



IT320
Software Engineering
N.N.S Cinema
System Modelling

Second Semester 1440
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1. INTRODUCTION

In this document we will specify the user characteristics and the requirements determination by using literate review, interview and questionnaire, it also includes the functional and non-functional requirements that are provided in our system, there will be 4 modeling design in the request modeling design section, we also have a section for the architectural and component level designs and we also clarify the interface design.

2. USER CHARACTERISTICS

Our system is going to fit users with simple educational level but they need to be able to read-understand English and from the technical side they only need to have the capability to deal with computer programs.

3. REQUIREMENTS DETERMINATION

3.1. LITERATE REVIEW

	AMC cinema system	Vox Cinema system	Our system
Registration	No	Yes	Yes
Show the available movies	Yes	Yes	Yes
Booking tickets	Yes	Yes	Yes
Search for movies	no	Yes	No
Show information of the movies	Yes	Yes	Yes

3.2. INTERVIEW

Interview outline	
Interviewee: Haya	Interviewer: Norah
Location/medium: Phone call	Appointment date: Start time: 6:00 p.m. End time: 6:15 p.m.
Objectives: must be collect data about Cinema websites to understand people's opinion about them.	
Agenda: Can I make interview with you? We will create a website which will view the available movies and their time also the customer will be able to book tickets from the website. Do you use a Cinema website? Was it easy to use? Do you want to support Arabic language? What features have you liked? Have you got a problem?	Approximate time: 1 minute 2 minutes 1 minute 1 minute 1 minute 3 minutes 2 minutes
General observations: There are no notes.	
Unresolved issues, topics not covered: Some features customer might prefer to add in the future	
<u>Question1:</u> Do you use a Cinema website?	<u>answer:</u> Yes.
<u>Question2:</u> Was it easy to use?	<u>answer:</u> Yes, it is clear.
<u>Question3:</u> Do you want to support Arabic language?	<u>answer:</u> Yes.
<u>Question4:</u> What features have you liked?	<u>answer:</u> I can watch all available movies and tickets

Question5:

answer:

Have you got a problem?

From my experience no

3.3. QUESTIONNAIRE

1- Do you want to allow ticket bookings and not just watch movies available?

☐ I agree ☐ I don't agree

2- Would you like to cancel your reservation in the future?

☐ I agree ☐ I don't agree

3- Do you want the app to remind you of the movie time in the future?

☐ I agree ☐ I don't agree

4- What features do you want to add in the future?

5- What problems would you like to remove in the future?

4. SPECIFIC REQUIREMENTS

4.1. FUNCTIONAL REQUIREMENTS

Customer requirements:

1. the customer shall be able to register in the system.

1.1 the system should allow the customer to register in the system by entering their information (username, email, password).

1.2 The system shall validate the entered information.

1.3 The system shall indicate that there is invalid input if the user enters invalid input.

1.4 The system shall confirm the registration.

2. The user shall be able to book a ticket in the system.

2.1 the system shall let the user login to the system by entering their information (email, password)

2.2 The system shall validate the entered information.

2.3 The system shall indicate that there is invalid input if the user enters invalid input.

2.4 The system shall confirm the login by showing the available movies.

2.5 the system shall show the available movies.

2.6 the system shall allow the user to select a movie.

2.7 the system shall allow the user to select the number of tickets of the selected movie.

2.8 the system shall confirm the booking.

3. The customer shall be able to see the available movies and their information.

3.1 the system shall let the user login to the system by entering their information (email, password)

3.2 The system shall validate the entered information.

3.3 The system shall indicate that there is invalid input if the user enters invalid input.

3.4 The system shall confirm the login by showing the available movies.

4. the employee shall be able to login in the system.

4.1 The system should allow the employee to login in the system by entering their information (username, password).

4.2 The system shall validate the entered information.

4.3 The system shall indicate that there is invalid input if the employee enters invalid input.

4.4 The system shall confirm the login.

Employee requirements:

5. the employee shall be able to login in the system.

5.1 The system should allow the employee to login in the system by entering their information (username, password).

5.2 The system shall validate the entered information.

5.3 The system shall indicate that there is invalid input if the employee enters invalid input.

5.4 The system shall confirm the login.

6.The employee shall be able to add movies in the system.

6.1 the system should allow the employee to login in the system by entering their information (Username, password).

6.2 the system shall show the form for adding a new movie.

6.3 the system shall indicate that there is invalid input if the user enters invalid input.

6.4 the system shall confirm the adding.

4.2.NON FUNCTIONAL REQUIREMENTS

1-Security:

- The system of ensuring the protection of data from unauthorized access.
- The system should allow users to select movie and reservation of tickets.
- In the system the employee only can add movies.

2-USABILITY:

- The simplicity of the interface.
- The system should be familiar.

3-PERFORMANCE:

- The system should be clear and fast.
- the button should be making the required
- The programming language used for the system must be easy to develop

4- Data Integrity:

- The movies information should be correct.
- The user and employee information should be correct.

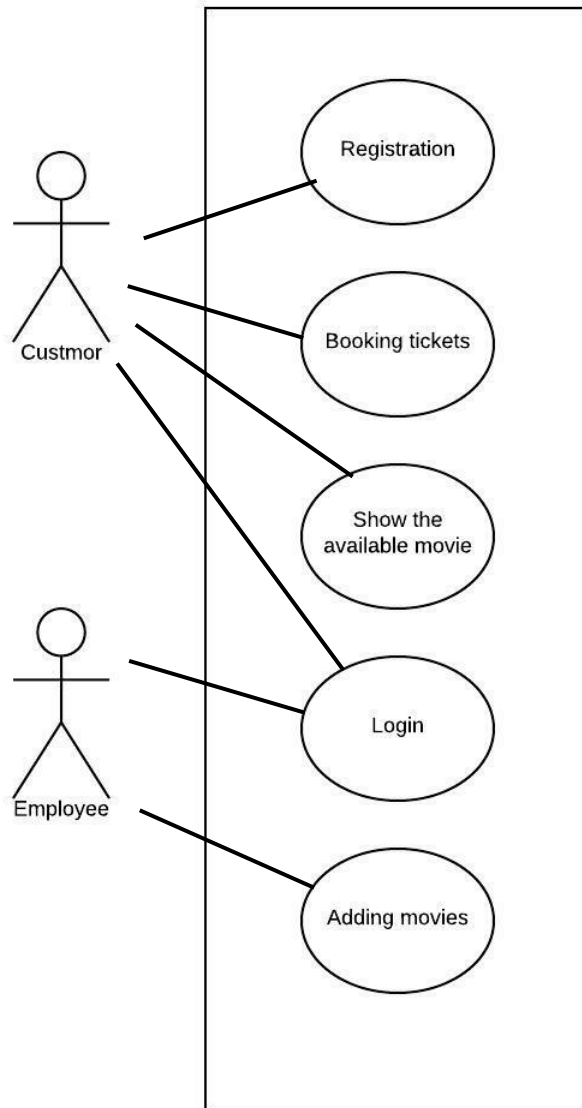
5-Appearance:

- It should be familiar and classy.
- It should be easy and does not require reflection.

5. REQUEST MODELLING DESIGN

5.1. SCENARIO BASED MODELS

5.1.1. USE CASES



5.1.2. USER STORIES

1/ Use Case: register**Actor:** User**Purpose:** register.**Overview (success scenario):** The use case begins when the customer want register to the system.**Type:** primary.**Cross reference:** R 1.1 ,1.2 ,1.3, 1.4

Actor Action	System response
1. The use case begins when the user click on the on the user register button.	
2. The user enter the user name and password and email.	3.The system validate the username, password and the email.
	4. The system shall view a message to conform the registration and show the home page
Alternatives: Step 3. If an invalid username, password or email was entered, the system will show message to tell the user that there is invalid input.	

2/ Use Case: Login**Actor:** User-Employee**Purpose:** Login.**Overview (success scenario):** The use case begins when the customer want register to the system.**Type:** primary.**Cross reference:** R 4.1,4.2,4.3, 4.4 R 5.1, 5.2, 5.3, 5.4

Actor Action	System response
1. The use case begins when the user click on the on the user login button.	
2. The user enter the user name and password.	3.The system validate the username, password.
	4. The system shall view a message to conform the login and show the home page
Alternatives: Step 3. If an invalid username or password was entered, the system will show message to tell the user that there is invalid input.	

3/ Use Case: Book a ticket.

Actor: User

Purpose: Book a ticket.

Overview (success scenario): The use case begins when the customer book the tickets.

Type: primary.

Pre-Condition: Login.

Cross reference: R 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8

Actor Action	System response
1. The use case begins when the user click on the on the booking button.	
2. The user enter the desired number of tickets.	3.The system validate number of tickets.
	4. The system shall view a message to conform the booking.
Alternatives: Step 3. If the tickets number which was entered by the user was more than the available seats the system shall show a massage to the user that the booking did not complete.	

4/ Use Case: viewing the movies information(Time-available seats-..etc).

Actor: User

Purpose: viewing the movies information.

Overview (success scenario): The use case begins when the customer selects a movie.

Type: primary.

Pre-Condition: Login.

Cross reference: R 3.1, 3.2 3.3, 3.4

Actor Action	System response
1. The use case begins when the user selects a movie.	2. The system should view the information of the movie.

5/ Use Case: add a movie.

Actor: Employee

Purpose: add a new movie.

Overview (success scenario): The use case begins when the employee clicks on add movie button.

Type: primary.

