GTU DEPARTMENT of COMPUTER ENGINEERING

CSE 222 / 505 – Spring 2022

Group 11

FINAL PROJECT REPORT

GROUP MEMBERS

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Github link : https://github.com/cse222grup11/final-Movie

1- PROBLEM DEFINITION

In our project, the problem is to design a platform about movies. There are two users and an administrator in the system. The administrator controls and manages the general rules on the film platform. This system has two kinds of users: one of them called standard user and the other called premium. Our system divided all users into child, adult, student, family categories. Premium users have extra features besides what standard users can do. On this platform, people can easily access movies and make various lists as they wish. Premium users can download movies and makes comments in addition to the standard format. This platform makes also recommends about trend movies to all users. Its difference from other similar platforms is that it has a more interactive, and social structure. The user can log in to the system by checking whether the user has entered the system correctly while logging in with the password he registered in the system.

2- USERS of THE SYSTEM

Our system divides users according to their payment plan and also age. Both of the users have 4 subtypes that are as follows: student, adult, family and kid.

- Students pay less money than adults.
- Kids can only watch animation and cartoons.
- Family package has some limitations for genres (horror, +18..), pay less money than same number of adults.
- Adult can access all the movies.

➢ Standard user : This type of user is free to access movies. sign up, log in/log out , edit their own profiles, see recommendations made for them, search movie by its rating, search movie by its genre, search movie by its name, add movies to their favorites, create watchlist,see history, watch movie in normal quality.

➢ Premium user : The account that the user has by paying money increases to premium. sign up, log in/log out , edit their own profiles, see recommendations made for them, search movie by its rating, search movie by its genre, search movie by its name, add movies to their favorites, create watchlist,see history, watch movie in normal quality, watch movies in high quality, comment movie, rate movie, download movie, see upcoming movies, see behind the scenes. Accessing the list of movies starring your favorite actor. User has the feature of sharing its own watch list with others.

➢ Administrator : The administrator controls and manages the general rules on the film platform. Admin can add ,edit and delete movies. Admin can delete negative, abusive, inappropriate comments and block users. Admin can review reports.

3- SYSTEM REQUIREMENTS

3.1. Non functional requirements

- User side:

The system follows name, surname, age, mail and password.

➢ Movie side:

The system holds informations such as :

- title,

- Release year,
- Genre,
- Score,
- Budget,

3.2 Functional requirements

The systems allows administrator:

- Add/Delete Movie
- Edit Movie
- Review Reports
- Delete Comment
- Ban User
- Sign Up

The system allows all users to :

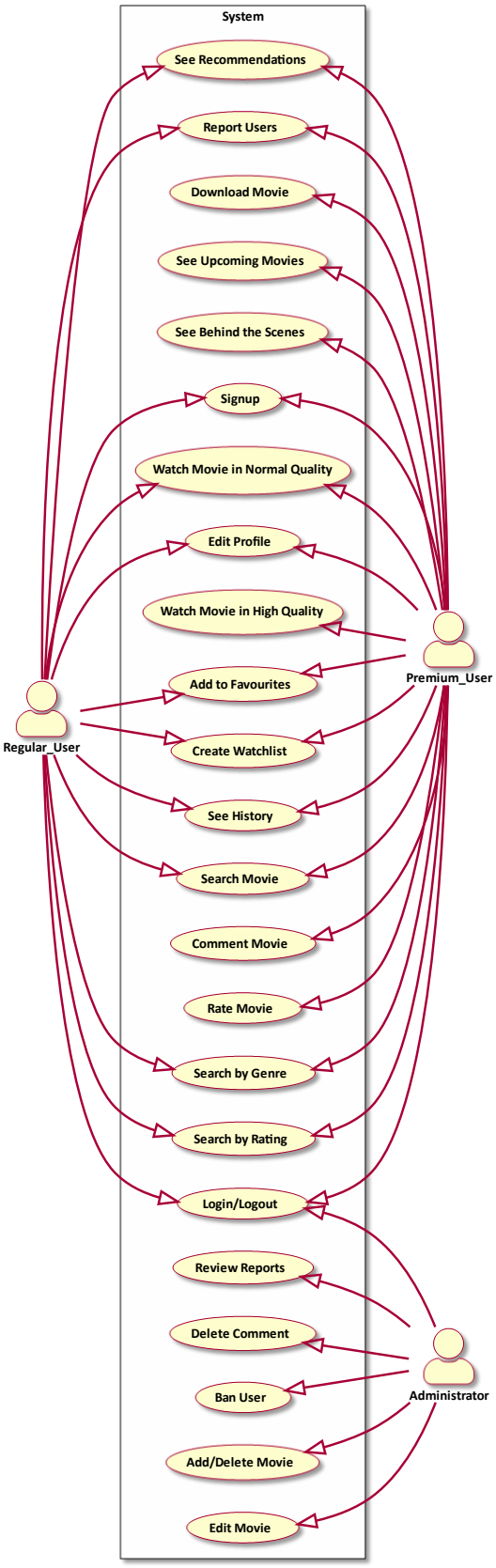
- sign up,
- log in/log out
- edit their own profiles,
- see recommendations made for them,
- search movie by its rating, search movie by its genre,
- search movie by its name,
- add movies to their favorites,
- create watchlist,
- see history,
- watch movie in normal quality.

In addition to these, the system allows premium users to :

- watch movies in high quality,
- comment movie,
- rate movie,
- download movie,
- see upcoming movies,
- see behind the scenes.

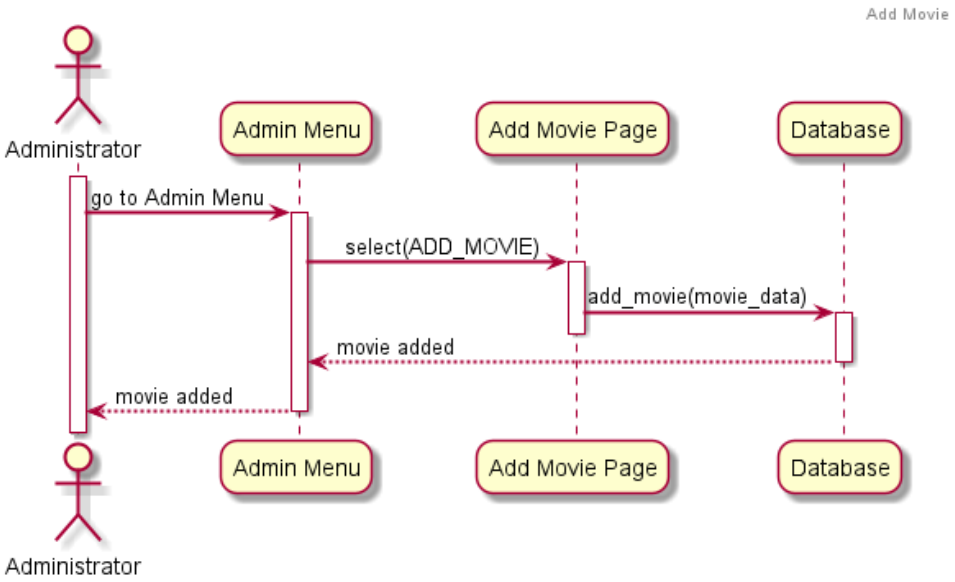
4-DIAGRAMS

1) Use case diagram:

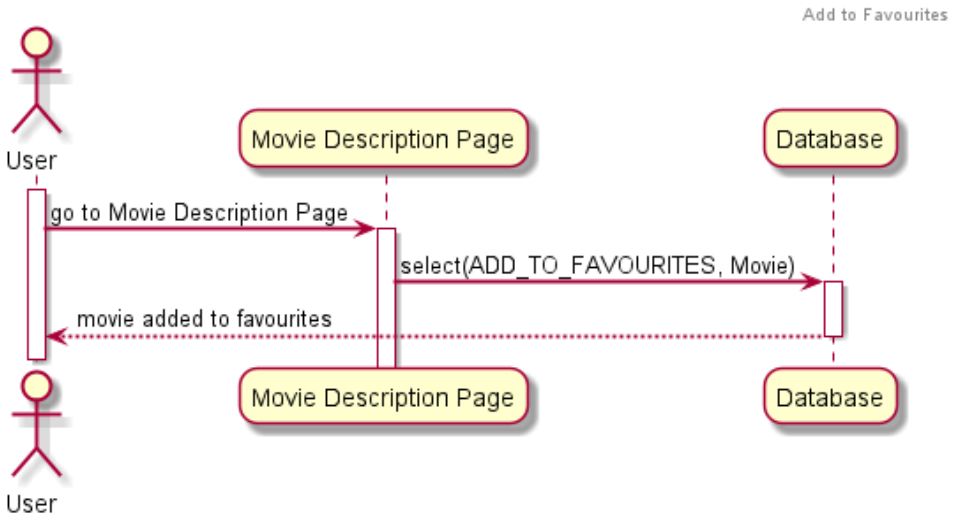


➢ Sequence diagrams:

