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Abstract

The purpose of this report is to provide the reader with a portion of the contribution made to the system's functionality with a basic understanding of the Ropey DVD Rental System. The report of the Module Application Development group coursework for the Ropey DVD Rental System is done by five groups of individuals who are tasked with completing different assignments. The report has been written in simple terms to ensure that it is easy to understand for anyone interested in understanding the report. The report is made up of knowledgeable documents on the topic that are separated into parts. The report begins with a presentation of the subject, which is followed by an explanation of the problem, principles performed, apparatuses, and computer programs used. Following that is a substantial relationship graph of the models used, an application user manual, a method description, and a knowledge language of attributes applied within the database. Furthermore, the program complies with the software architecture, which describes the system architecture by dividing different functional areas into layers. It also demonstrates how data flow in the program. Similarly, the class description summarizes the description of the controller class. Testing is done to check the behaviour of a complete and fully integrated software and evaluate the system's compliance with the specified requirements. The individual group member's reflections of issues experienced and solutions to overcome using Visual Studio, C#, ASP.NET, and MS SQL to develop a web application interfacing a backend database are explained.

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1. Introduction

According to the requirements of the coursework, our group created a DVD Rental System which is an application for the operations of Ropey DVD Rental. The DVD Rental System is used to monitor the records of the DVD, details of the DVD, and the details of the DVD that are given on loan. This system aims to provide a user-friendly working environment in which more output can be produced. This application has a convenient interface that helps in understanding all the system features and functions.

The approach of keeping and recording the records of the DVD and its sales in the system is a far better method than the traditional one which provides various advantages such as a backup facility, integrated security and reduces the risks of misplacing & losing the data. To manage the system, a user should be a member of that store for this purpose authentication system is implemented.

The system is developed using ASP.net and all the items regarding DVD and the users are stored in the database.

2. User Manual

The application Ropey DVD Rental aims to ease the DVD rental approach and keep the clear data which helps to improve the productivity .Here is an official user manual guide of the application .The user manual will ease the user to use the application .

2.1. Login Form

Figure 1: User Manual of Login Form

Login Button (1): The working of the “Login” button is to validate the user before entering the system. The button checks the user’s validity ,allows the user to login in the system with valid credentials .

2.2. Registration Form

The screenshot shows a registration form on a website. At the top, there is a navigation bar with various links: 'Ropey DVDs', 'Actor DVDs', 'Available DVD Copies', 'Loaned DVDs', 'DVD Cast', 'Last loaned DVD Copies', 'DVD Loans', 'Member DVDs', 'DVDs', 'Old DVD Copies', 'Inactive Members', 'Inactive DVDs', 'Register', and 'Login'. The 'Register' link is underlined, indicating it is active or has been clicked. Below the navigation bar, the word 'Register' is displayed in large, bold, black font. Underneath it, the text 'Create a new account.' is shown. The form consists of five input fields: 'First name' (containing 'john'), 'Last name' (containing 'mayers'), 'Email' (containing 'john.mayers@gmail.com'), 'Password' (containing '*****'), and 'Confirm password' (containing '*****'). A large teal button labeled 'Register' is centered below the input fields. The entire registration section is enclosed in a thin black rectangular border. To the right of the registration section, the number '2' is written vertically. At the bottom left of the page, there is a small copyright notice: '© 2022 - GCW - [Privacy](#)'.

Figure 2: User Manual of Registration form

Register (2) : The working of the registration button is to add the user in the system. The user must enter the valid details in the sign-up form to register the user

2.3. Main Form

This is the main board of the System which will allow the user to exercise the function of the application .

The screenshot shows a main interface with a grid of 13 buttons at the top, numbered 1 to 13 below them. Buttons 1 through 10 are teal-colored, while buttons 11 through 13 are light blue. The buttons are labeled as follows:

- 1: Log in
- 2: Use a local account to log in.
- 3: Available DVD Copies
- 4: Loaned DVDs
- 5: Last loaned DVD Copies
- 6: DVD Cast
- 7: DVD Loans
- 8: Member DVDs
- 9: DVDs
- 10: Old DVD Copies
- 11: Inactive Members
- 12: Inactive DVDs
- 13: Register Login

Below the grid, there is a login section with fields for Email and Password, a "Remember me?" checkbox, and a "Log in" button. Below the "Log in" button are links for "Forgot your password?" and "Register as a new user". At the bottom left, there is a copyright notice: "© 2022 - GCW - Privacy".