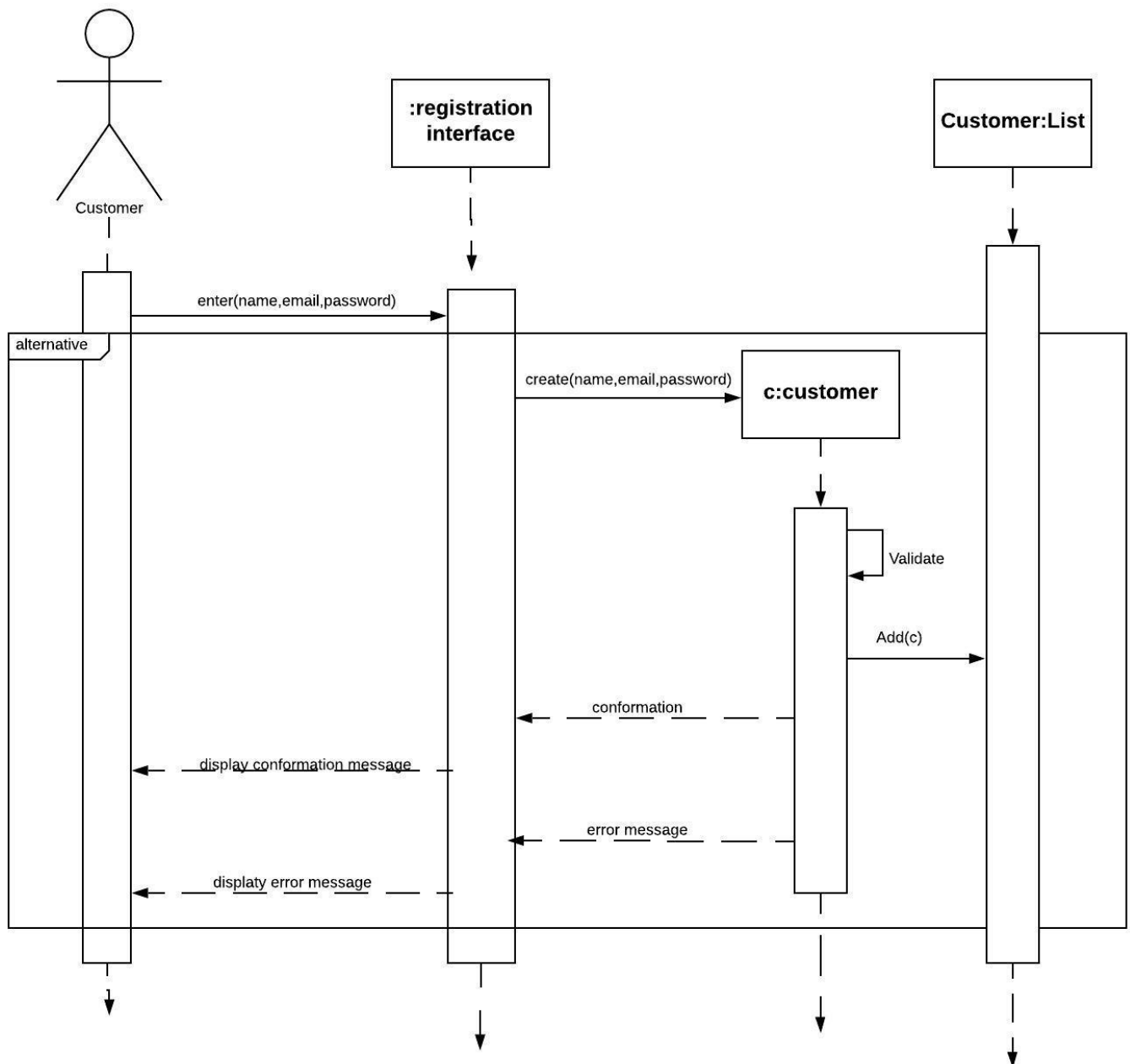
Pre-Condition: Login.

Cross reference: R 6.1, 6.2, 6.3, 6.4

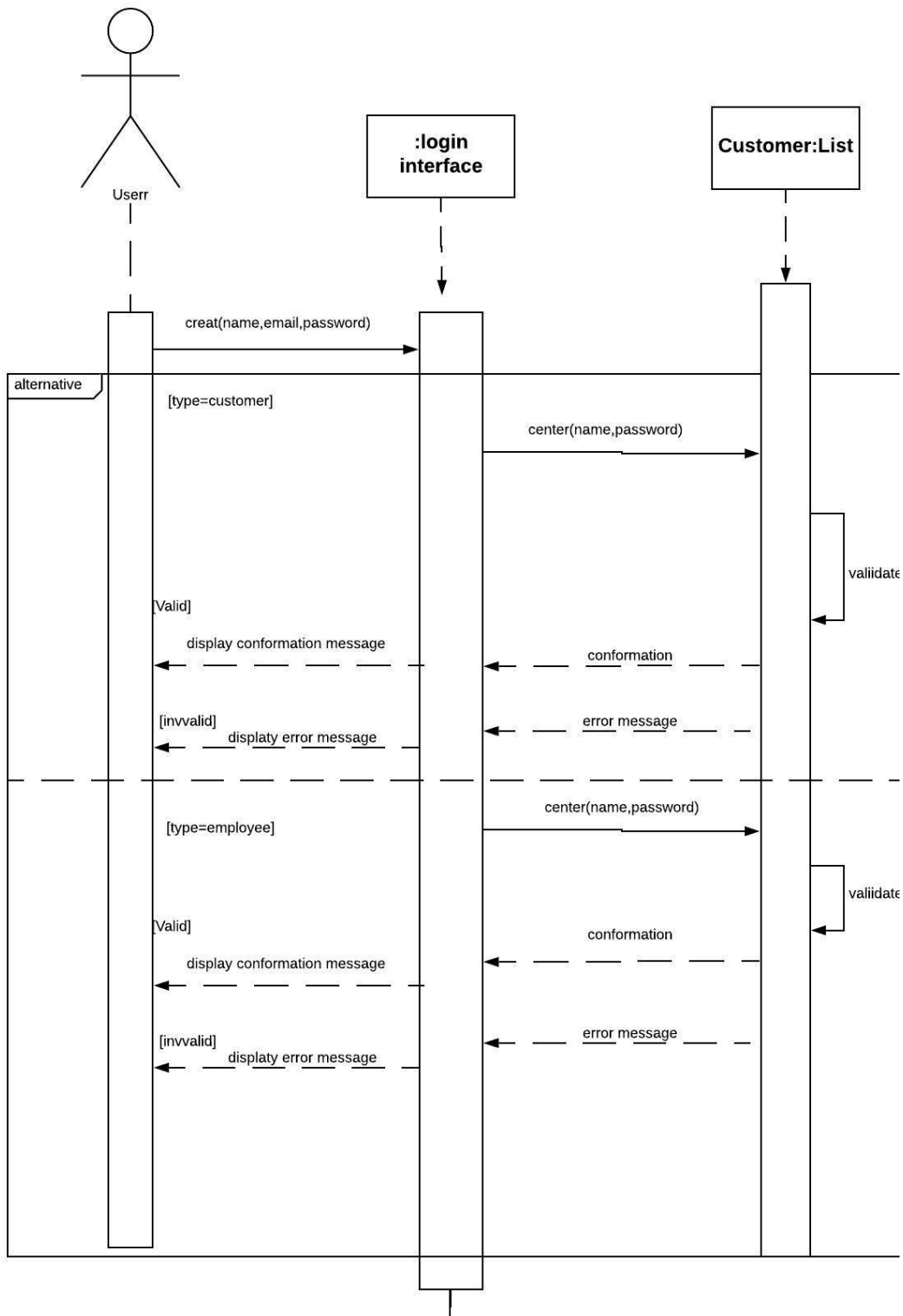
Actor Action	System response
1. The use case begins when the employee clicks on add movie button.	
2. The employee enter information of the movie.	3.The system validate the input format.
	4. The system shall view a conformation message.
Alternatives: Step 3. If the input format was entered wrong by the employee the system shall show a massage to the employee that the inputs were invalid.	

1.1. (SEQUENCE DIAGRAM)