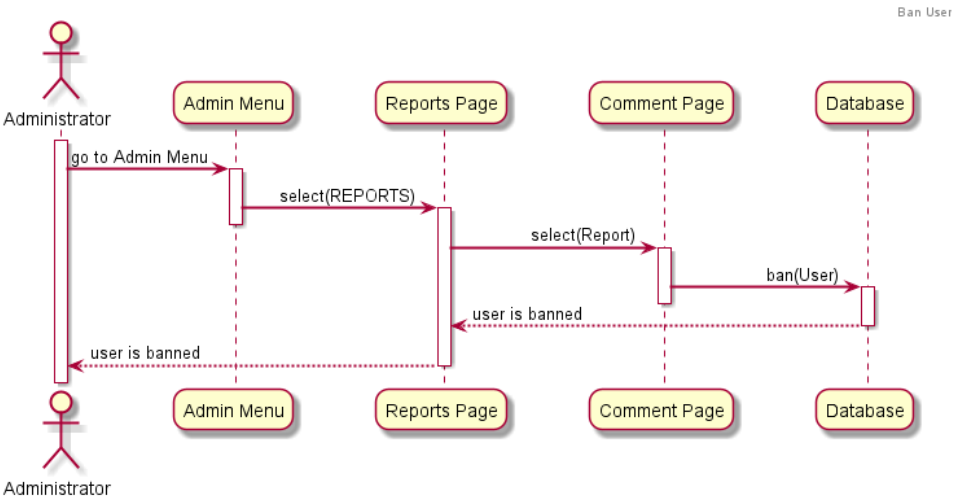
- Add Movie



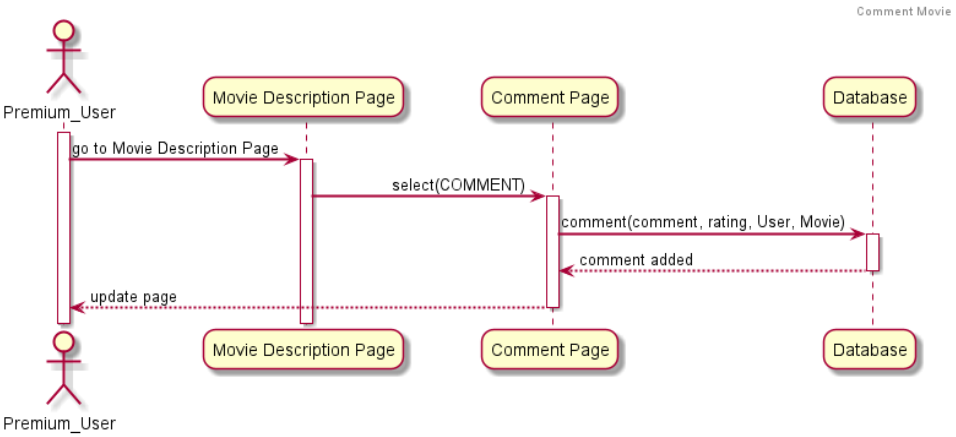
– dd to Favourites



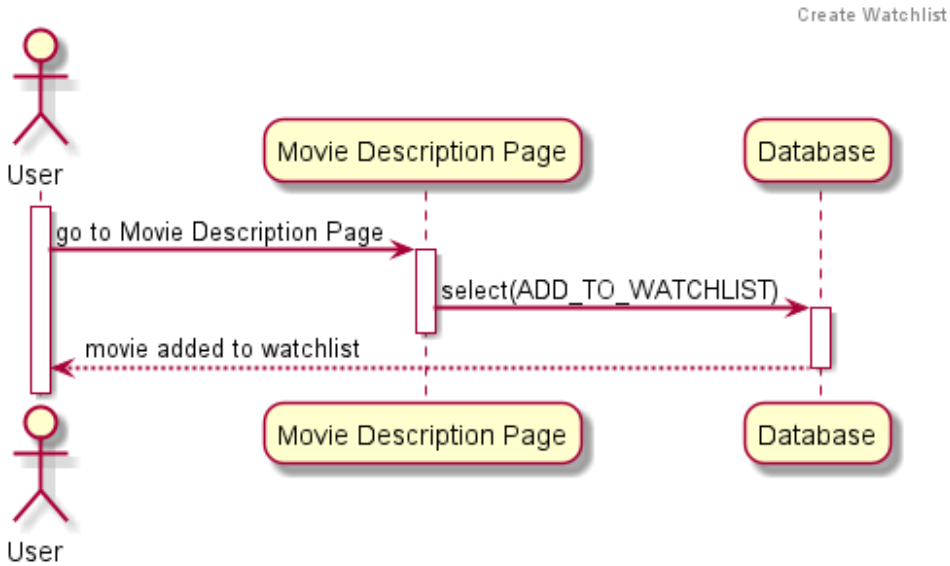
- Ban User



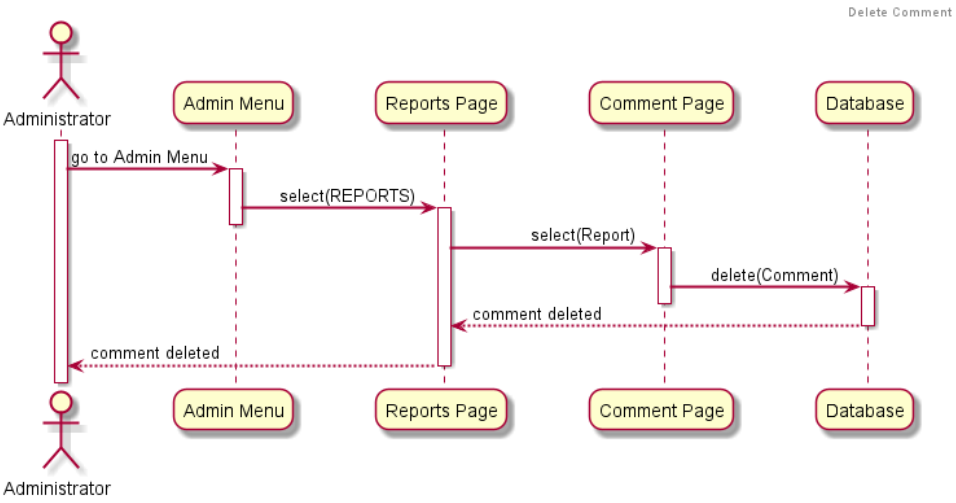
- Comment Movie



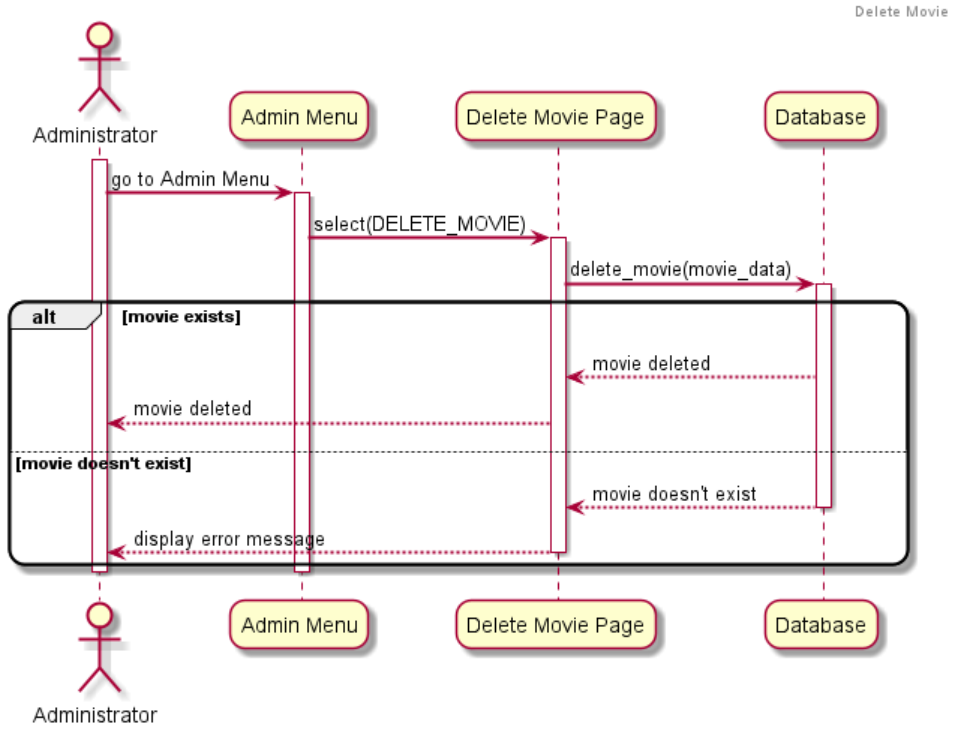
- Create Watchlist



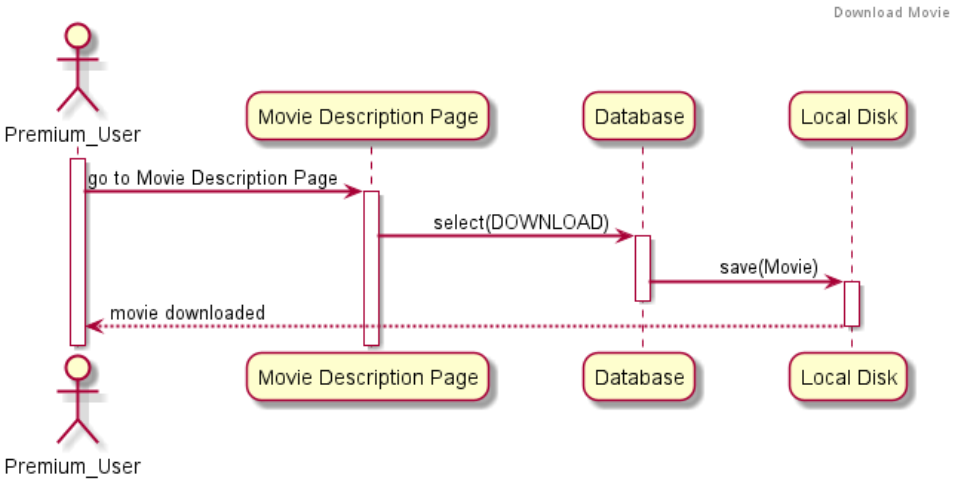
- Delete Comment



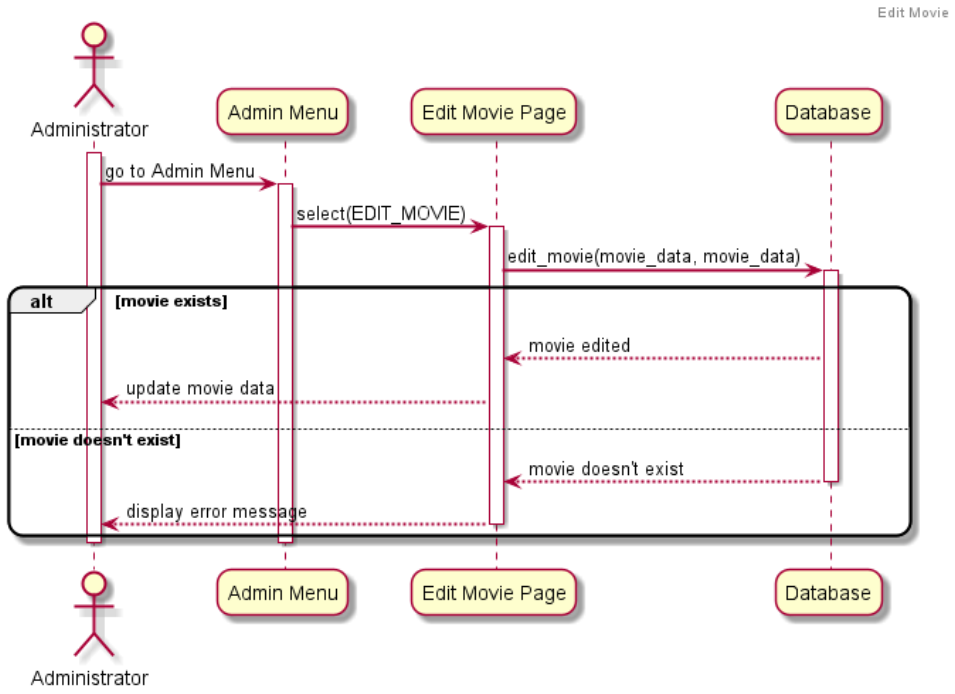
- Delete Movie



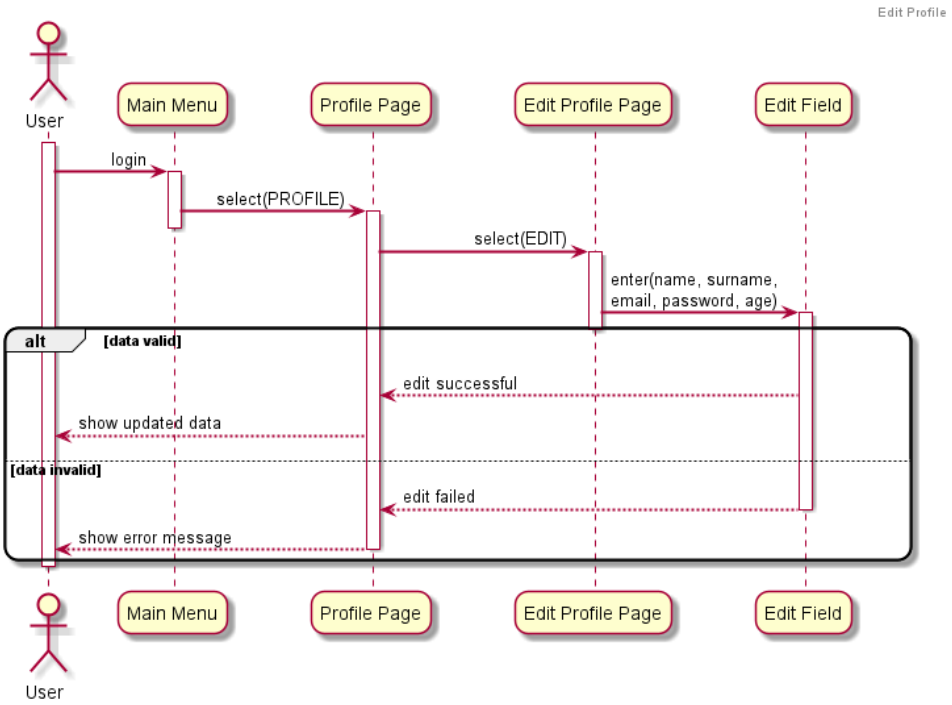
- Download Movie



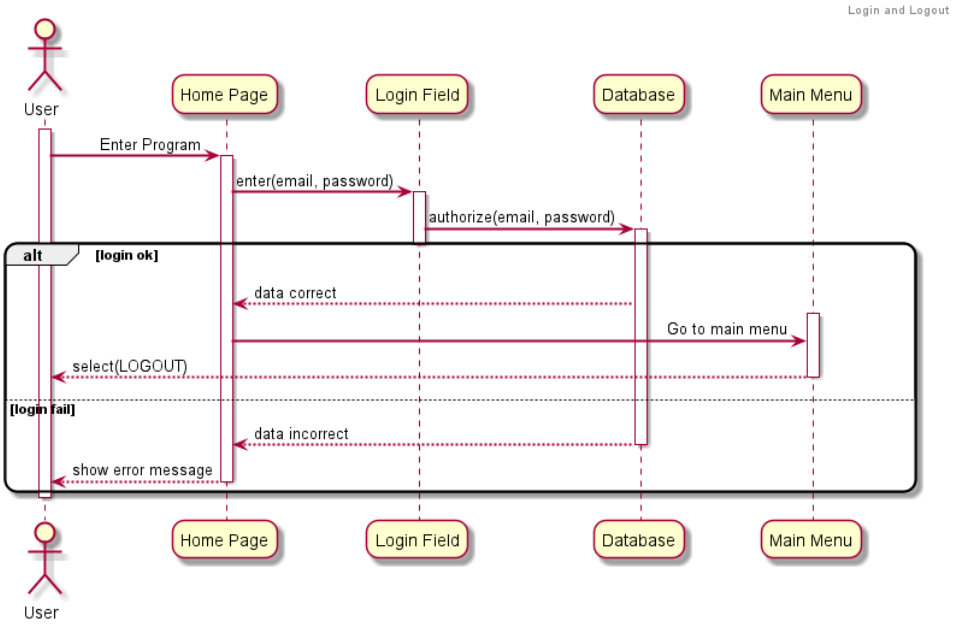
- Edit Movie



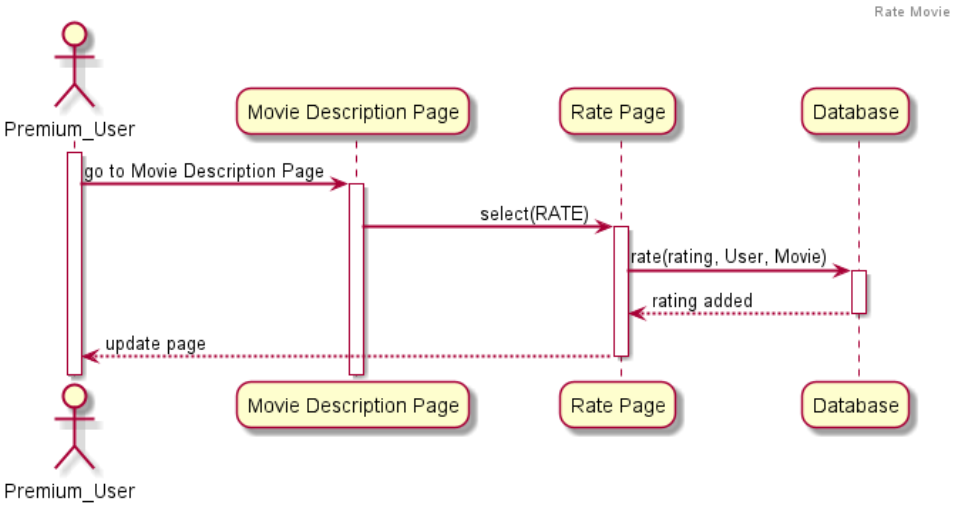
- Edit Profile



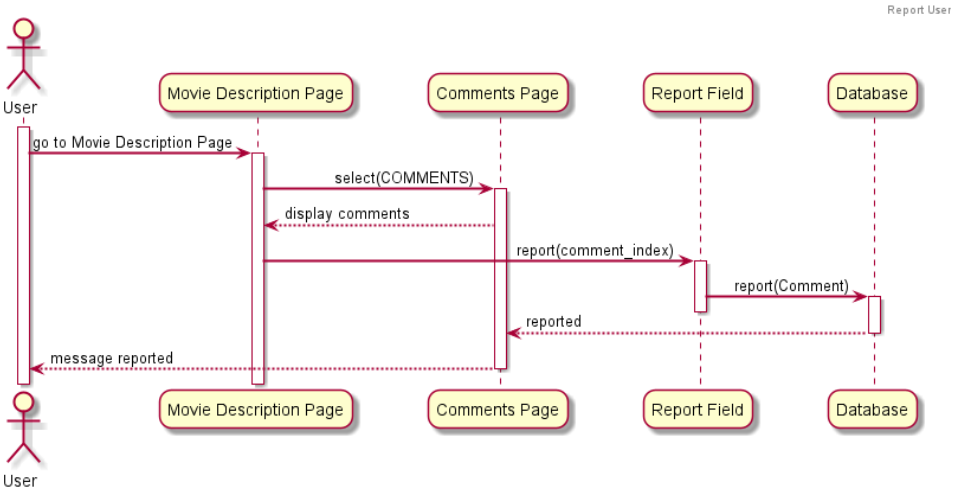
- Login And Logout



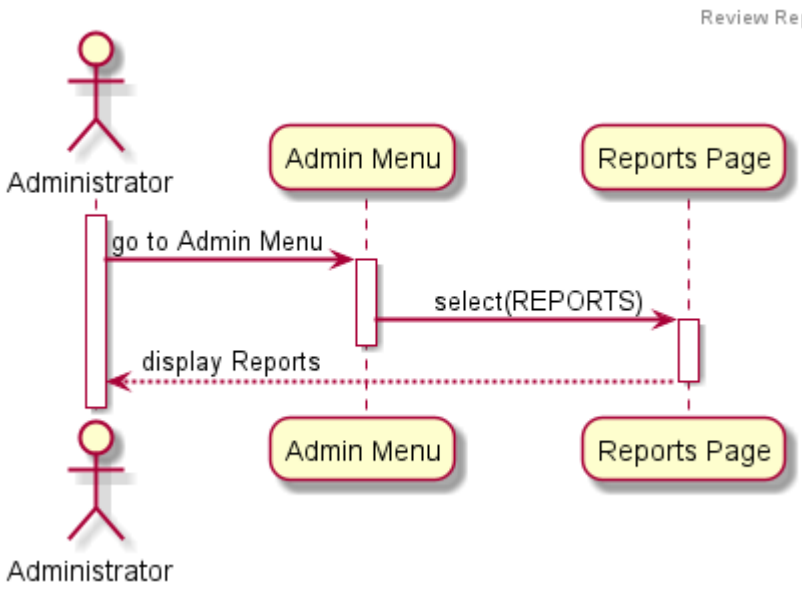
- Rate Movie



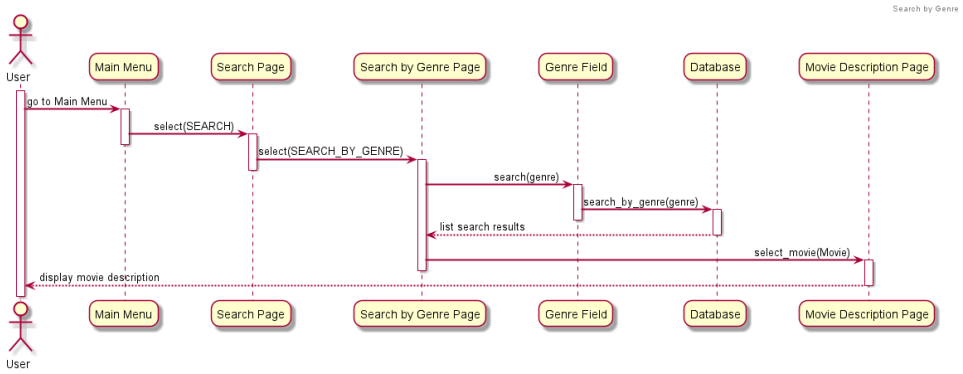
- Report User



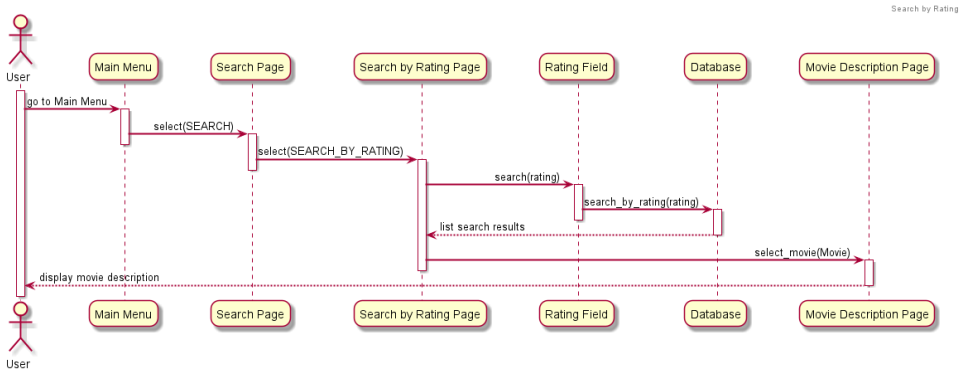
- Review Reports



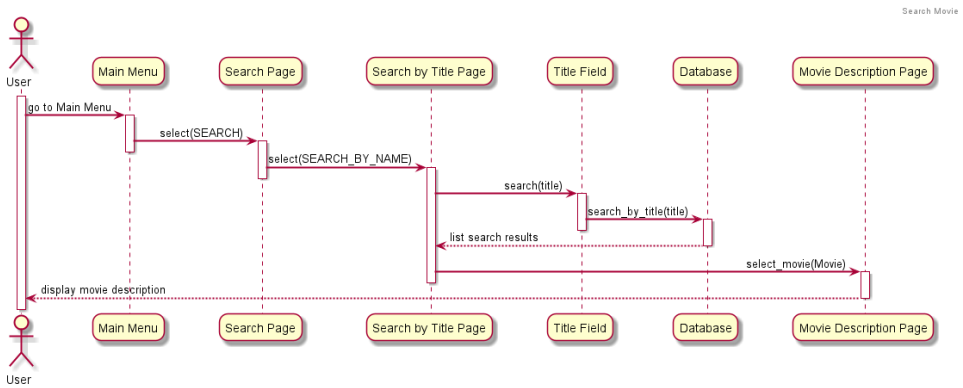
- Search By Genre



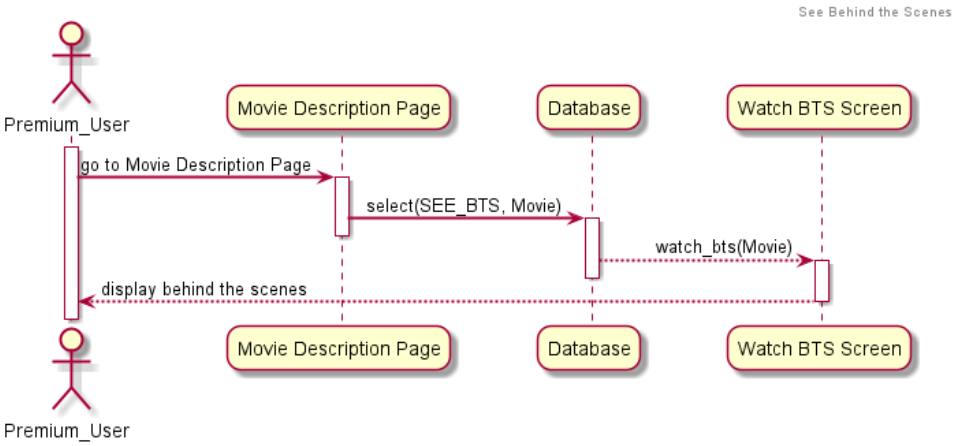
- Search By Rating



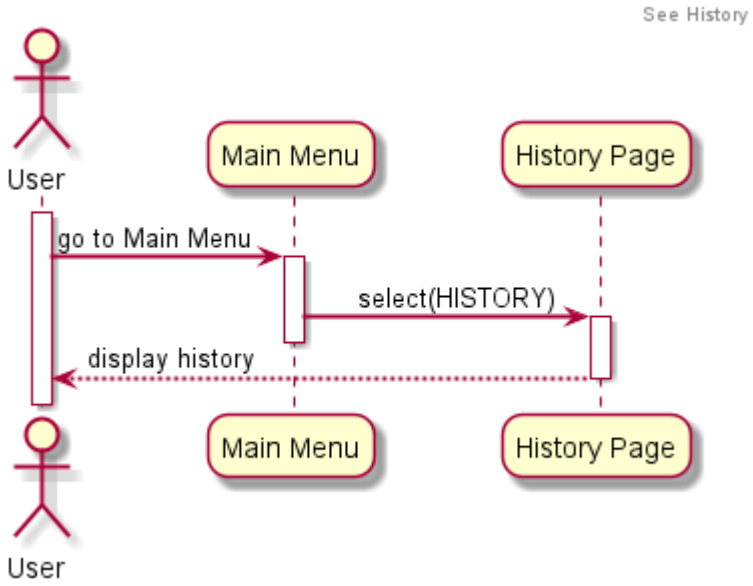
- Search Movie



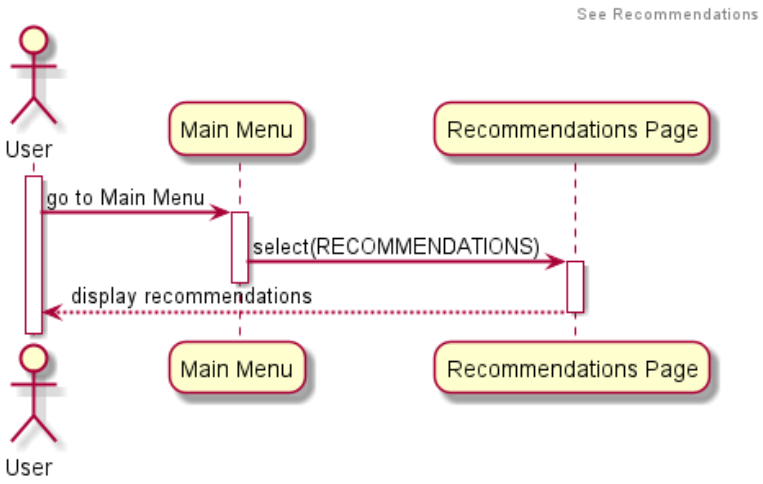
- See Behind The Scenes