Figure 3: User Manual of Main Form

Actor DVDs(1):

The actor DVDs nav bar will redirect user to the page where the user can view the list of DVDS on basis of actor preferences .

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	----------	-------

ACTOR DVDS

Actor last name	<input type="button" value="Search"/>	1	
DVD Title	Date released	Standard charge	Penalty charge
billie jeans	5/2/2022 12:05:00 PM	1000	2000
stairway to heaven	5/2/2022 12:10:00 PM	1000	20000
hotel california	3/10/2022 1:26:00 PM	4000	6000
naruto	5/2/2022 3:22:00 PM	1000	2000
demon slayer	5/2/2022 3:28:00 PM	4000	6000

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Figure 4: User Manual of Actor DVD Form

Search Button(1): The search button will filter the list of the DVD from the actor's last name

Available DVD Copies(2):

This nav bar will redirect the user to page where the user can view the available DVD copies.

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	----------	-------

AVAILABLE DVD COPIES

Actor's surname	<input style="background-color: #007bff; color: white; border: none; padding: 2px 10px; font-weight: bold; border: 2px solid black;" type="button" value="Search"/>	1
DVD Number	DVD Count	Title
1	1 available	billie jeans

Figure 5: User Manual of Available DVD Copies Form

Search Button(1) : The search button will allow the user to sort the available DVDs on the basis of actor's surname.

Loaned DVDs(3):

This nav bar will redirects the user to page where the user can view the details of loaned DVDs.

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	----------	-------

LOANED DVDS

Member last name	<input style="background-color: #007bff; color: white; border: none; padding: 2px 10px; font-weight: bold; border: 2px solid black;" type="button" value="Search"/>	2				
First name	Last name	DVD number	Copy number	Date out	Date due	Date returned
biman	lakhey	2	8	5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM
biman	lakhey	2	7	5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM
biman	lakhey	2	7	5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM
biman	lakhey	1	6	5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM
biman	lakhey	1	6	5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM	
biman	lakhey	1	6	5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM	

Figure 6: User Manual of Loaned DVD Form

Search Button(2): This button will allow the user to search the loaned DVD on the of members' surname.

DVD cast(4):

This nav bar will redirects the user to page where the user can view the DVD cast name of the DVDs.

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
DVD CAST													

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
LAST LOANED DVDS													
		DVD copy number		Search	1								
2		Sort by date out		Sort by DVD title	3								
First name	Last name	DVD title		Copy number	Date out	Date due	Date returned						
biman	lakhey	stairway to heaven		8	5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM						
biman	lakhey	stairway to heaven		7	5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM						
biman	lakhey	stairway to heaven		7	5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM						
bibek	paudel	billie jeans		6	5/5/2022 5:30:00 PM	5/7/2022 5:31:00 PM	5/9/2022 12:17:00 AM						
biman	lakhey	billie jeans		6	5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM						
bibek	paudel	naruto		10	5/9/2022 12:54:03 AM	5/14/2022 12:54:03 AM							
biman	lakhey	billie jeans		6	5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM							
biman	lakhey	billie jeans		6	5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM							
sumit	khatri	naruto		9	5/9/2022 10:46:26 AM	5/16/2022 10:46:26 AM							

Figure 8: User Manual of Last Loaned DVD Form

Search button(1): This button will allow the user to search the loaned DVD on the basis of DVD copy number.

Search by date out(2):This function will allow the user to sort the loaned DVD on the basis of date .

Sort by DVD title(3): This function will allow the user to sort the loaned DVD on the basis of DVD title.

DVD Loans(6):

This nav bar will redirect the user to page where the list of all the DVDs with loan details can be found . The user must login to access this feature.

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

DVD LOANS						
Date out	Date due	Date returned	Loan type number	DVD copy number	Member number	
5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM	1	8	1	Edit Details Delete
5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM	1	7	1	Edit Details Delete
5/5/2022 5:30:00 PM	5/7/2022 5:31:00 PM	5/9/2022 12:17:00 AM	1	6	2	Edit Details Delete
5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM	1	7	1	Edit Details Delete
5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM	1	6	1	Edit Details Delete
5/9/2022 12:54:03 AM	5/14/2022 12:54:03 AM		1	10	2	Edit Details Delete
5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM		1	6	1	Edit Details Delete
5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM		1	6	1	Edit Details Delete
5/9/2022 10:46:26 AM	5/16/2022 10:46:26 AM		1	9	3	Edit Details Delete

Figure 9: DVD Loan Form

Create new (1) : This function will allow to create new loan for the DVD.