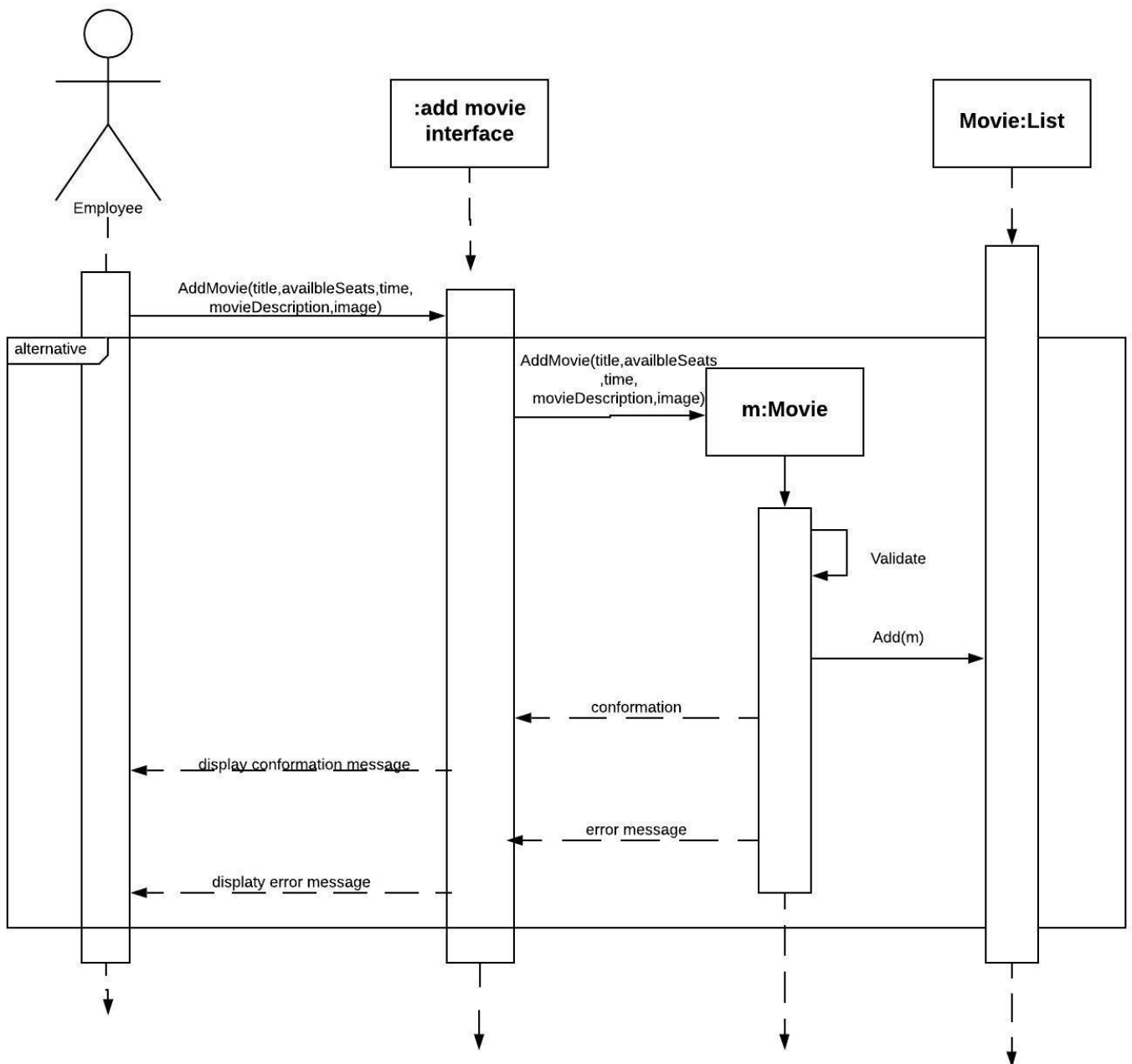
1)Register



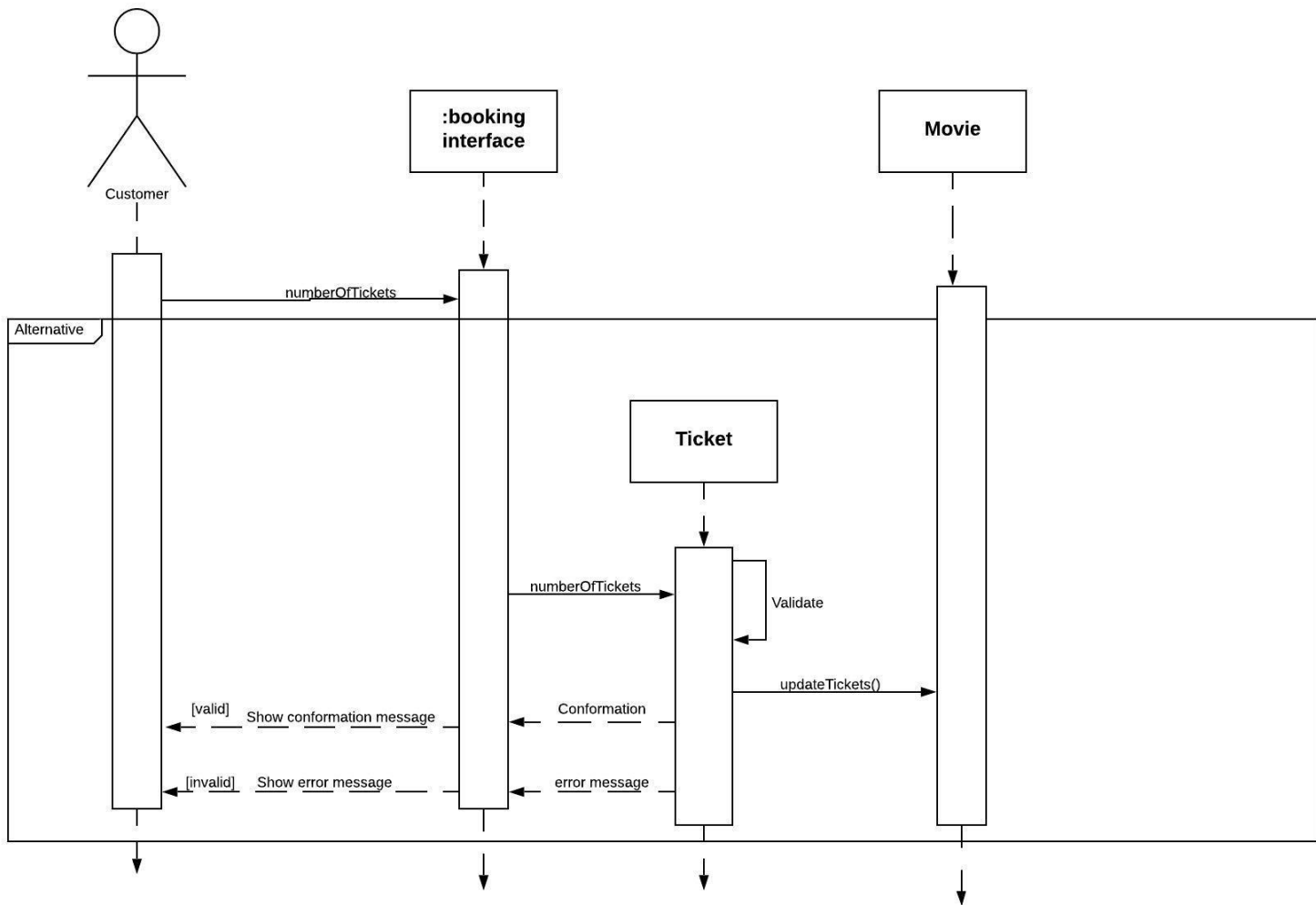
2) Login



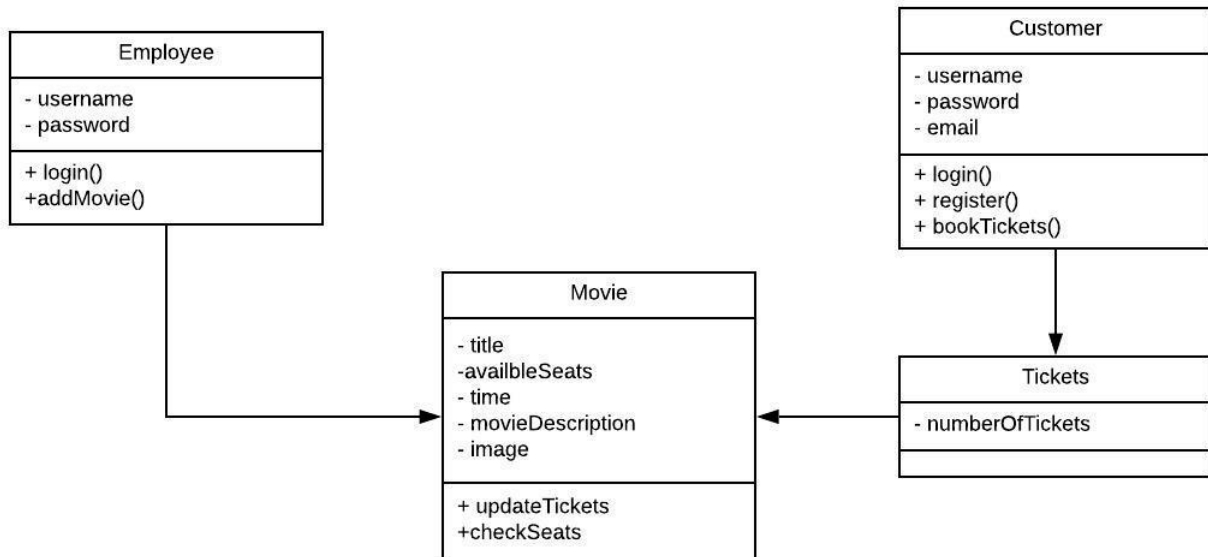
3)Add movie



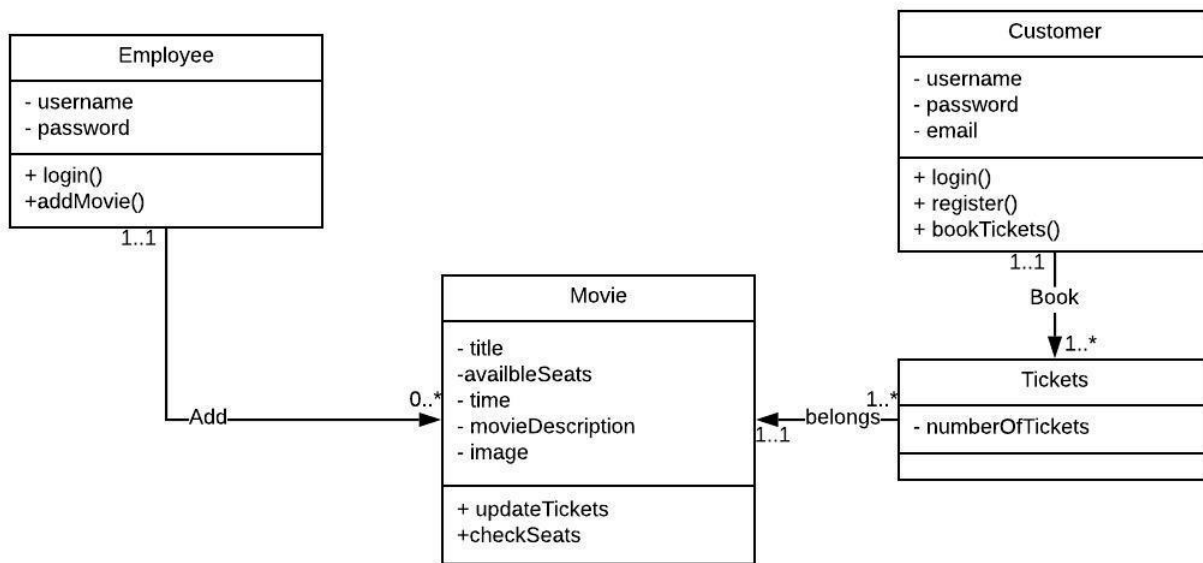
4)Book tickets



1.2. CLASS MODELS

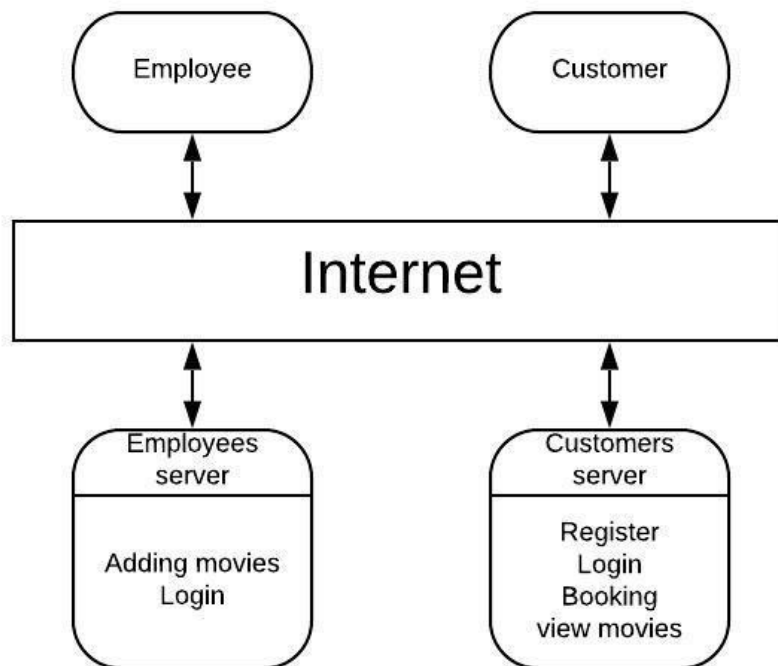


1.3. FLOW MODELS (DATA MODELS)



Entity name	Attribute	Description	Data type	Length	Nulls	Multivalued	Default value	Range	PK
Customer	username	Uniquely identify the customer	Varchar	10	no	no		(A-Z,0-9)	Yes
	password	Authenticate the customer	Varchar	20				(A-Z,0-9,_)	
	email	Customer's email	Varchar	20				(A-Z,0-9,_,@,.)	
Employee	username	Uniquely identify the employee	Varchar	10	no	no		(A-Z,0-9)	Yes
	password	Authenticate the employee	Varchar	20				(A-Z,0-9,_)	
Movie	title	The title of the movie	Varchar	50	no	no		(A-Z,0-9)	no
	availableSeats	Current number of seats available for the movie	Varchar	3				(0-9)	
	time	When the movie will start and end	time	4				(0-9)	
	movieDescription	The story of the movie and the	Varchar	400				(A-Z,0-9)	
	image	Movie's poster	-						
Tickets	numberOfTickets	Number of booked tickets	int	3	no	no			no

2. ARCHITECTURAL AND COMPONENT LEVEL DESIGNS



The figure shows the application structured into client-server architecture. The presentation architecture is concerned with presenting information to the client are access to client server and the employee are access to employee server. The application processing architecture is concerned with implementing the logic of the application, and data management architecture is concerned with all database application. We use client-server because there are more one client.

Register

Classification: Function

Definition:

When a user wants to book tickets he/she has to register in the system. He/she will enter the required information then the system validates the entered information after that the system will create an account for him/her.

Responsibilities' Reference: 1

Constraints:

- **Pre-condition:** the username and email shouldn't be used before.
- This function is done by the customer.
- All required information must be filled
- An error message is displayed to the user when an invalid input was entered or a value is missing.
- **Post condition:** a confirmation message is displayed to the user.
- **Post-condition:** The account is created, and the user will proceed through the system with his/her newly created account.

Composition: None

Pseudocode:

Customer registration form with username, email and password.

IF the customer clicks on "sign up" **THEN**

IF All blanks are filled **THEN**

IF password is not less than 6 characters **THEN**

IF email is valid **THEN**

Display conformation message and save the member information to the database.

ELSE WRITE "please enter the email in a correct format!"

ELSE WRITE "password should be 6 characters or more"

ELSE WRITE "please fill all the required fields!"

END IF

View movie information

Classification: Function

Definition:

A user can view movie information when they are logged in

Responsibilities' Reference: 3

Constraints:

- **Pre-condition:** the customer should be logged in.
- This function is done by the customer.
- Only the added movies will be shown.
- **Post-condition:** the information of the movie will be displayed.

Composition: None

Pseudocode:

Customer in home page wanting to view the information.

IF the customer clicks on info **THEN**

Display the movie information.

END IF

Login

Classification: Function

Definition:

When a user wants to book tickets he/she has to login to the system. He/she will enter the required information then the system validates the entered information after that the system will grant the access to his/her account. Also when an employee wants to add a movie he/she needs to login to his/her account.