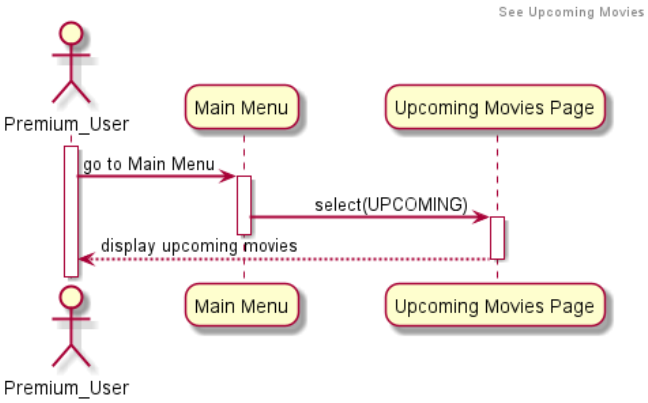
- See History



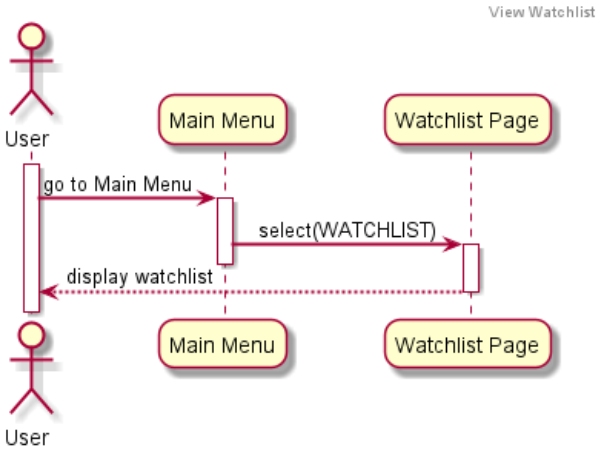
- See Recommendations



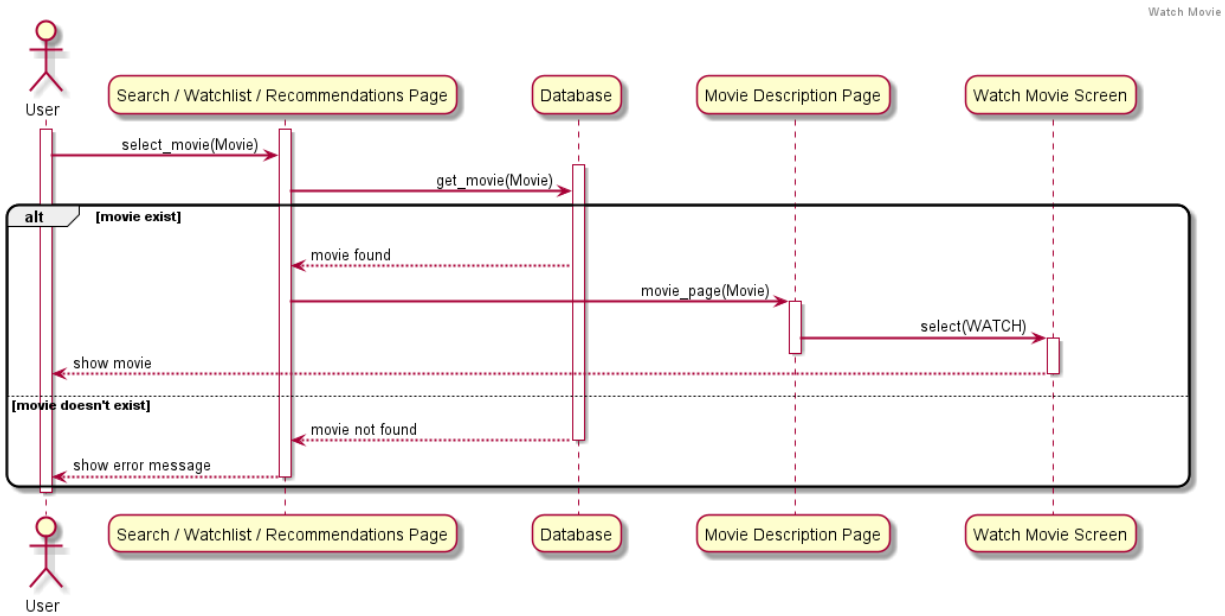
- See Upcoming Movies



- View Watchlist

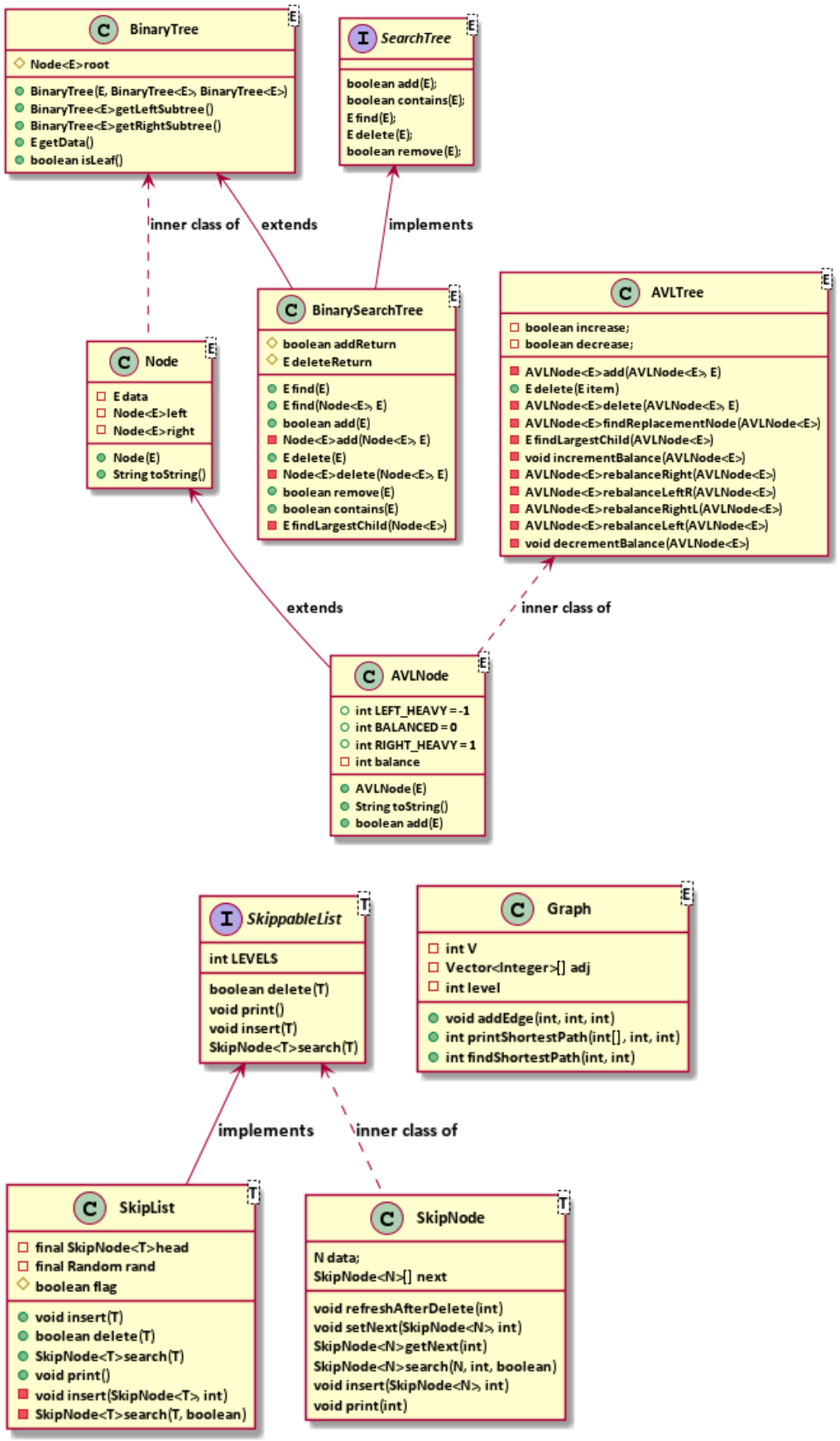


- Watch Movie

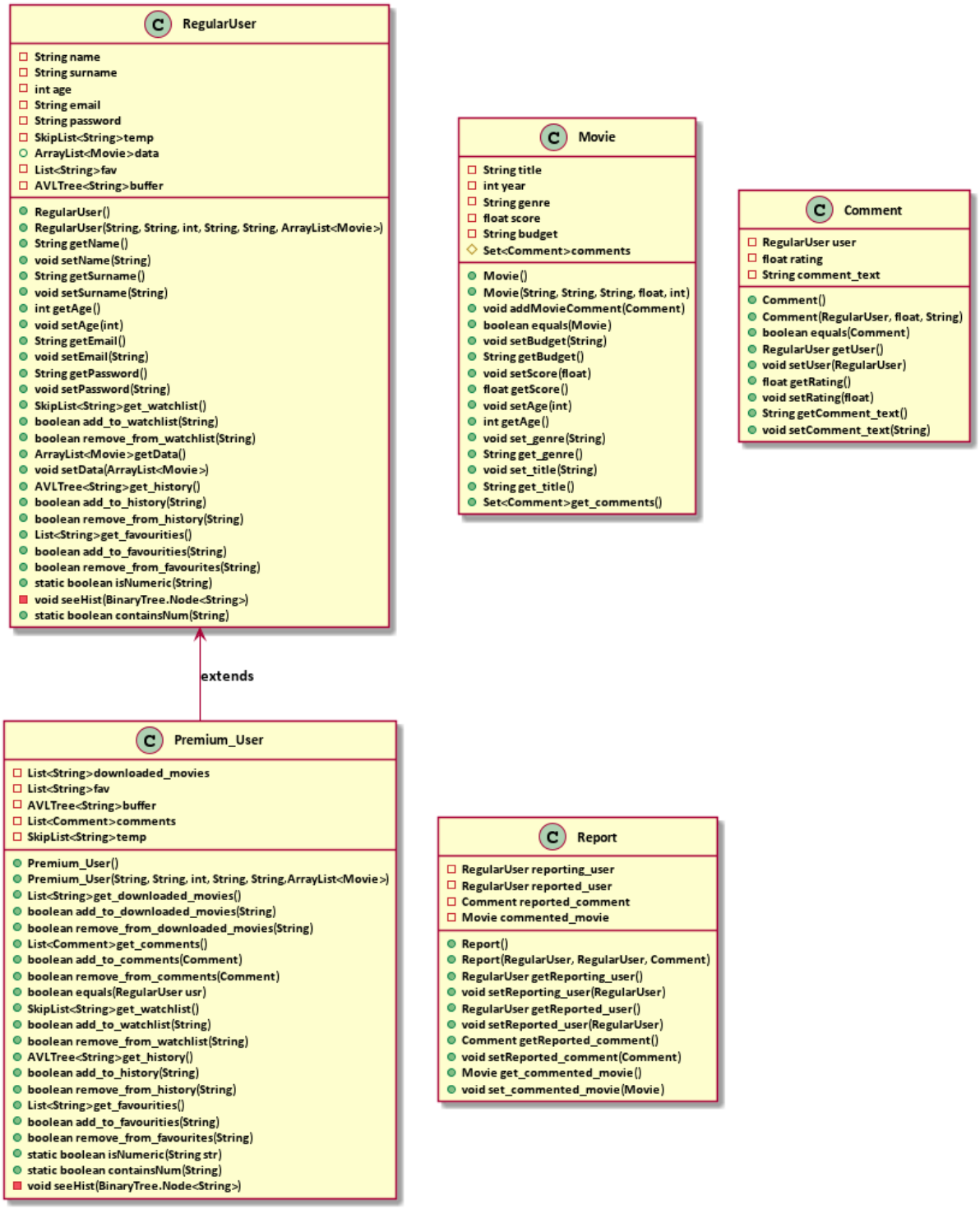


➢ Class:

- Data Structures

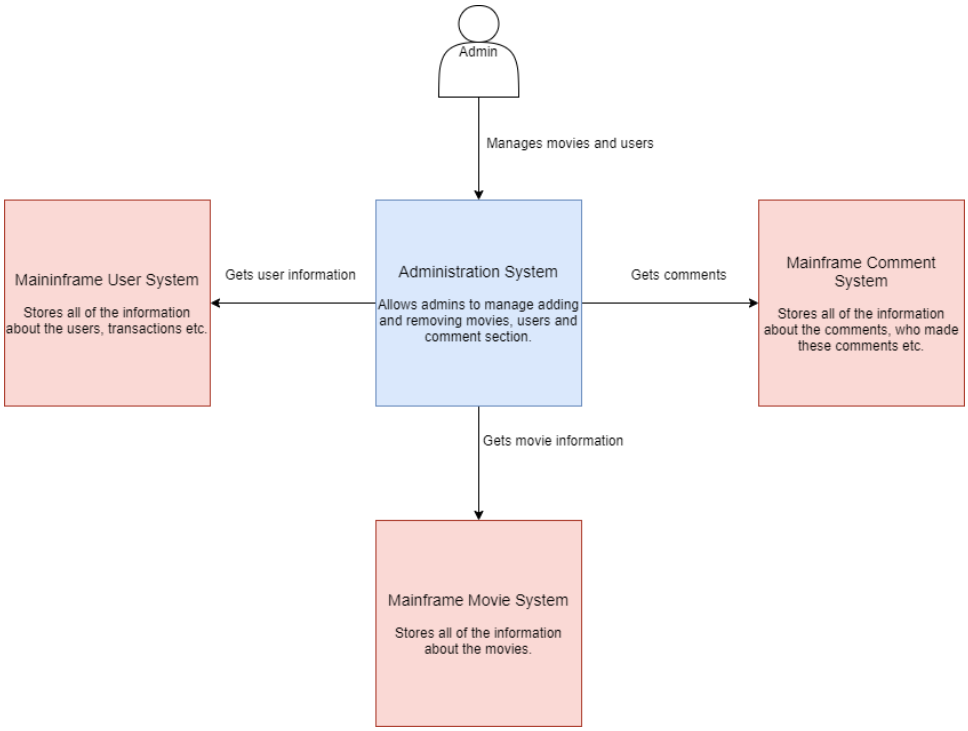


- Movie User

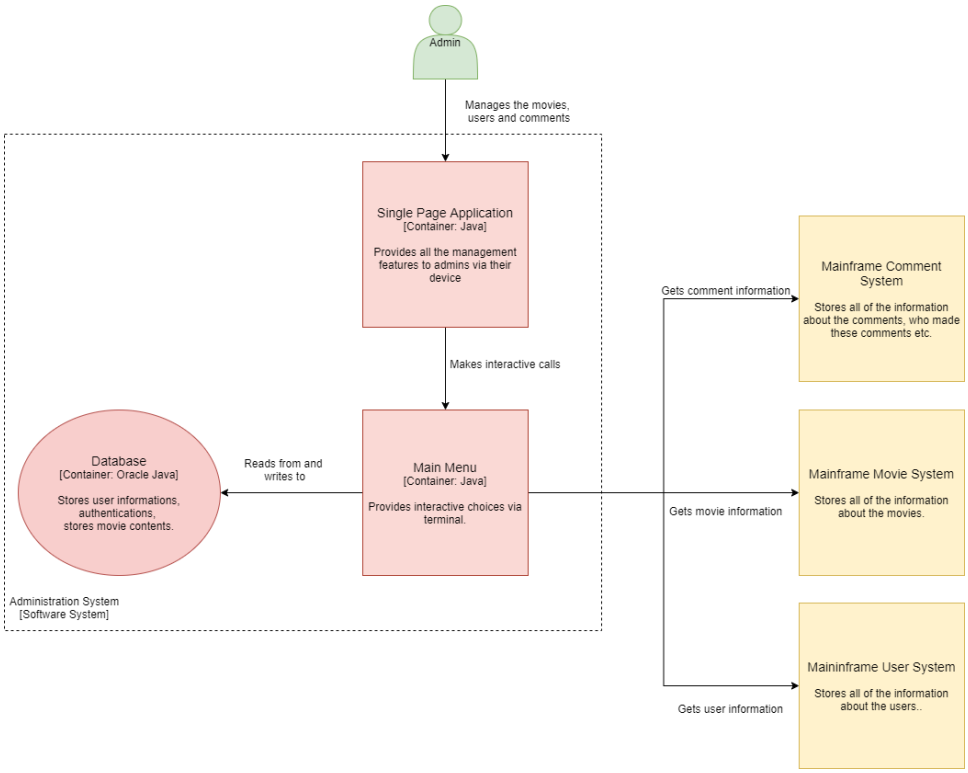

RegularUser
String name
String surname
int age
String email
String password
SkipList<String>temp
ArrayList<Movie>data
List<String>fav
AVLTree<String>buffer
RegularUser()
RegularUser(String, String, int, String, String, ArrayList<Movie>)
String getName()
void setName(String)
String getSurname()
void setSurname(String)
int getAge()
void setAge(int)
String getEmail()
void setEmail(String)
String getPassword()
void setPassword(String)
SkipList<String>get_watchlist()
boolean add_to_watchlist(String)
boolean remove_from_watchlist(String)
ArrayList<Movie>getData()
void setData(ArrayList<Movie>)
AVLTree<String>get_history()
boolean add_to_history(String)
boolean remove_from_history(String)