Edit, Details and Delete(2): This function will allow to edit ,view details, and delete the DVD loans.

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

Create

Loan

Loan type number

Copy number

Member number

Create

1

[Back to List](#)

Figure 10: User Manual of Create DVD Loan Form

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

Edit

Loan

Date out

05/03/2022 02:49 PM

Date due

05/04/2022 02:49 PM

Date returned

05/03/2022 02:49 PM



Loan type number

Copy number

Member number

Save

Figure 11: User Manual of Edit DVD Loan Form

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

Delete

Are you sure you want to delete this?

Loan

Date out	5/3/2022 2:49:00 PM
Date due	5/4/2022 2:49:00 PM
Date returned	5/3/2022 2:49:00 PM
Loan type	1
DVD copy	8
Member number	1

1

[Delete](#) [Back](#)

Figure 12: User Manual of Delete DVD Loan Form

Member DVD(7):

This nav bar will redirects the user to page where the list of all members with DVD can be searched

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

MEMBER DVDS

Member number	Member first name	Member last name	Member address	Member date of birth	Membership category description	Total loans granted	Total loans taken	Loan status
1	biman	lakhey	kathmandu	5/3/2022 2:06:00 PM	silver	10	2	
2	bibek	paudel	baluwatar	7/7/2000 5:28:00 PM	silver	10	1	
3	sumit	khatri	butwal	1/8/1990 2:27:00 PM	silver	10	1	

Figure 13: User Manual of Member DVD Form

Manage DVDs(8):

This nav bar will redirects the user to page where the list of all DVD can be found.

Old DVD copies(9):

This nav bar will redirects the user to page where the list of all old DVD copies can be found.

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

OLD DVD COPIES

DVD title	DVD copy number	Date purchased	Date returned	Delete	Count
stairway to heaven	8	1/7/2021 2:49:00 PM	5/3/2022 2:49:00 PM	Delete	1

*Figure 14: User Manual of Old DVD Copies Form***Inactive Members(10):**

This nav bar will redirects the user to page where the list of inactive Members can be found.

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

INACTIVE MEMBERS

Member first name	Member last name	Member address	DVD title	Date out
-------------------	------------------	----------------	-----------	----------

*Figure 15: User Manual of Inactive Members Form***Inactive DVDs(11):**

This nav bar will redirects the user to page where the list of inactive DVDs can be found.

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

INACTIVE DVD COPIES	
DVD number	DVD title
3	hotel california
5	demon slayer

Figure 16: User Manual of Inactive DVD Form

Register(12):

The Register option will allow the user to redirect to register page where the user can register in the system.

Login(13):

The login option will redirect user to login page where user can login in the system.

3. Description of the Logical Solution

3.1. Description of Login Form

Involved Form	Login User
Privileges For	Assistant and Manager
Description	This form allows the users (assistants and managers) to log into the system using their user email and password. A user must be logged into the system to access the functionalities of the system. A user gets access to

	different functionalities based on their roles.
--	---

Table 1: Description of Login

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	------	----------------	------------------	---------------	----------	-------

Log in

Use a local account to log in.

The image shows a user login form. It includes fields for 'Email' (containing 'john.mayers@gmail.com') and 'Password' (containing a masked password). There is a 'Remember me?' checkbox and a 'Log in' button. Below the form are links for 'Forgot your password?' and 'Register as a new user'.

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Figure 17: User Login Form

3.2. Description of Register Form

Involved Form	Register User
Privileges For	Assistant and Manager
Description	This form allows the user to register in the system by entering the user details.

Table 2: Description Of Register

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
Register													
Create a new account.													
<input type="text" value="First name"/> john													
<input type="text" value="Last name"/> mayers													
<input type="text" value="Email"/> john.mayers@gmail.com													
<input type="text" value="Password"/> *****													
<input type="text" value="Confirm password"/> *****													
<input type="button" value="Register"/>													

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Figure 18: Register Form

3.3. Description of Inactive DVDs form:

Involved Form	Inactive DVDs
Privileges For	Assistant and Manager
Description	It shows the details of inactive DVDs Copies which were last loaned 31 days ago.

