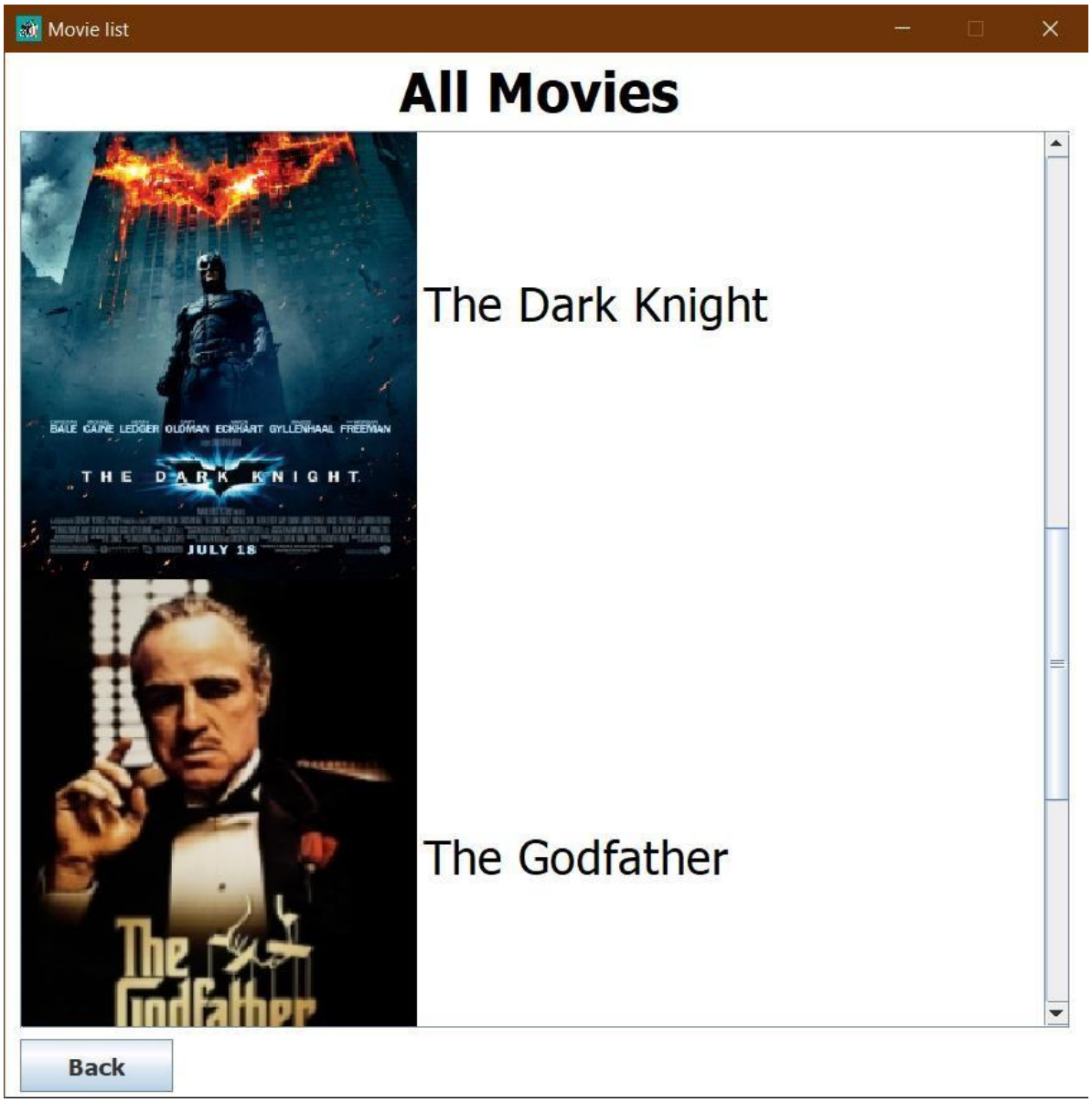
3) Admin screen



After successfully login as a admin with special provided login and password, admin privileges like Add, Edit, Delete Movie appears on the screen. If the admin presses the add movie button, he will need to fill in the required blanks to add a new movie. If the admin presses the edit button, a new frame will open and first select the movie he wants to edit. Then, by pressing the next button in the same frame, the information to be edited by that film appears in a new frame. If he wants, he can go to the main frame of the admin with the back button from these two frames. If the admin presses the delete button, a new frame will be opened and he will first select the movie he wants to delete. Then, when he presses the delete command in that frame, information that that movie has been deleted is displayed on the screen. The same thing happens when adding a movie. If there is no movie in the system,