List<String>get_favourities()
boolean add_to_favourities(String)
boolean remove_from_favourites(String)
static boolean isNumeric(String)
void seeHist(BinaryTree.Node<String>)
static boolean containsNum(String)
Movie
String title
int year
String genre
float score
String budget
Set<Comment>comments
Movie()
Movie(String, String, String, float, int)
void addMovieComment(Comment)
boolean equals(Movie)
void setBudget(String)
String getBudget()
void setScore(float)
float getScore()
void setAge(int)
int getAge()
void set_genre(String)
String get_genre()
void set_title(String)
String get_title()
Set<Comment>get_comments()
Comment
RegularUser user
float rating
String comment_text
Comment()
Comment(RegularUser, float, String)
boolean equals(Comment)
RegularUser getUser()
void setUser(RegularUser)
float getRating()
void setRating(float)
String getComment_text()
void setComment_text(String)
extends
Premium_User
List<String>downloaded_movies
List<String>fav
AVLTree<String>buffer
List<Comment>comments
SkipList<String>temp
Premium_User()
Premium_User(String, String, int, String, String,ArrayList<Movie>)
List<String>get_downloaded_movies()
boolean add_to_downloaded_movies(String)
boolean remove_from_downloaded_movies(String)
List<Comment>get_comments()
boolean add_to_comments(Comment)
boolean remove_from_comments(Comment)
boolean equals(RegularUser usr)
SkipList<String>get_watchlist()
boolean add_to_watchlist(String)
boolean remove_from_watchlist(String)
AVLTree<String>get_history()
boolean add_to_history(String)
boolean remove_from_history(String)
List<String>get_favourities()
boolean add_to_favourities(String)
boolean remove_from_favourites(String)
static boolean isNumeric(String str)
static boolean containsNum(String)
void seeHist(BinaryTree.Node<String>)
Report
RegularUser reporting_user
RegularUser reported_user
Comment reported_comment
Movie commented_movie
Report()
Report(RegularUser, RegularUser, Comment)
RegularUser getReporting_user()
void setReporting_user(RegularUser)
RegularUser getReported_user()
void setReported_user(RegularUser)
Comment getReported_comment()
void setReported_comment(Comment)
Movie get_commented_movie()
void set_commented_movie(Movie)