Table 3: Description of Inactive DVDs Table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout						
INACTIVE DVD COPIES																			
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #009640; color: white;"> <th>DVD number</th> <th>DVD title</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>hotel california</td> </tr> <tr> <td>5</td> <td>demon slayer</td> </tr> </tbody> </table>														DVD number	DVD title	3	hotel california	5	demon slayer
DVD number	DVD title																		
3	hotel california																		
5	demon slayer																		

Figure 19: Inactive DVD Copied Form

3.4. Description of Inactive Members form

Involved Form	Inactive Members
Privileges For	Assistant and Manager
Description	It shows the details of Inactive Members who haven't loaned DVDs for the last 31 days.

Table 4: Description of Inactive Members table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	-------	--------

INACTIVE MEMBERS

Member first name	Member last name	Member address	DVD title	Date out
-------------------	------------------	----------------	-----------	----------

Figure 20: Inactive Members form

3.5. Description of Old DVD copies

Involved Form	Old DVD Copies
Privileges For	Assistant and Manager
Description	It shows the list of all the DVD copies which were last loaned 365 days ago.

Table 5: Description of Old DVD Copies Table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello biman.lakhey74@gmail.com!	Logout
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	---------------------------------	--------

OLD DVD COPIES

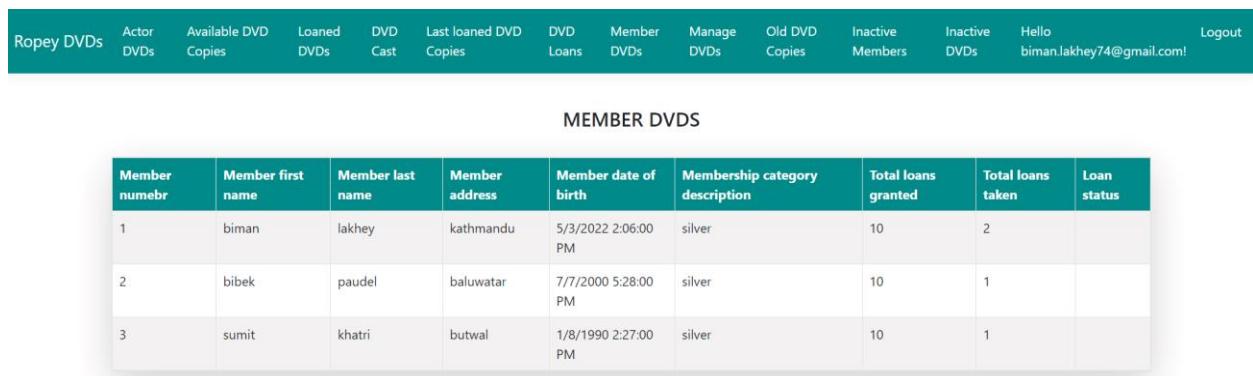
DVD title	DVD copy number	Date purchased	Date returned	
stairway to heaven	8	1/7/2021 2:49:00 PM	5/3/2022 2:49:00 PM	Delete

Figure 21: Old DVD Copies Form

3.6. Description of Member DVDs form:

Involved Form	Members DVDs Details
Privileges For	Assistant and Manager
Description	Shows the list of all the members and their categories with their total loans.

Table 6: Description of Member DVDs Table



The screenshot shows a web application interface. At the top, there is a navigation bar with links: 'Ropey DVDs', 'Actor DVDs', 'Available DVD Copies', 'Loaned DVDs', 'DVD Cast', 'Last loaned DVD Copies', 'DVD Loans', 'Member DVDs', 'Manage DVDs', 'Old DVD Copies', 'Inactive Members', 'Inactive DVDs', 'Hello biman.lakhey74@gmail.com!', and 'Logout'. Below the navigation bar, the title 'MEMBER DVDS' is centered. A table with the following data is displayed:

Member numebr	Member first name	Member last name	Member address	Member date of birth	Membership category description	Total loans granted	Total loans taken	Loan status
1	biman	lakhey	kathmandu	5/3/2022 2:06:00 PM	silver	10	2	
2	bibek	paudel	baluwatar	7/7/2000 5:28:00 PM	silver	10	1	
3	sumit	khatri	butwal	1/8/1990 2:27:00 PM	silver	10	1	