Responsibilities' Reference: 4,5

Constraints:

- **Pre-condition:** the customer/employee should be already registered.
- This function is done by the customer and employee.
- All required information must be filled
- An error message is displayed to the user when an invalid input was entered or a value is missing.
- **Post condition:** a confirmation message is displayed to the user.
- **Post-condition:** The access is granted, and the user will proceed through the system.

Composition: None

Pseudocode:

Customer login form with username and password.

IF the customer clicks "login" **THEN**

IF All blanks are filled **THEN**

IF password is not less than 6 characters **THEN**

IF entered information matches the one in the database **THEN**

Display confirmation message and display the movies page.

ELSE WRITE "the password or the username is incorrect!"

ELSE WRITE "password should be 6 characters or more"

ELSE WRITE "please fill in all the required fields!"

END IF

Booking tickets

Classification: Function

Definition:

When a user wants to watch a movie he/she has to book tickets first. He/she can book as much as they want as long there are available seats. He/she will enter the required number of tickets then the system validates the entered information after that the system will show a conformation message if the amount of tickets is available.

Responsibilities' Reference: 2

Constraints:

- **Pre-condition:** the customer should be already logged in.
- This function is done by the customer.
- All required information must be filled
- **Post condition:** a confirmation message is displayed to the user.

Composition: None

Pseudocode:

The customer chose the movie and going to book.

IF the customer clicks "booking" **THEN**

IF the customer entered the number of tickets **THEN**

IF the number of entered tickets is available **THEN**

Display conformation message and go back to the movies page.

ELSE WRITE "the number of tickets isn't available"

ELSE WRITE "please fills in all the required fields!"

END IF

Add movie

Classification: Function

Definition:

When a new movie needs to be added that's when the employee will login to the system to fill the information of the movie to be uploaded to the system and the users can see it and book tickets.

Responsibilities' Reference: 6

Constraints:

- **Pre-condition:** the employee should be already logged in.
- This function is done by the employee.
- All required information must be filled
- An error message is displayed to the user when an invalid input was entered or a value is missing.
- **Post condition:** a confirmation message is displayed to the user.
- **Post-condition:** The access is granted, and the employee will proceed through the system.

Composition: None

Pseudocode:

Employee adding form with movie information.

IF the employee clicks "add" **THEN**

IF All blanks are filled **THEN**

Display conformation message and add the movie to the system.

ELSE WRITE "please fills in all the required fields!"

END IF

3. INTERFACE DESIGN

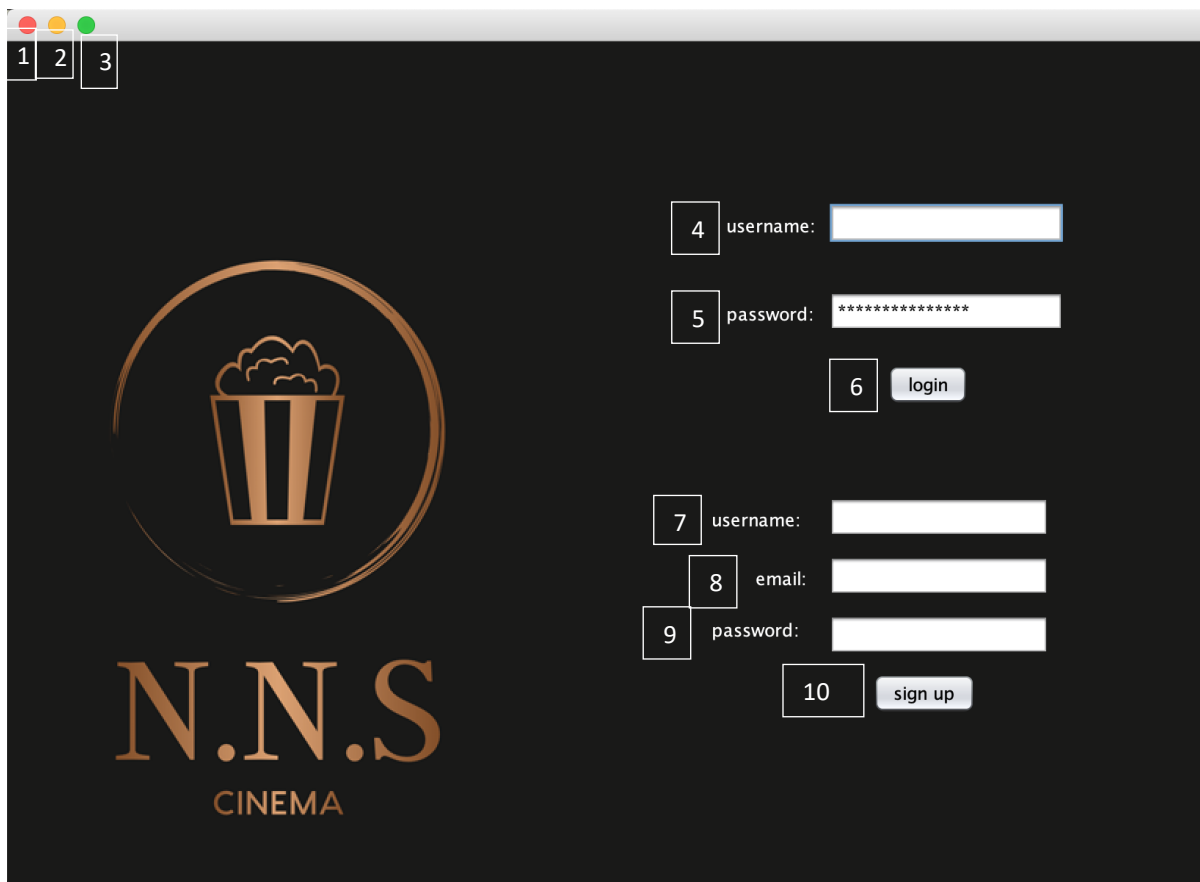


Figure.1.1 registration-Login Page Print Screen

#	Description
1	Close button will remove the current window.
2	This button will only hide the window, without terminates the program
3	This button will maximize the window size to fit the computer screen
4	the user should enter his user name (the customer should have an account first)
5	the user should enter his password
6	Log in button transfer the customer to the home page
7	the user should enter his user name
8	the user should enter his email
9	the user should enter his password
10	Sign up button will show a conform message and transfer the customer to the home page