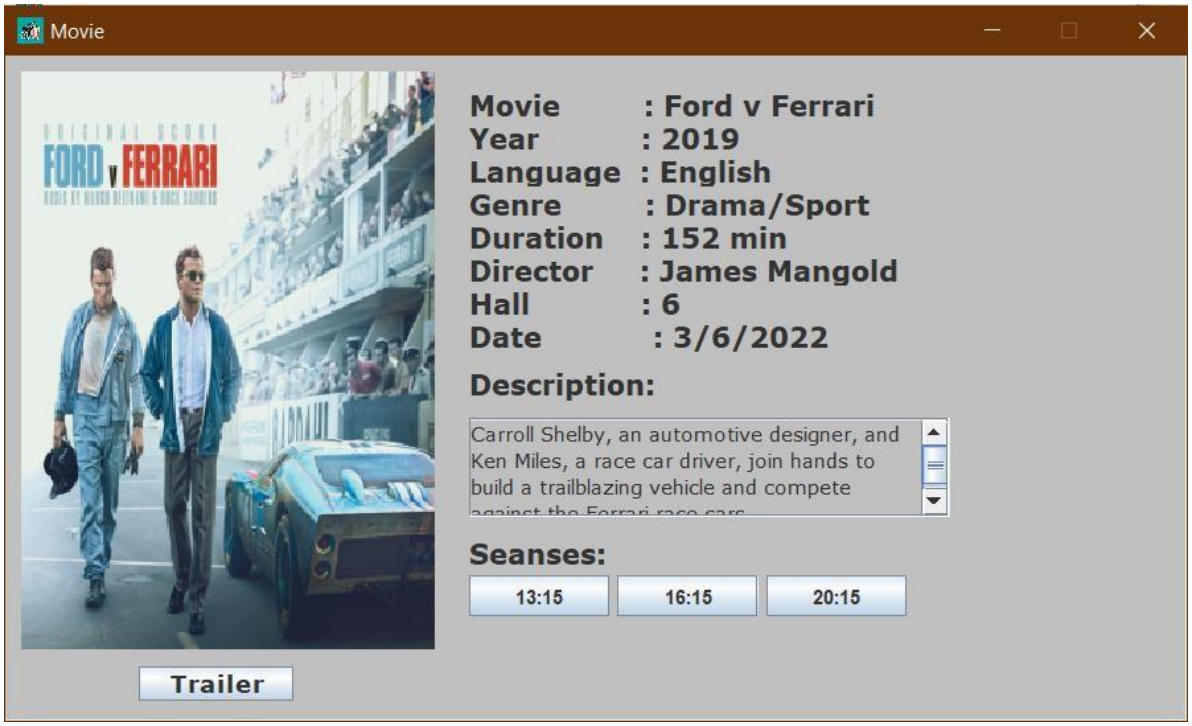
the presence of the movie is indicated by an information message. If the admin gives up the delete operation, he can return to the main admin frame with the back button.