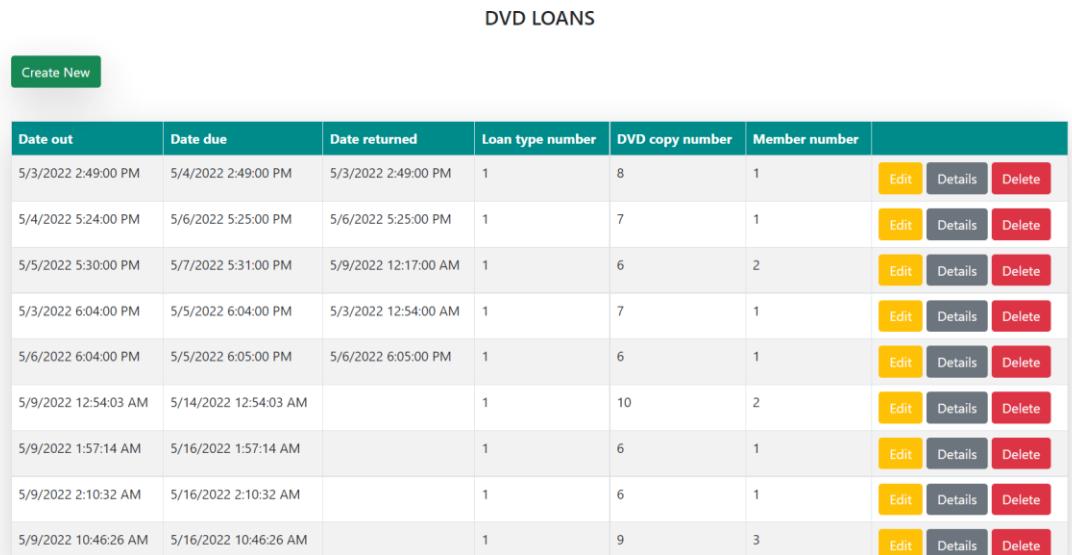
Figure 22: Member DVD Form

3.7. Description of DVD Loans form:

Involved Form	DVD Loans Details
Privileges For	Assistant and Manager
Description	Shows the list of all the DVD loans.

Table 7: Description of DVD Loan table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello	Logout
												biman.lakhey74@gmail.com!	



The screenshot shows a web application interface for managing DVD loans. At the top, there is a navigation bar with links for 'Ropey DVDs', 'Actor DVDs', 'Available DVD Copies', 'Loaned DVDs', 'DVD Cast', 'Last loaned DVD Copies', 'DVD Loans', 'Member DVDs', 'Manage DVDs', 'Old DVD Copies', 'Inactive Members', 'Inactive DVDs', 'Hello' (with the email 'biman.lakhey74@gmail.com!'), and 'Logout'. Below the navigation bar is a button labeled 'Create New'. The main content area is titled 'DVD LOANS' and displays a table of loan records. The table has columns for 'Date out', 'Date due', 'Date returned', 'Loan type number', 'DVD copy number', 'Member number', and three action buttons ('Edit', 'Details', 'Delete') for each row. The data in the table is as follows:

Date out	Date due	Date returned	Loan type number	DVD copy number	Member number			
5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM	1	8	1	<button>Edit</button>	<button>Details</button>	<button>Delete</button>
5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM	1	7	1	<button>Edit</button>	<button>Details</button>	<button>Delete</button>
5/5/2022 5:30:00 PM	5/7/2022 5:31:00 PM	5/9/2022 12:17:00 AM	1	6	2	<button>Edit</button>	<button>Details</button>	<button>Delete</button>
5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM	1	7	1	<button>Edit</button>	<button>Details</button>	<button>Delete</button>
5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM	1	6	1	<button>Edit</button>	<button>Details</button>	<button>Delete</button>
5/9/2022 12:54:03 AM	5/14/2022 12:54:03 AM		1	10	2	<button>Edit</button>	<button>Details</button>	<button>Delete</button>
5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM		1	6	1	<button>Edit</button>	<button>Details</button>	<button>Delete</button>
5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM		1	6	1	<button>Edit</button>	<button>Details</button>	<button>Delete</button>
5/9/2022 10:46:26 AM	5/16/2022 10:46:26 AM		1	9	3	<button>Edit</button>	<button>Details</button>	<button>Delete</button>

Figure 23: DVD Loan Form

3.8. Description of Last Loaned DVD Form

Involved Form	Last Loaned DVD Details
Privileges For	Assistant and Manager
Description	Displays the last loaned DVDs and also displayed the list of all the loaned DVDs sorted by date out or dvd title

Table 8: Description of Last loaned DVD Table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	----------	-------