Figure.1.2 registration-Login Page Table

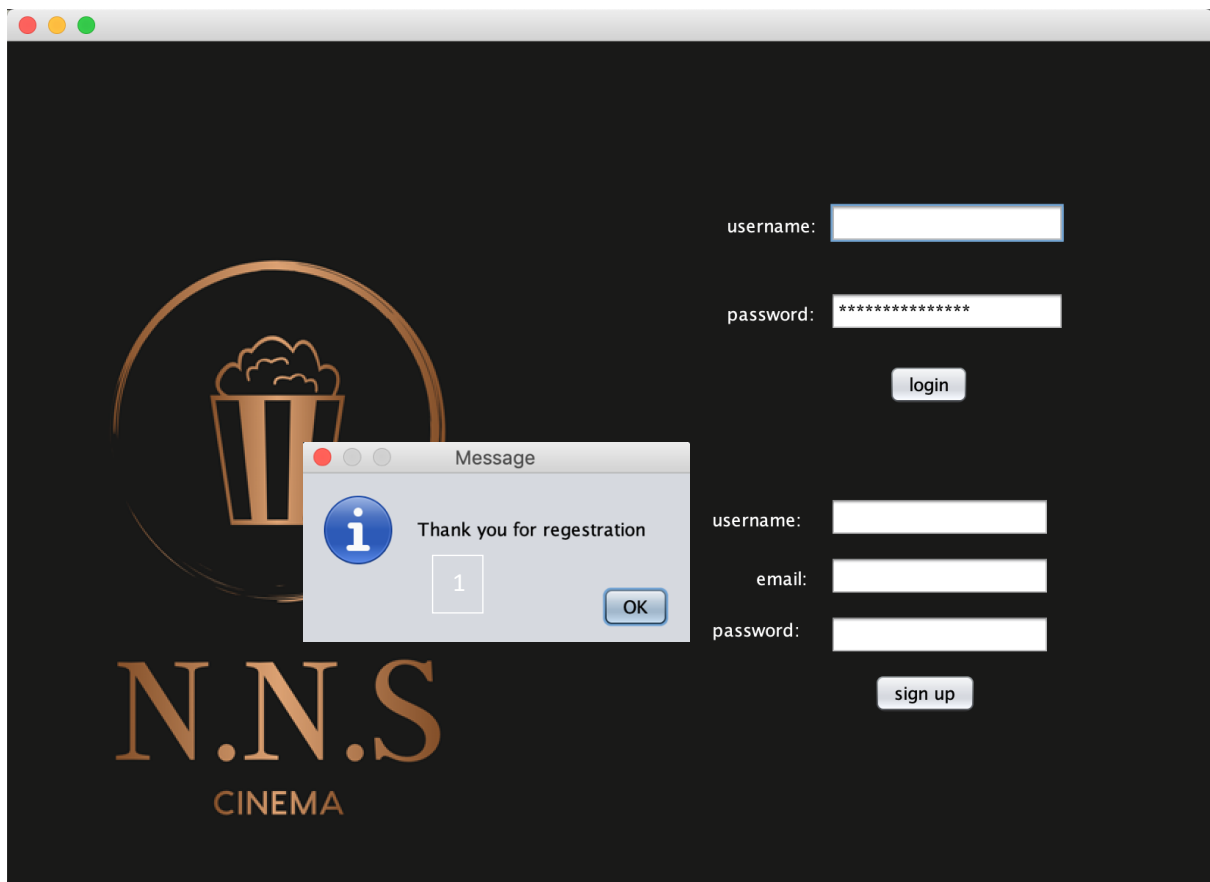
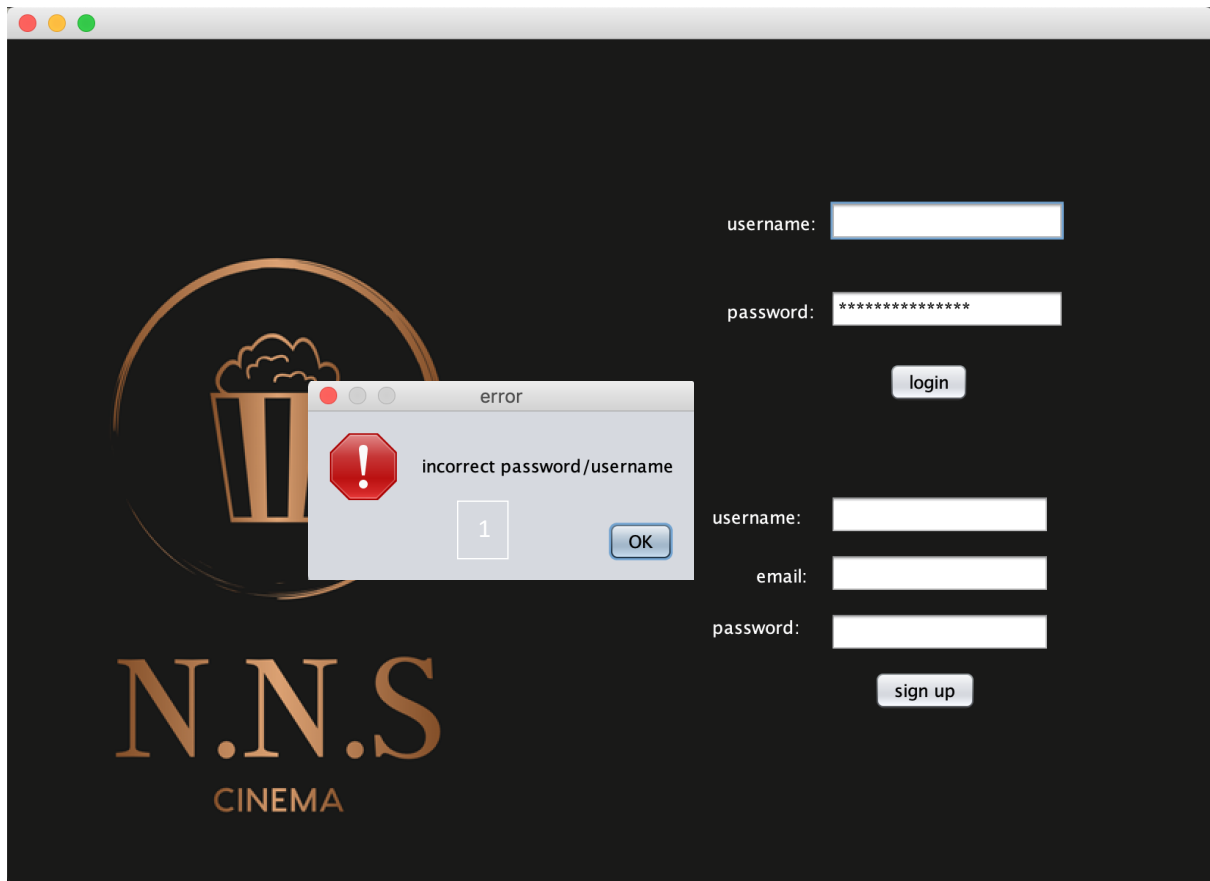


Figure.1.3 registration-Login Page Print Screen

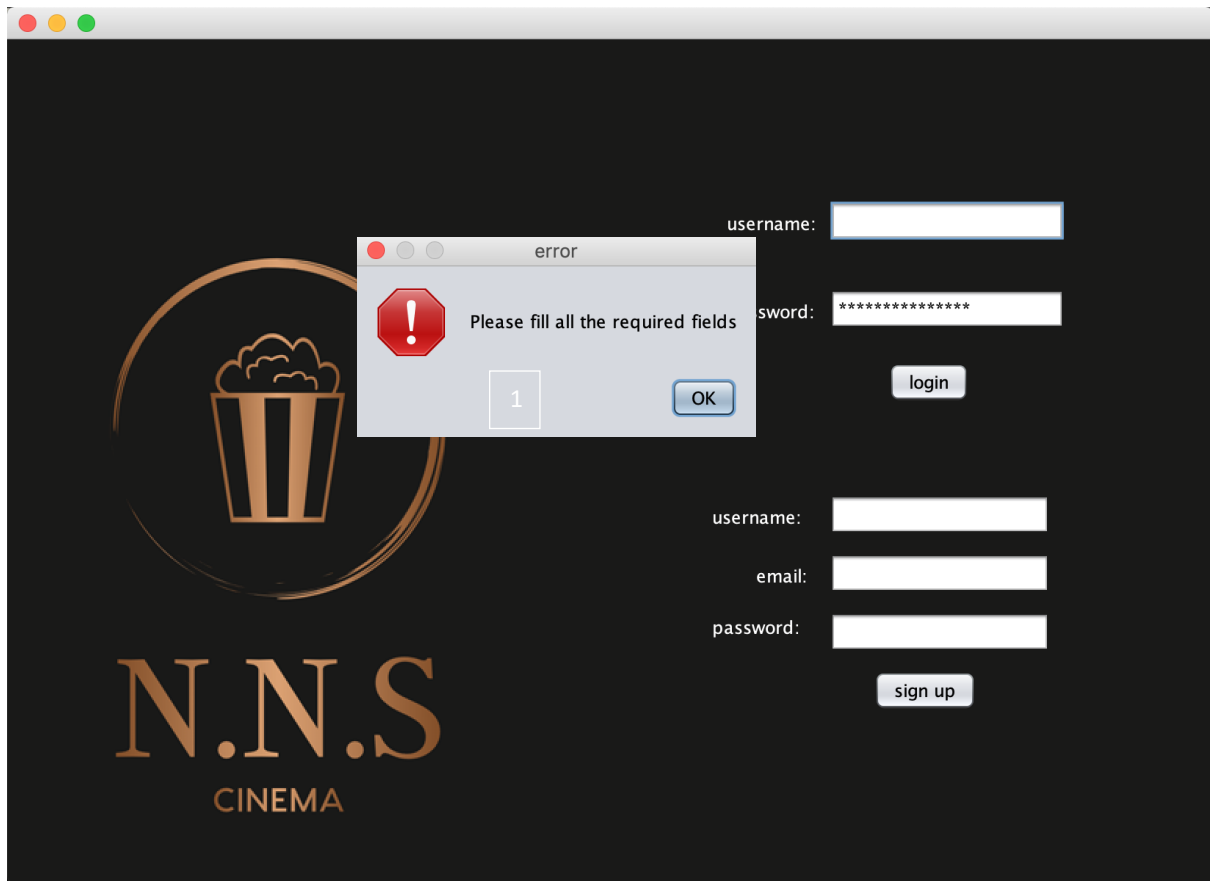
#	Description
1	This message will appear when the user enters correct information for registration