4) Movie list screen



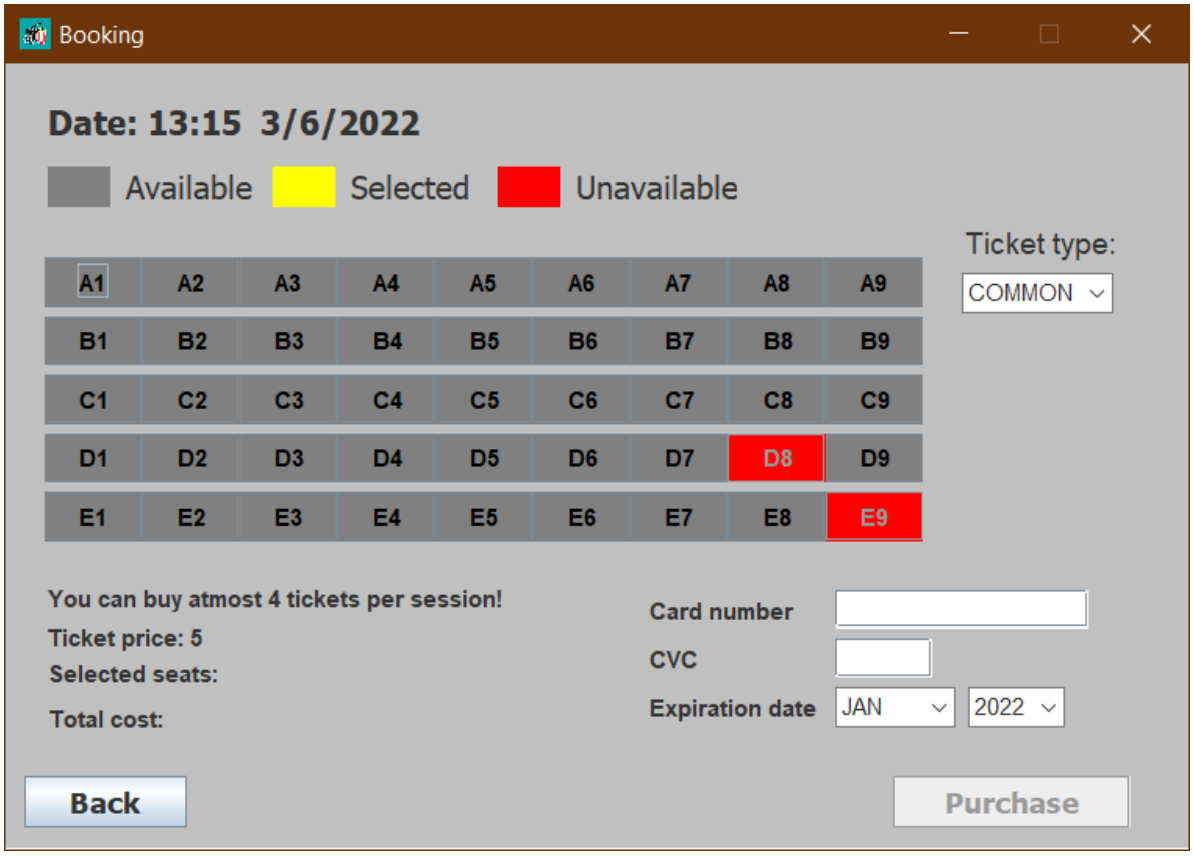
After a successful login a list of available films appears on users screen. Here he can scroll down and select movie about which he wants to know more. By double clicking on the selected film next window pops up

5) Movie information screen



On this screen, the user can view detailed information about the selected movie, such Name, language, release date, trailer, poster, description, genre, duration, director, hall number and time of seances. In addition, the session times of the movie are shown with a button clicking on which pops up a new window with information about seance. Also here exist Back button that allows user go back to Movie list screen.

6) Seat booking screen



In this section, you can now buy your ticket by choosing the seat number, ticket type and card information(card number, CVC, and expiration date). User can buy at most 4 tickets at a time. After purchasing, ticket information is printed on the screen. Also here exist Back button that allows user go back to Movie information screen.

CHAPTER FIVE

CONCLUSION AND FUTURE WORKS

Nowadays, traditional reservation ways of cinema ticketing is dying. It’s new age where technology dominates human life. With the software and technological devices, exceptions are reduced and even terminated. Also, people prefer easy, quick and safe way for every part of his life. This project is designed to meet the requirements of a cinema ticket booking system

In the conclusion we can say that we met with Swing and Gui. It was big and good project for us. We got a very good experience, the first thing that we should mention is that we improved our coding skills, a second feature is that we worked in a group, at 21 century this skill is very important.