LAST LOANED DVDS						
DVD copy number		Search				
Sort by date out		Sort by DVD title				
First name	Last name	DVD title	Copy number	Date out	Date due	Date returned
biman	lakhey	stairway to heaven	8	5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM
biman	lakhey	stairway to heaven	7	5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM
biman	lakhey	stairway to heaven	7	5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM
bibek	paudel	billie jeans	6	5/5/2022 5:30:00 PM	5/7/2022 5:31:00 PM	5/9/2022 12:17:00 AM
biman	lakhey	billie jeans	6	5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM
bibek	paudel	naruto	10	5/9/2022 12:54:03 AM	5/14/2022 12:54:03 AM	
biman	lakhey	billie jeans	6	5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM	
biman	lakhey	billie jeans	6	5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM	
sumit	khatri	naruto	9	5/9/2022 10:46:26 AM	5/16/2022 10:46:26 AM	

Figure 24: Last loan DVD form

3.9. Description of the DVD Cast form:

Involved Form	DVD Cast Form Details
Privileges For	Assistant and Manager
Description	Displays the list of all the DVDs with their Producer, Studio and Actor details.

Table 9: Description of DVD Cast Table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	----------	-------

DVD CAST

DVD number	DVD title	Date released	Producer name	Studio name	Actor first name	Actor last name
3	hotel california	3/10/2022 1:26:00 PM	biman lakhey	lakhey studio	bibek	khatri
1	billie jeans	5/2/2022 12:05:00 PM	biman lakhey	lakhey studio	bibek	khatri
2	stairway to heaven	5/2/2022 12:10:00 PM	biman lakhey	lakhey studio	bibek	khatri
3	hotel california	3/10/2022 1:26:00 PM	biman lakhey	lakhey studio	biman	lakhey
1	billie jeans	5/2/2022 12:05:00 PM	biman lakhey	lakhey studio	biman	lakhey

Figure 25: DVD Caste Form

3.10. Description of Loaned DVDs Form:

Involved Form	Loaned DVDs Details
Privileges For	Assistant and Manager
Description	Displays the list of all the loaned DVDs of searched member

Table 10: Description of Loaned DVD Table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login																																																	
LOANED DVDS																																																														
Member last name																																																														
Search																																																														
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>First name</th><th>Last name</th><th>DVD number</th><th>Copy number</th><th>Date out</th><th>Date due</th><th>Date returned</th></tr> </thead> <tbody> <tr> <td>biman</td><td>lakhey</td><td>2</td><td>8</td><td>5/3/2022 2:49:00 PM</td><td>5/4/2022 2:49:00 PM</td><td>5/3/2022 2:49:00 PM</td></tr> <tr> <td>biman</td><td>lakhey</td><td>2</td><td>7</td><td>5/4/2022 5:24:00 PM</td><td>5/6/2022 5:25:00 PM</td><td>5/6/2022 5:25:00 PM</td></tr> <tr> <td>biman</td><td>lakhey</td><td>2</td><td>7</td><td>5/3/2022 6:04:00 PM</td><td>5/5/2022 6:04:00 PM</td><td>5/3/2022 12:54:00 AM</td></tr> <tr> <td>biman</td><td>lakhey</td><td>1</td><td>6</td><td>5/6/2022 6:04:00 PM</td><td>5/5/2022 6:05:00 PM</td><td>5/6/2022 6:05:00 PM</td></tr> <tr> <td>biman</td><td>lakhey</td><td>1</td><td>6</td><td>5/9/2022 1:57:14 AM</td><td>5/16/2022 1:57:14 AM</td><td></td></tr> <tr> <td>biman</td><td>lakhey</td><td>1</td><td>6</td><td>5/9/2022 2:10:32 AM</td><td>5/16/2022 2:10:32 AM</td><td></td></tr> </tbody> </table>														First name	Last name	DVD number	Copy number	Date out	Date due	Date returned	biman	lakhey	2	8	5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM	biman	lakhey	2	7	5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM	biman	lakhey	2	7	5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM	biman	lakhey	1	6	5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM	biman	lakhey	1	6	5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM		biman	lakhey	1	6	5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM	
First name	Last name	DVD number	Copy number	Date out	Date due	Date returned																																																								
biman	lakhey	2	8	5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM																																																								
biman	lakhey	2	7	5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM																																																								
biman	lakhey	2	7	5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM																																																								
biman	lakhey	1	6	5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM																																																								
biman	lakhey	1	6	5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM																																																									
biman	lakhey	1	6	5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM																																																									