Figure.1.4 registration-Login Page Table

**Figure.1.5 registration-Login Page Print Screen**

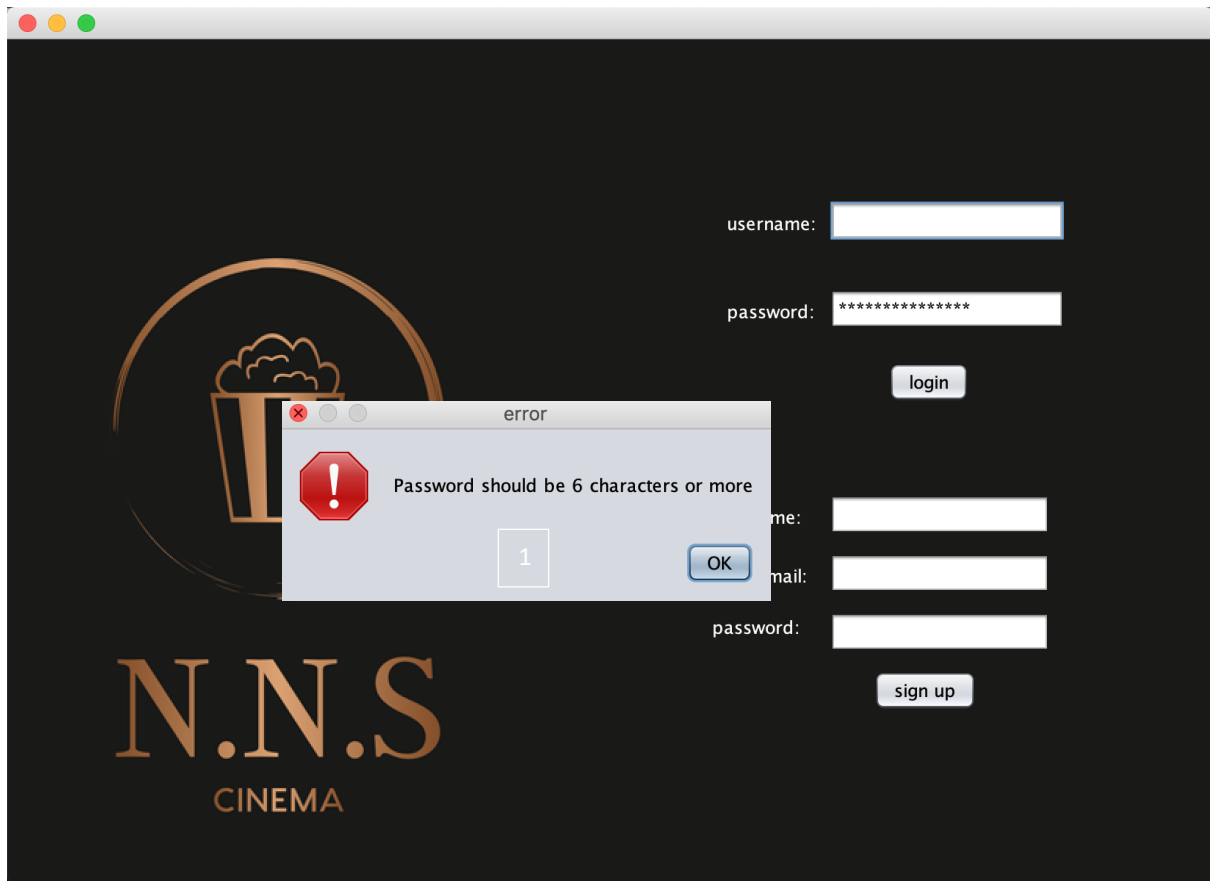
#	Description
1	This message will appear when the user enters incorrect username or password

Figure.1.6 registration-Login Page Table

**Figure.1.7 registration-Login Page Print Screen**

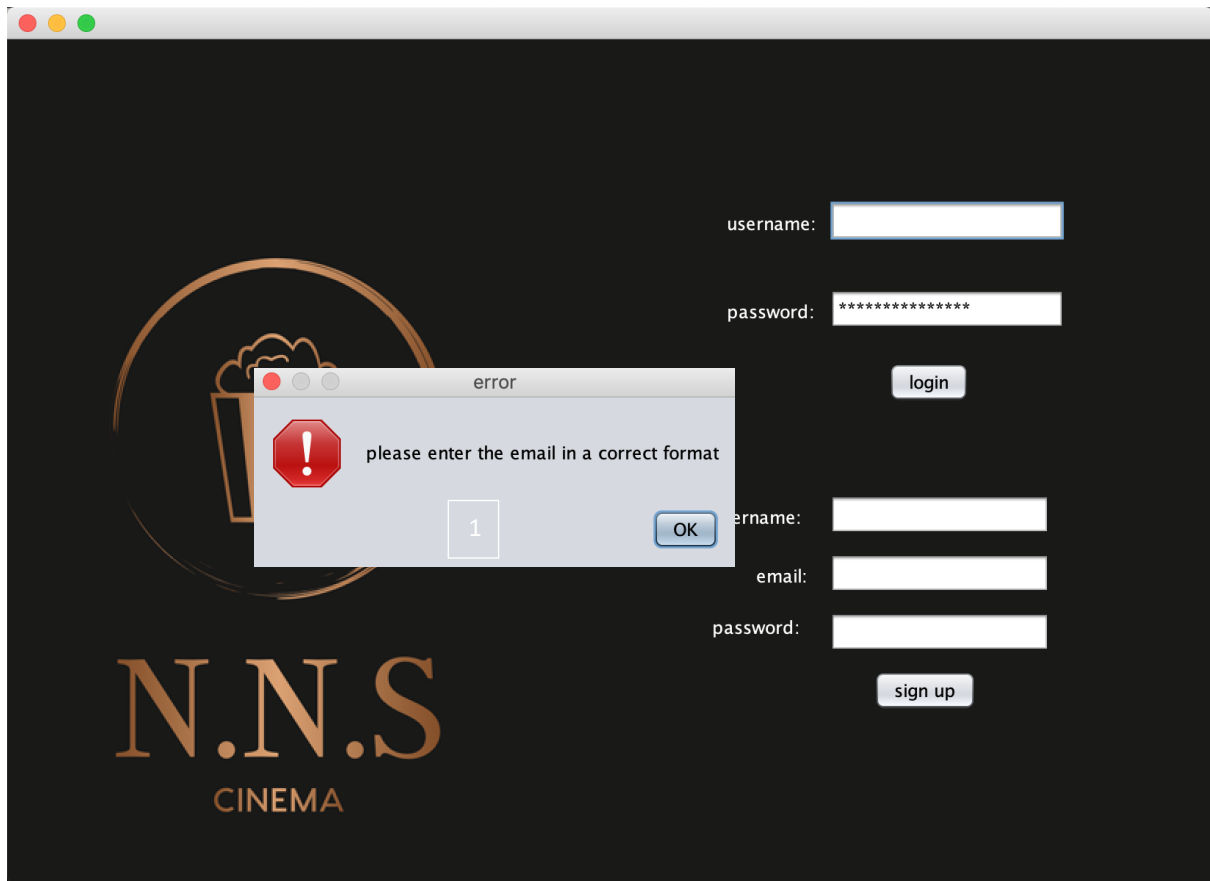
#	Description
1	This message will appear when the user did not fill all the field (for registration and Login)

Figure.1.8 registration-Login Page Table

**Figure.1.9 registration-Login Page Print Screen**

#	Description
1	This message will appear when the user enters password less then 6 characters

Figure.1.10 registration-Login Page Table

**Figure.1.11 registration-Login Page Print Screen**

#	Description
1	This message will appear when the user enters the email in incorrect format (for registration)

Figure.1.12 registration-Login Page Table

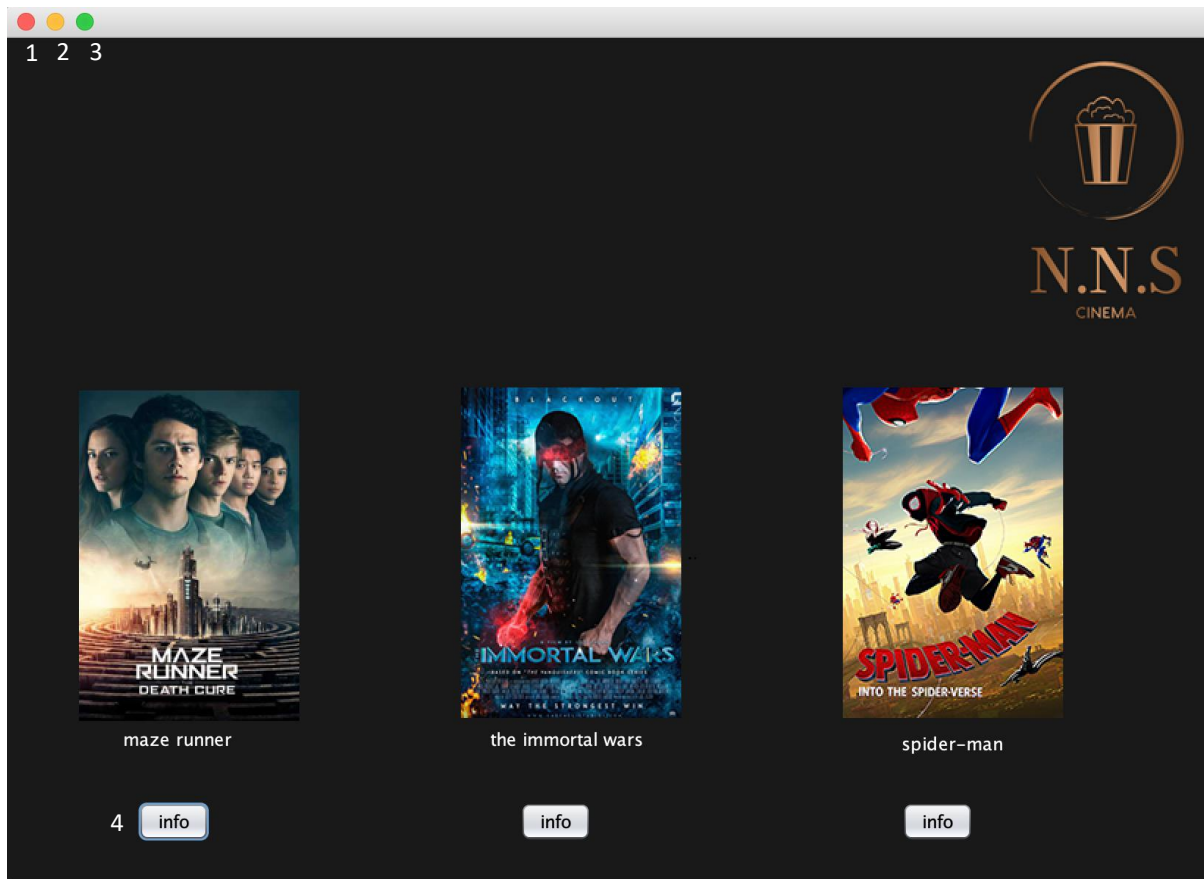


Figure.2.1 Home Page Print Screen

#	Description
1	Close button will remove the current window.
2	This button will only hide the window, without terminates the program
3	This button will maximize the window size to fit the computer screen
4	This button will open an information window for each movie