➢ C4 Model:

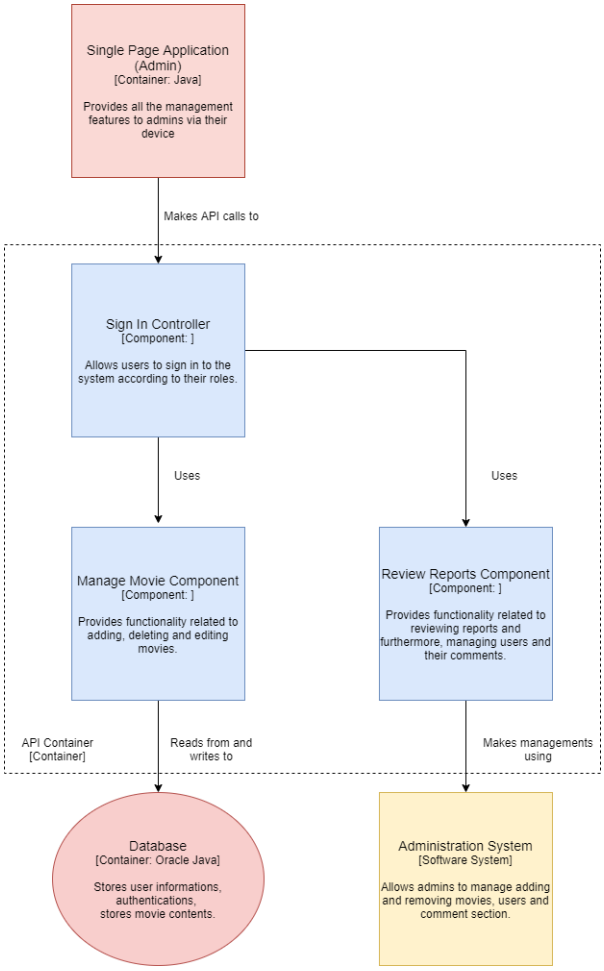
– Admin Level 1



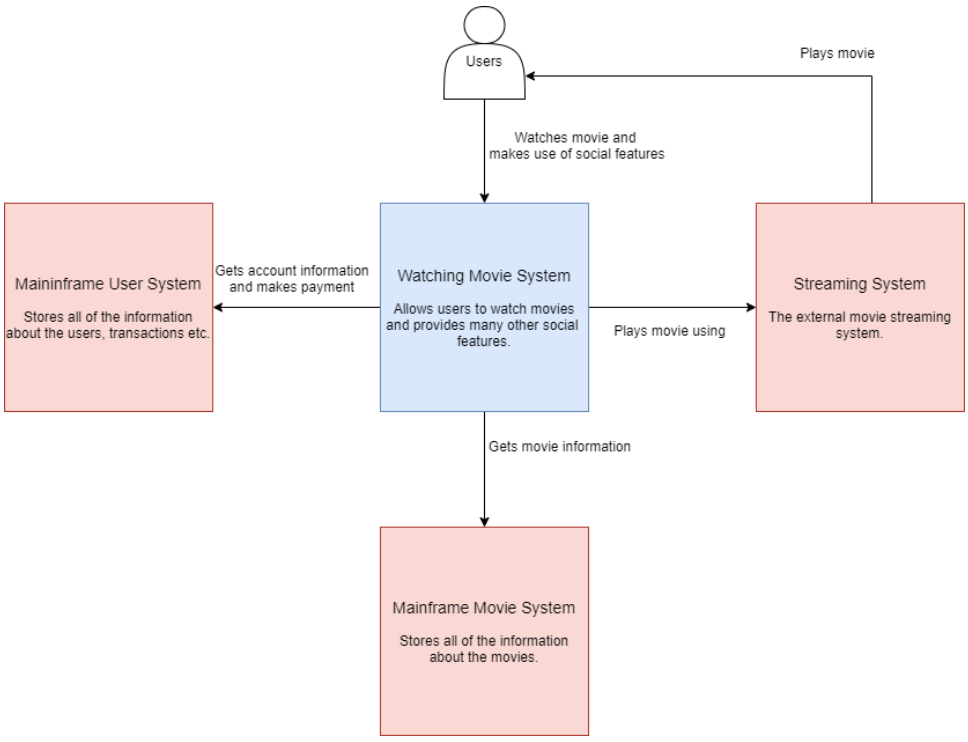
- Admin Level 2



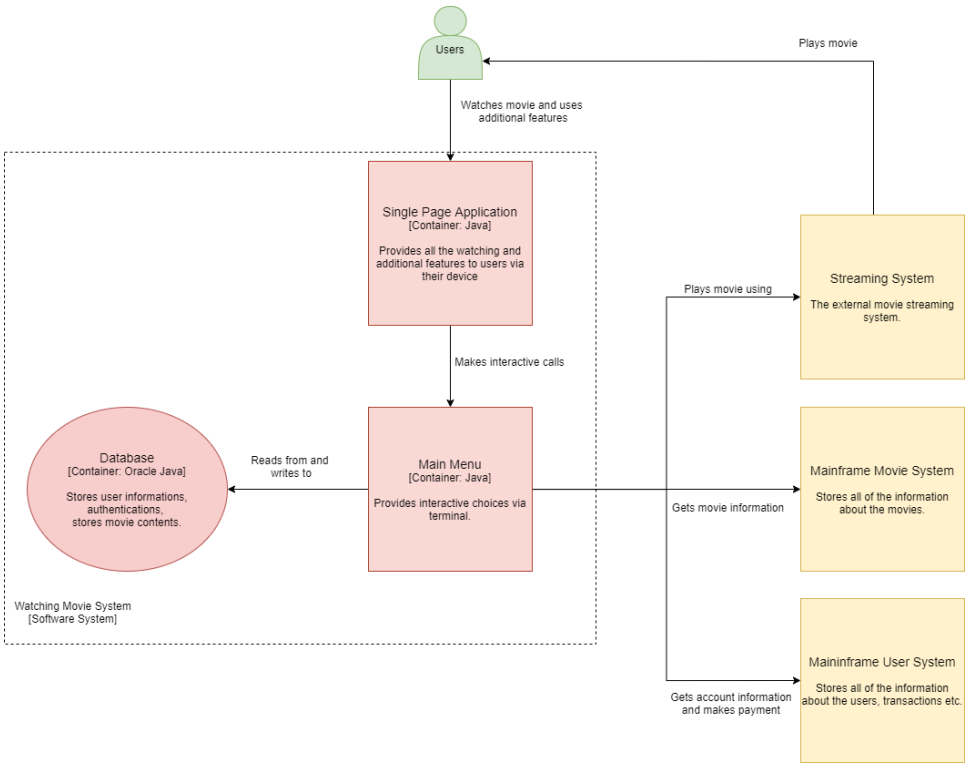
- Admin Level 3



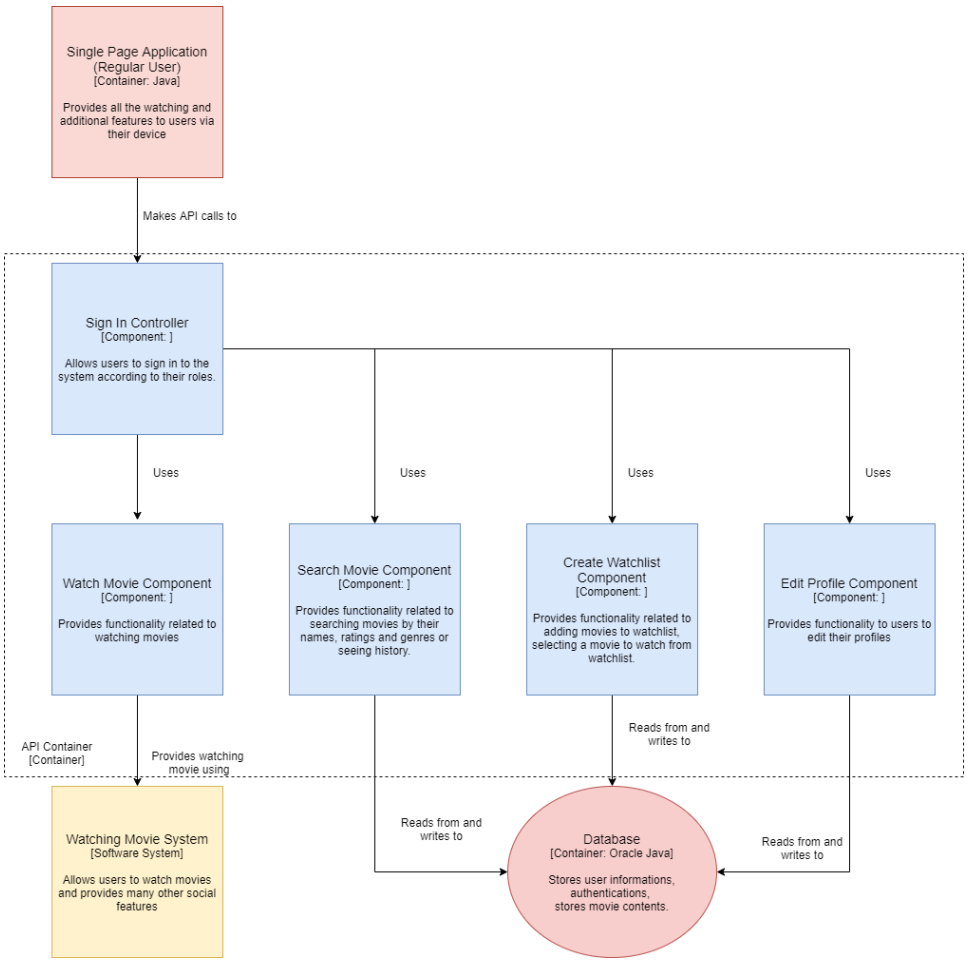
- User Level 1 (Regular and Premium User models are same for levels 1 and 2)