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Figure 26: Loaned DVD Form

3.11. Description of Available DVD Copies Form:

Involved Form	Available DVD Copies Details
Privileges For	No login required
Description	Displays the list of all the available DVD copies of searched member

Table 11: Description of Available DVD Table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
------------	------------	----------------------	-------------	----------	------------------------	-----------	-------------	-------------	----------------	------------------	---------------	----------	-------

AVAILABLE DVD COPIES

DVD Number	DVD Count	Title
1	1 available	billie jeans

Figure 27: Available DVD Form

3.12. Description of Actor DVDs form:

Involved Form	Actor DVD Details
Privileges For	No login required
Description	Displays the list of all the DVDs where the searched actor is a cast member.

Table 12: Description of Actor DVD Table

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Register	Login
ACTOR DVDS													
<input type="text" value="Actor last name"/>		<input type="button" value="Search"/>											
DVD Title	Date released	Standard charge			Penalty charge								
billie jeans	5/2/2022 12:05:00 PM	1000			2000								
stairway to heaven	5/2/2022 12:10:00 PM	1000			20000								
hotel california	3/10/2022 1:26:00 PM	4000			6000								
naruto	5/2/2022 3:22:00 PM	1000			2000								
demon slayer	5/2/2022 3:28:00 PM	4000			6000								