Figure.2.2 Home Page Table

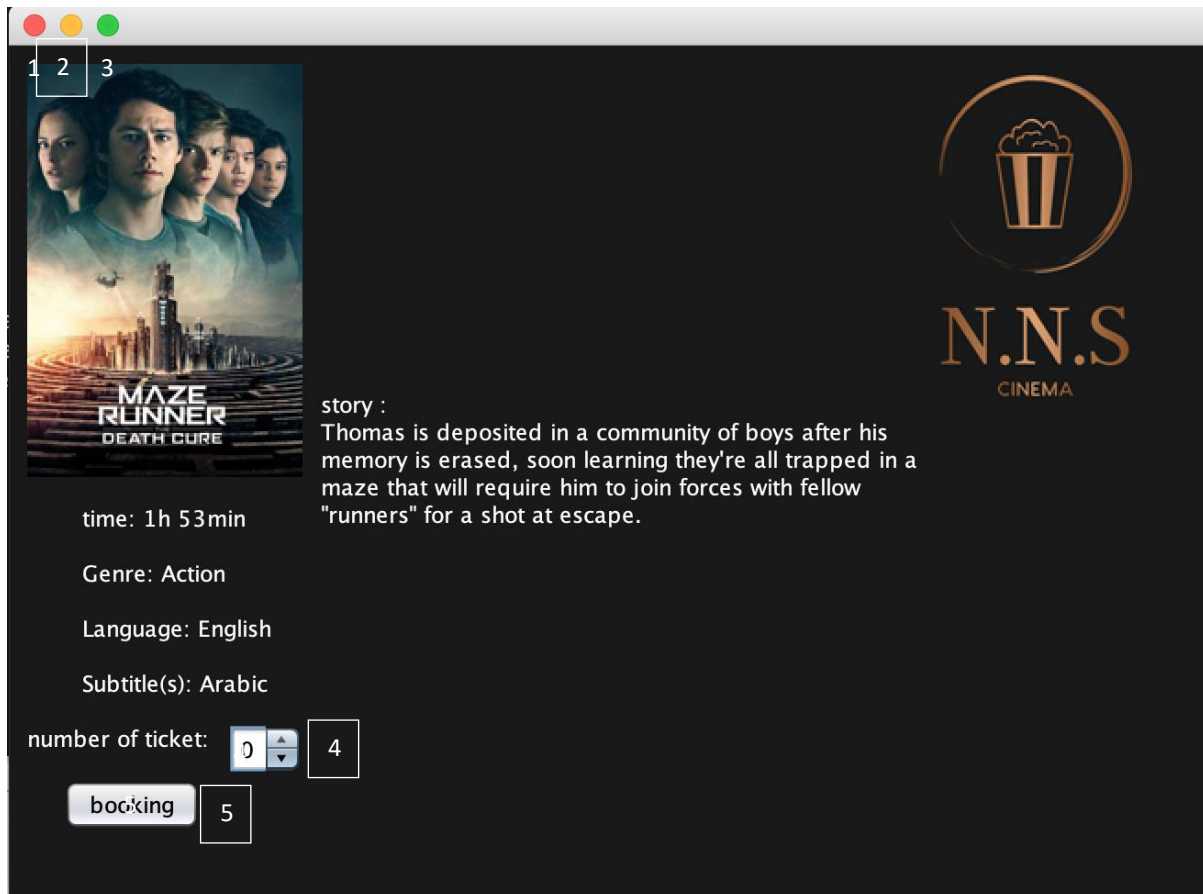


Figure.3.1 information Page Print Screen

#	Description
1	Close button will remove the current window.
2	This button will only hide the window, without terminates the program
3	This button will maximize the window size to fit the computer screen
4	The user will choose the number of tickets from here
5	This button will start the booking submission then show a confirm message of booking