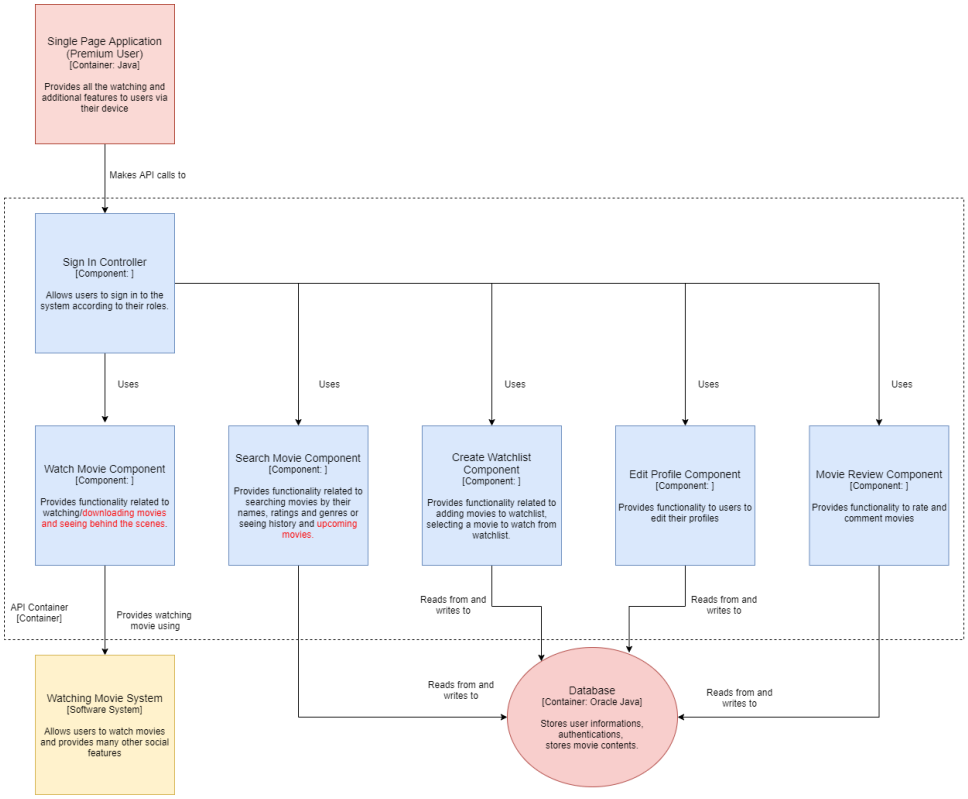
- User Level 2



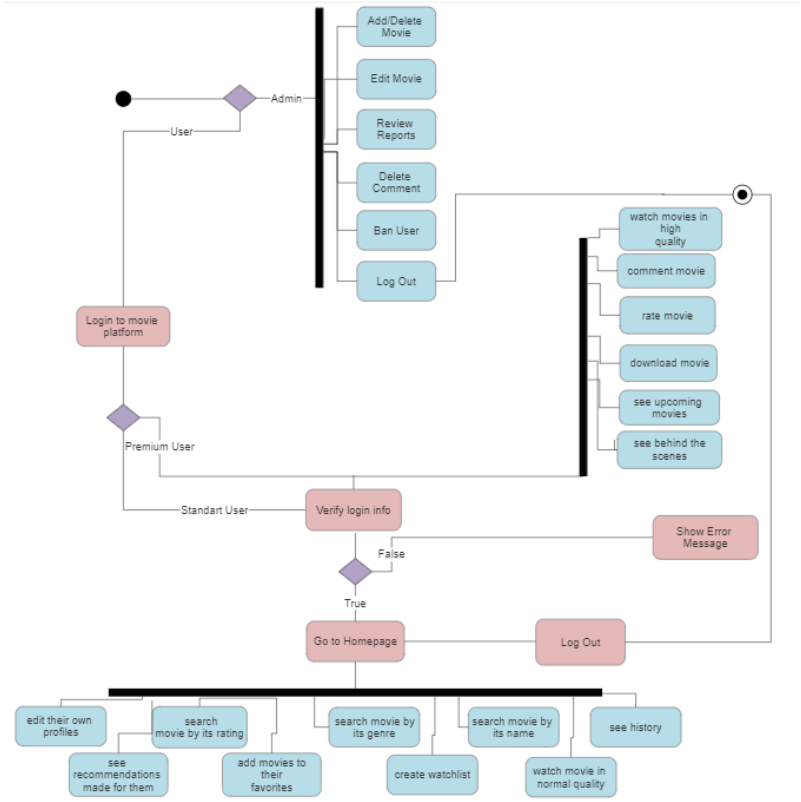
- User Level 3



- Premium Level



➢ Activity diagrams



TEST CASES

Test ID	Test Scenario	Action	Test Data	Expected Results	Pass/Fail
T0	User Signup	User enters his/her information to signup	Name: Hakan Surname: Candan Username: testuser1 Password: mypassword123	Account is created	Pass
T1	User Login	User enters his/her info properly	Username: testuser1 Password: mypassword123	User enters the system	Pass
T2	User Login Invalid	User enters wrong credentials	Username: testuser1 Password: password16	User can't log in to the system	Pass
T3	User Log Out	User tries to log out	-----	User logged out	Pass
T4	Edit Profile	User tries to change his/her profile information	New name: Haktan	User profile updated	Pass
T5	Add to Favorites	User tries to add a movie to his/her favorites list	Movie: Just Visiting	Selected movie added to favorites list of the user	Pass
T6	Create Watchlist	User tries to create a watchlist of movies to watch them later	Movies: Rocky Balboa Wild Wild West	Watchlist created	Pass
T7	See History	User tries to see the movies he/she watched previously	History: Just Visiting Paper Man	History is printed to screen	Pass
T8	Search Movie	User looks for a movie by entering a keyword	Keyword: Paper	Movies related to entered keyword are printed to screen	Pass

T9	See Recommendations	User tries to see movies recommended by system	Recommendations: Roxanne Scrooged	Movies that specified for user are printed to screen	Pass
T10	Search by Genre	User tries to see movies with Genre he/she select	Selected genre: Comedy	Movies with selected Genre are printed to screen	Pass
T11	Search by Rating	User tries to see movies with selected rating interval	Selected Interval: 6-8	Movies with selected rating interval are printed to screen	Pass
T12	Watch Movie in Normal Quality	User tries to watch a movie in normal quality	Movie to watch in normal quality: Butterfly Effect	User started to watch selected movie in normal quality	Pass
T13	Watch Movie in High Quality	Premium User tries to watch a movie in high quality	Movie to watch in high quality: The Master	User started to watch selected movie in high quality	Pass
T14	Comment Movie	Premium User tries to add a comment for a movie	Movie to comment: Anaconda Comment: Wow, great!	Comment is added	Pass
T15	Rate Movie	Premium User tries to rate a movie	Movie to rate: Anaconda Rate: 7	Movie is rated	Pass
T16	Download Movie	Premium User tries to download a movie	Movie to download: Sing	Downloading is started	Pass
T17	See Upcoming Movies	Premium User tries to see upcoming movies	Upcoming Movies: Focus The Green Mile	Upcoming Movies are printed to screen	Pass
T18	Add Movie	Admin adds a movie to system	Movie: Focus Genre: Crime Budget: 3000000$	Movie is added to system	Pass

			Year: 2014		
T19	Delete Movie	Admin deletes a movie from the system	Movie to delete: Focus	Movie is deleted from system	Pass
T20	Edit Movie	Admin edits information of a selected movie	Movie: Focus Year: 2015	Information of movie is updated	Pass

Performance Analysis of Methods

```
openPage = O(n)
adminLogin = O(1)
adminMenu = O(1)
reviewReports = O(1)
addMovie = O(1)
deleteMovie = O(n)
printMovieData = O(1)
printReportData = O(1)
readInput = O(1)
initialize = O(n^2)
update_UserDB = O(n)
update_PreUserDB = O(n)
update_movieDB = O(n)
update_reportDB = O(n)
signIn = O(1)
logIn = O(n)
regularUserMenu = O(1)
premiumUserMenu = O(1)
searchMovie = O(n)
oku = O(n)
convertPremium = O[V^2]
sortByScore = O(n^2)
graph.addEdge = O(1)
graph.printShortestPath = O(n)
graph.findShortestPath = O[V^2]
```

Implementation Details:

Skip List: Used in keeping watchlist of user.

AVLTree: Used in keeping user's history.

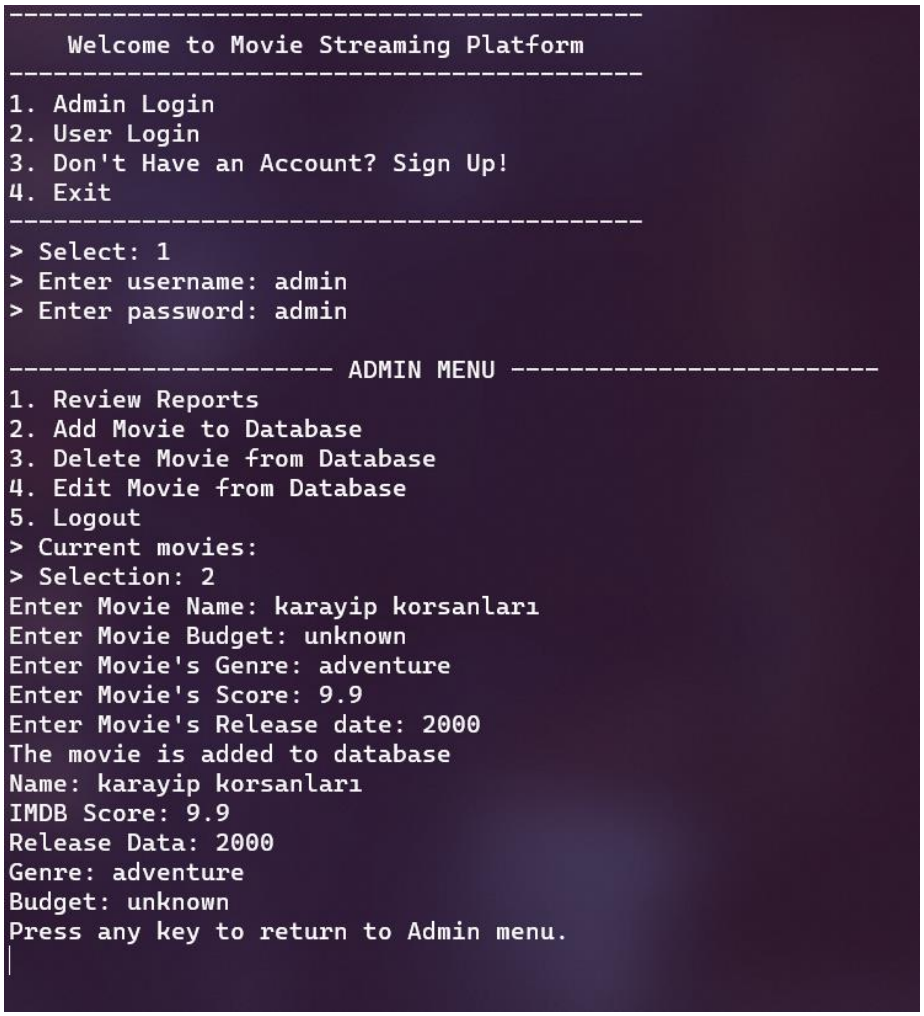
Graph: Used in movie recommendations in main program.

Set: Used in keeping comments of a movie.

Sorting Algorithm: Quicksort

We have used Quicksort because it is a reliable algorithm. Our movie database is organized in a way that worst case can never happen. Also, the database can be a large file. Quicksort's space complexity is compatible when working on large databases.