Figure.3.2 information Page Table

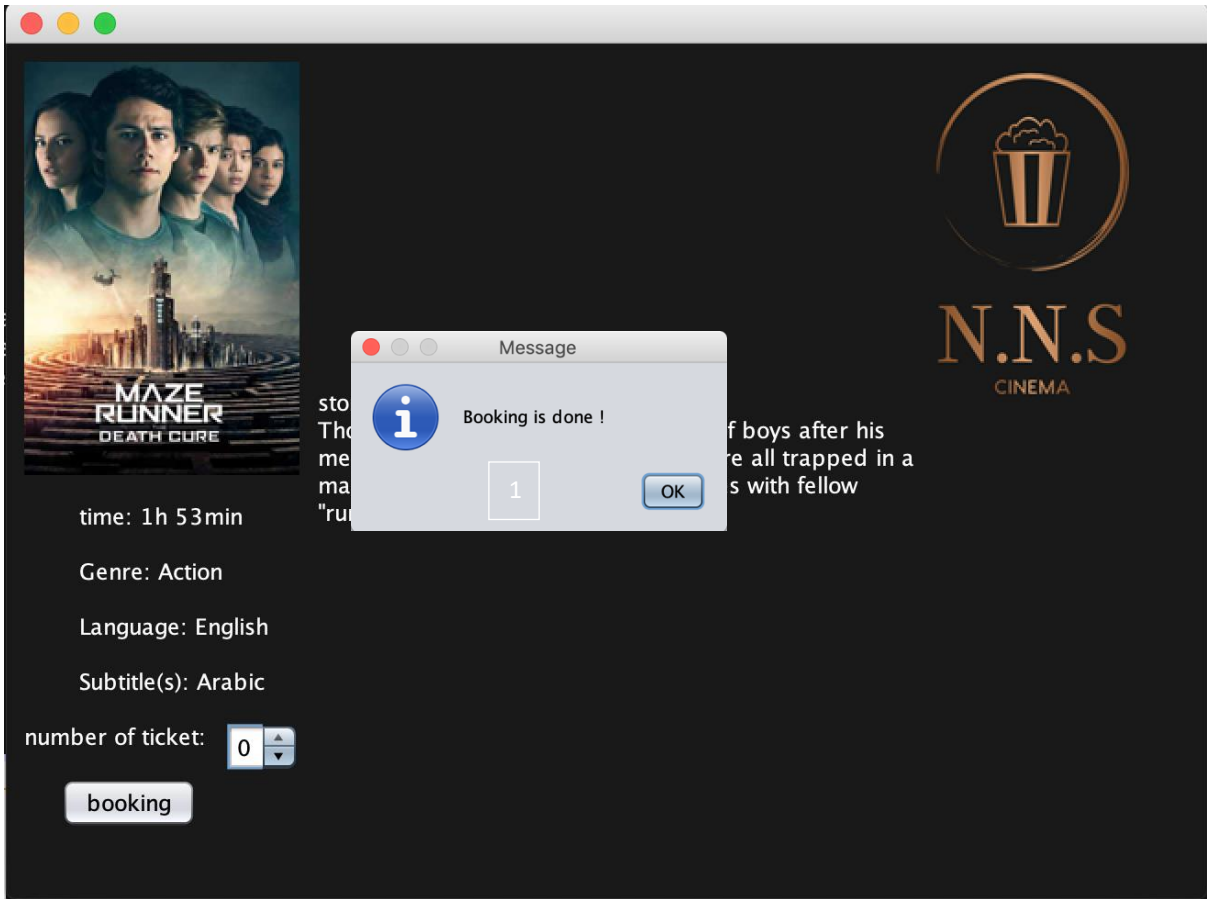


Figure.3.3 information Page Print Screen

#	Description
1	This message will appear went successfully

Figure.3.4 information Page Table

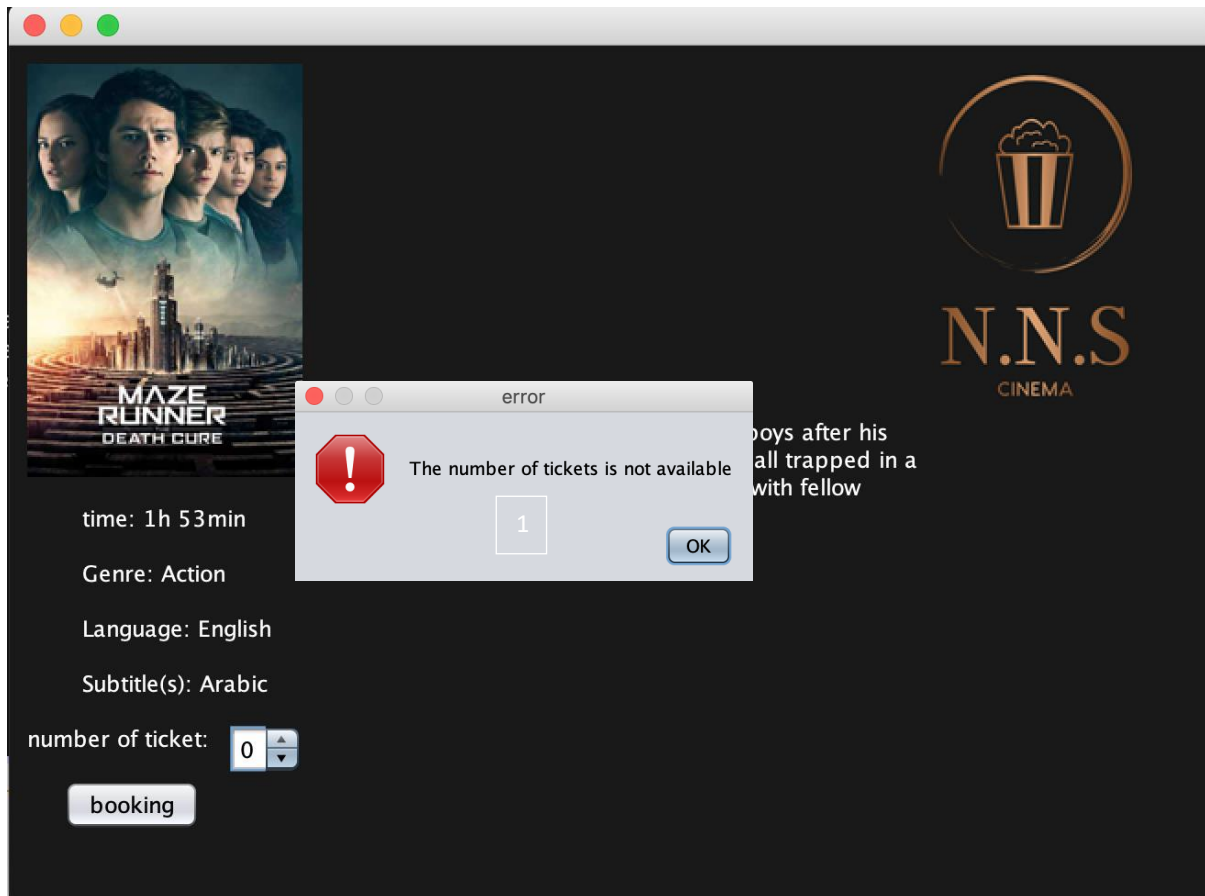


Figure.3.5 information Page Print Screen

#	Description
1	This message will appear when number of ticket is less than the number of tickets that selected by the user

Figure.3.6 information Page Table

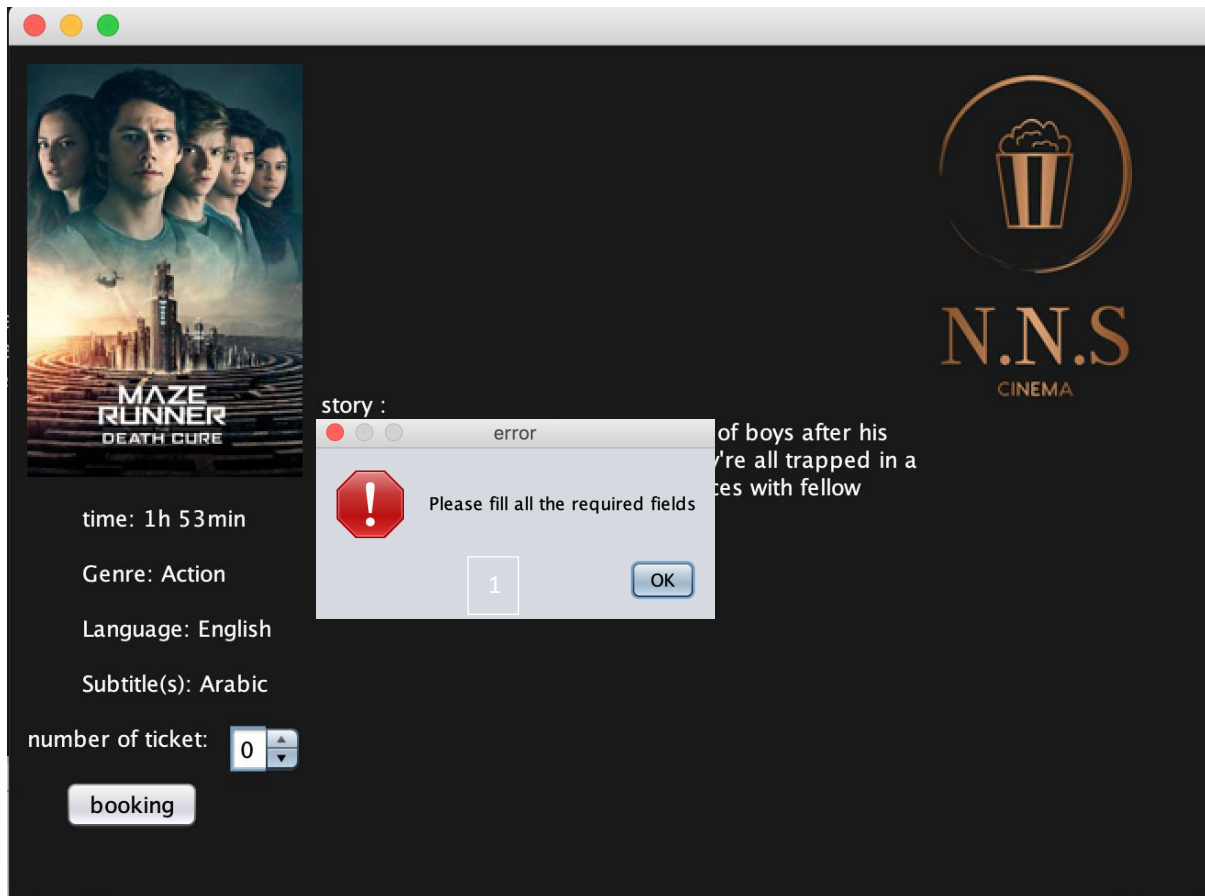


Figure.3.7 information Page Print Screen

#	Description
1	This message will appear when the user press the booking button without selecting number of tickets

Figure.3.8 information Page Table

The image shows a screenshot of a web application window titled 'N.N.S. CINEMA'. The window has a dark background and a logo on the left. The logo consists of a circular icon with a movie clapperboard inside, and the text 'N.N.S. CINEMA' below it. The form contains three input fields: 'movie name:', 'available seats:', and 'movie time:'. Below these fields are two buttons: 'upload photo' and 'add'. The window has a standard macOS-style title bar with three colored buttons (red, yellow, green) and a close button (X).

1 2 3

4 movie name:

5 available seats:

6 movie time:

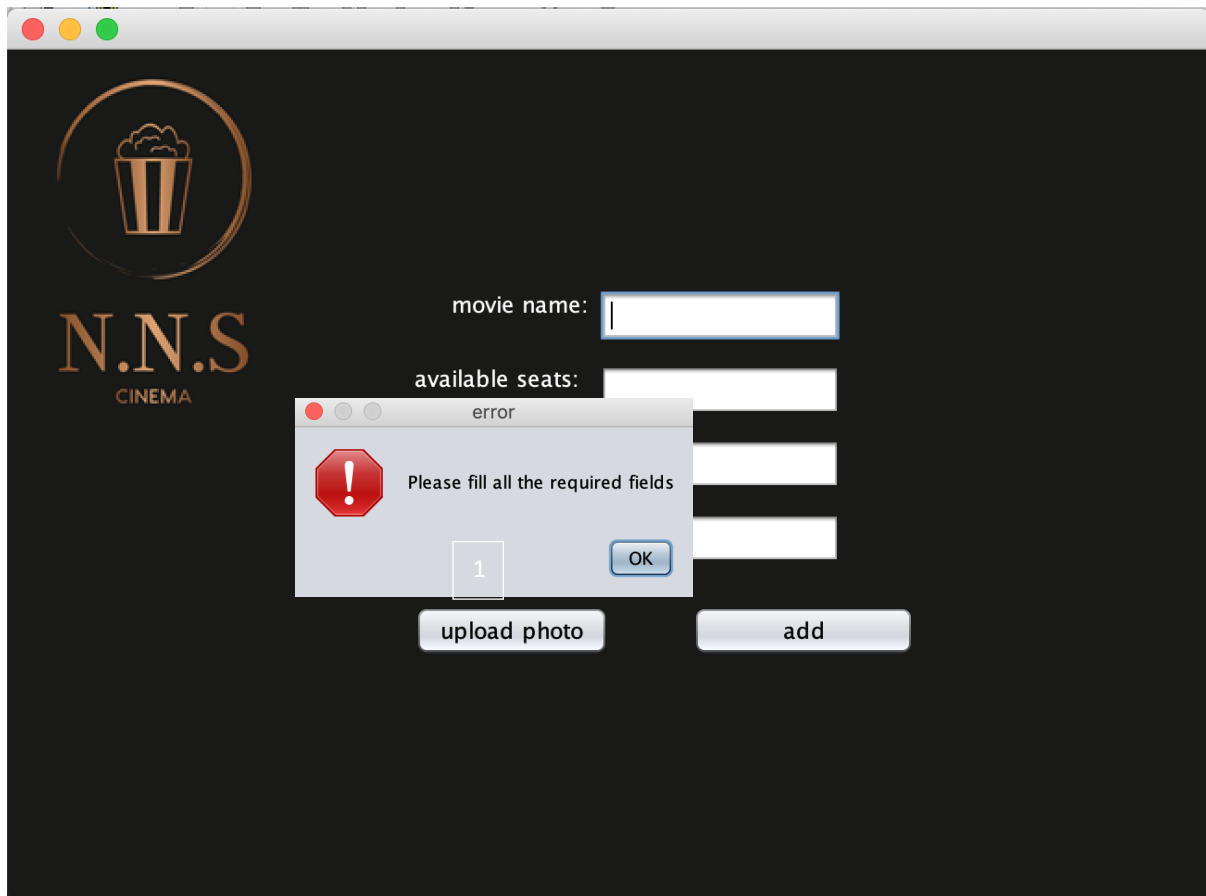
7 upload photo

8 add

Figure.3.1 Admin Page Print Screen

#	Description
1	Close button will remove the current window.
2	This button will only hide the window, without terminates the program
3	This button will maximize the window size to fit the computer screen
4	The admin should enter the movie name
5	The admin should enter how much seat is available for this movie
6	The admin should enter the show time of the movie
7	This button is for selecting an image for the movie
8	This button will show the confirmation message

Figure.3.2 Admin Page Table

**Figure.3.3 Admin Page Print Screen**

#	Description
1	This message will appear when the admin did not fill all the field

Figure.3.4 Admin Page Table

4. REFERENCES

APPENDICES