RUNNING COMMANDS & RESULTS



```
------------------------------------------
1. Admin Login
2. User Login
3. Don't Have an Account? Sign Up!
4. Exit
------------------------------------------
> Select: 1
> Enter username: admin
> Enter password: admin

---------------------- ADMIN MENU -------------------------
1. Review Reports
2. Add Movie to Database
3. Delete Movie from Database
4. Edit Movie from Database
5. Logout
> Current movies:
> Selection: 4
Enter the name of the movie: downfall
Enter Movie Name: xd

Enter Movie Budget: 5
Enter Movie's Genre: haha
Enter Movie's Score: 19
Enter Movie's Release date: 0911
```

```
-----------------------------------------
    Welcome to Movie Streaming Platform
-----------------------------------------
1. Admin Login
2. User Login
3. Don't Have an Account? Sign Up!
4. Exit
-----------------------------------------
> Select: 2
> Enter your email: ed
> Enter your password: da
> Invalid email address or password.
> Would you like to try again to log in (1) or sign in a new account (2) ?
2

------------------------- Create an Account -------------------------

> Which one do you prefer?
1- Premium version
2- Free Version
3- Convert Premium
-------------------------

1
> Select: 1

Enter your name: eda
Enter your surname : cnkci
Enter your age: 19
Enter your email: ed
Enter your password: da
You are now premium user
1. Admin Login
2. User Login
3. Don't Have an Account? Sign Up!
4. Exit
-----------------------------------------
> Select:
```

```
----------------------------------------
> Select: 2
> Enter your email: ed
> Enter your password: da
> Welcome, eda to platform as premium.
----------------------------- Premium Menu ---------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
------------------------------------------------------------------------------
> Select: 1
> Enter the name of the movie: avatar

> Movie Found!
Name: avatar
IMDB Score: 7.8
Release Data: 2009
Genre: action
Budget: 237000000

> You are watching the movie.
> You have watched the movie avatar


----------------------------- Premium Menu ---------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
```

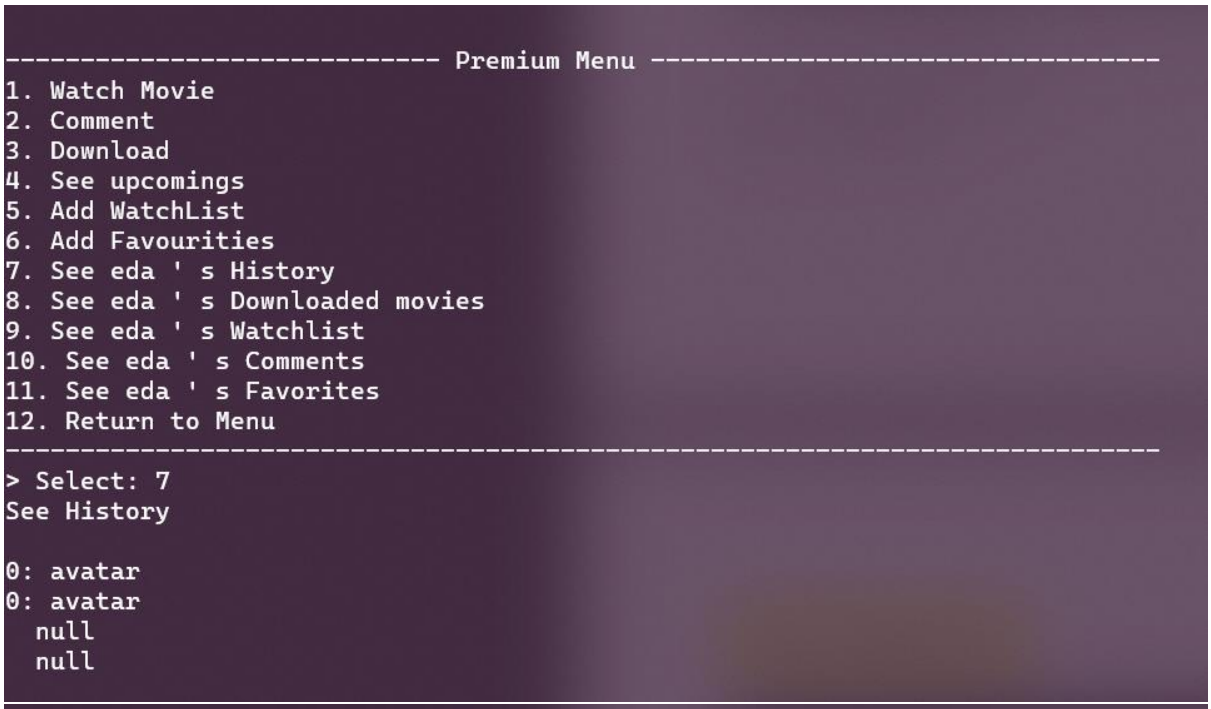
```
----------------------------- Premium Menu ----------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
-----------------------------------------------------------------------------
> Select: 2
> Enter the name of the movie: rocky balboa

> Movie Found!
Name: rocky balboa
IMDB Score: 7.2
Release Data: 2006
Genre: drama
Budget: 24000000

> Enter your rating: 9.8
> Enter your comment:
harika
```

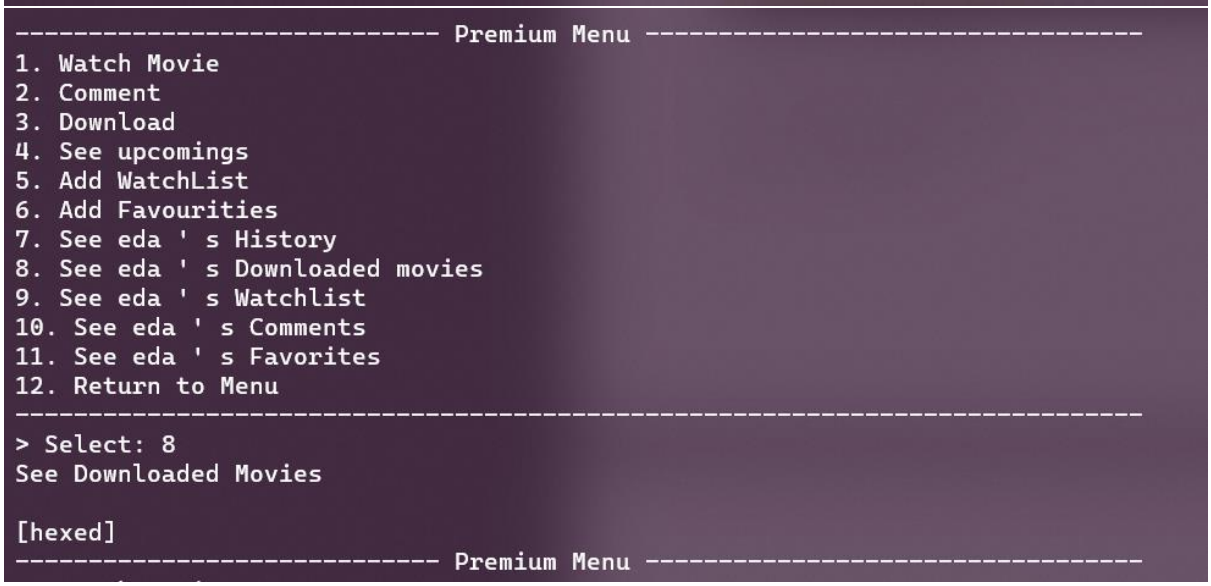
```
----------------------------- Premium Menu ----------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
-----------------------------------------------------------------------------
> Select: 3
> Enter the name of the movie: hexed

> Movie Found!
Name: hexed
IMDB Score: 5.5
Release Data: 1993
Genre: comedy
Budget: unknown

> You are downloading the movie.
> The movie hexed is downloaded.
```

```
---------------------------- Premium Menu ---------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
---------------------------------------------------------------------------
> Select: 4

> Movie Found!
Name: hexed
IMDB Score: 5.5
Release Data: 1993
Genre: comedy
Budget: unknown

> Seeing upcoming movies:

am◆lie
black cat white cat
crimes and misdemeanors
dead poets society
devils on the doorstep
dil chahta hai
forrest gump
groundhog day
hannah and her sisters
kal ho naa ho
la la land
```

```
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
------------------------------------------------------------
> Select: 5
> Enter the name of the movie: outbreak

> Movie Found!
Name: outbreak
IMDB Score: 6.6
Release Data: 1995
Genre: action
Budget: 50000000

> Adding to watchlist
```

```
---------------------------- Premium Menu ----------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
--------------------------------------------------------------------------
> Select: 6
> Enter the name of the movie: vibes

> Movie Found!
Name: vibes
IMDB Score: 5.5
Release Data: 1988
Genre: adventure
Budget: 18000000

> Adding to favourities
```


---------- Premium Menu ----------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
> Select: 7
See History
0: avatar
0: avatar
null
null


---------- Premium Menu ----------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
> Select: 8
See Downloaded Movies
[hexed]
---------- Premium Menu ----------

```
---------------------------- Premium Menu ----------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
--------------------------------------------------------------------------------
> Select: 9
See Watchlist

level 4: [ ], length: 0
level 3: [ ], length: 0
level 2: [ ], length: 0
level 1: [ ], length: 0
level 0: [ outbreak ], length: 1
```

```
---------------------------- Premium Menu ----------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
--------------------------------------------------------------------------------
> Select: 10
See Comments

[harika]
```

```
---------------------------- Premium Menu ----------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
--------------------------------------------------------------------------------
> Select: 11
See Favorites

[vibes]
```

```
---------------------------- Premium Menu ----------------------------------
1. Watch Movie
2. Comment
3. Download
4. See upcomings
5. Add WatchList
6. Add Favourities
7. See eda ' s History
8. See eda ' s Downloaded movies
9. See eda ' s Watchlist
10. See eda ' s Comments
11. See eda ' s Favorites
12. Return to Menu
--------------------------------------------------------------------------------
> Select: 12
1. Admin Login
2. User Login
3. Don't Have an Account? Sign Up!
4. Exit
-----------------------------------------
```

```
--------------------------------------------------------------------------------
> Select: 12
1. Admin Login
2. User Login
3. Don't Have an Account? Sign Up!
4. Exit
-----------------------------------------
> Select: 2
> Enter your email: olmayan
> Enter your password: hesap
> Invalid email address or password.
> Would you like to try again to log in (1) or sign in a new account (2) ?
```

```
------------------------- Create an Account -------------------------

> Which one do you prefer?
1- Premium version
2- Free Version
3- Convert Premium
-------------------------

> Select: 2

Enter your name: ed
Enter your surname : reh
Enter your age: 28
Enter your email: fj
Enter your password: d
You are a free user
1. Admin Login
2. User Login
3. Don't Have an Account? Sign Up!
4. Exit
-----------------------------------------
> Select: 2
> Enter your email: fj
> Enter your password: d
> Welcome, ed to platform for free.

1-Watch film
2-Add favourities
3-Add Watchlist
4-See history
5-Exit
Choice: 1
Watching New Film
Please insert the Name of the film: avatar

1-Watch film
2-Add favourities
3-Add Watchlist
4-See history
5-Exit
```

```
2-Add favourities
3-Add Watchlist
4-See history
5-Exit
Choice: 2
Adding favourities
Please Name of the film: downfall

1-Watch film
2-Add favourities
3-Add Watchlist
4-See history
5-Exit
Choice: 3
Add WatchList
Name of the film: the core

1-Watch film
2-Add favourities
3-Add Watchlist
4-See history
5-Exit
Choice: 4
See History

0: avatar

1-Watch film
2-Add favourities
3-Add Watchlist
4-See history
5-Exit
Choice: 5
-------- > Quit < ------
1. Admin Login
2. User Login
3. Don't Have an Account? Sign Up!
4. Exit
-----------------------------------------
> Select:
```

1-Watch film
2-Add favourities
3-Add Watchlist
4-See history
5-Exit
Choice: 5
-------- > Quit < ------
1. Admin Login
2. User Login
3. Don't Have an Account? Sign Up!
4. Exit
> Select: 4
> See you!
eda@DESKTOP-KM92SPP:/mnt/c/Users/Eda/Deskt

END