Figure 28: Actor DVD Form

4. System Architecture

4.1. ERD of Database

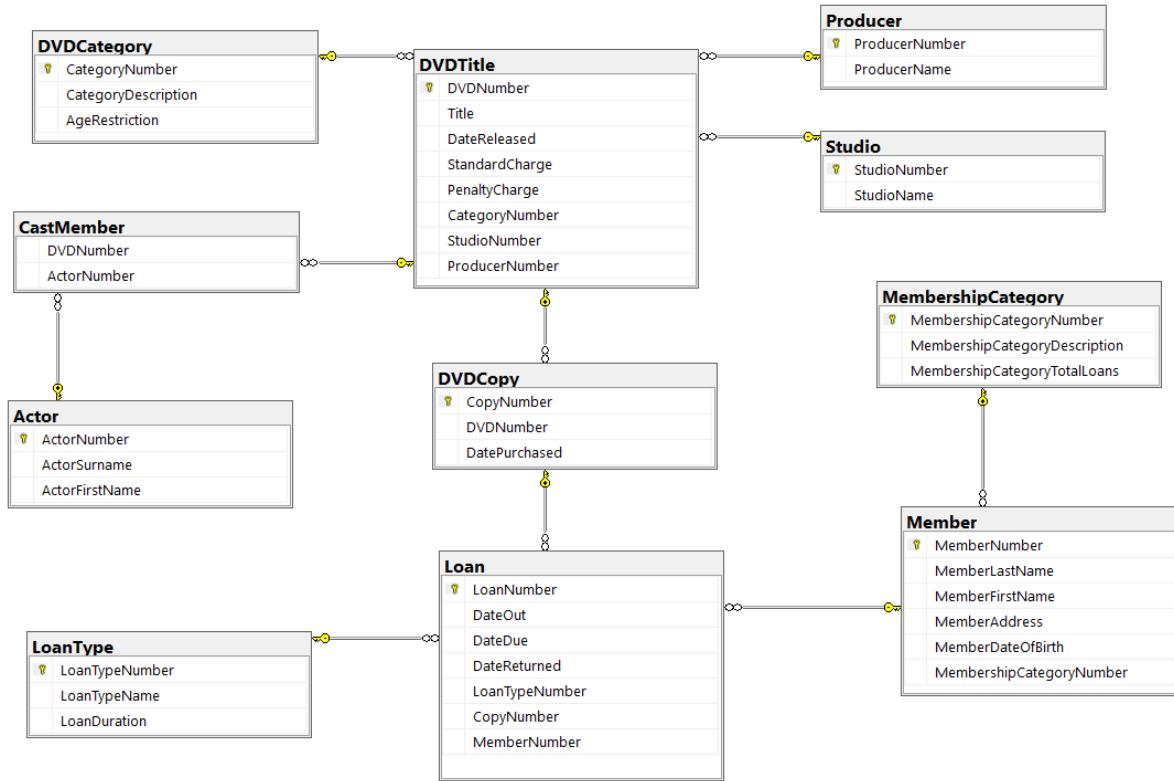


Figure 29: ERD of the System

4.2. Class Diagrams

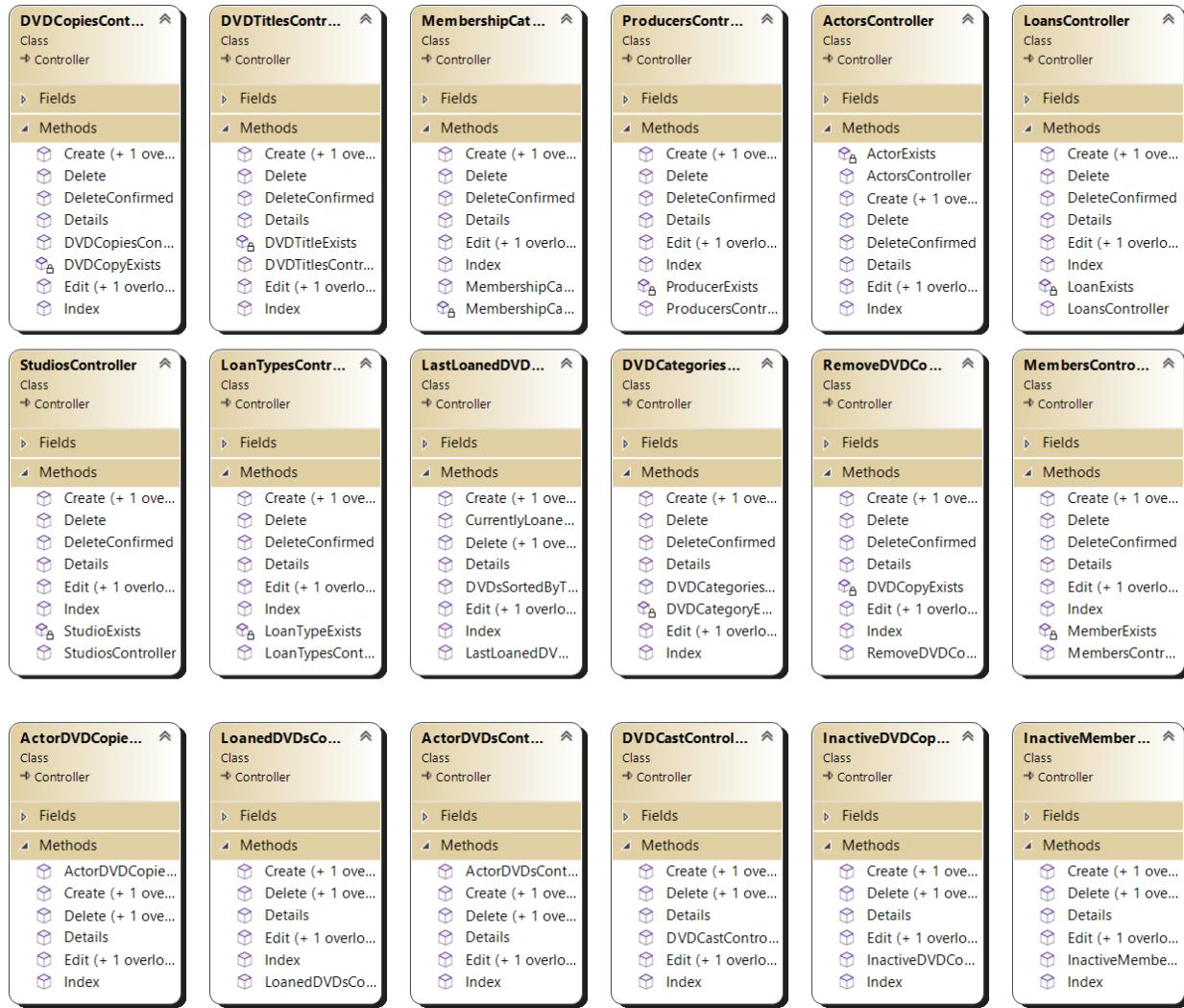


Figure 30: Class Diagram

5. Method Description

5.1. Method Description of ActorDVDCopiesController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index(string lastName) This method is used to sort the DVD copies by the actor's last name.
Public ActionResult	Details(int id) This method retrieves the details of the DVD copies by id.
Public ActionResult	Create() This method shows the view to which user can fill the details of new DVD copy.
Public ActionResult	Edit(int id) This method shows the view to which user can edit the details of DVD copy.
Public ActionResult	Delete(int id) This method shows the view to which user can delete DVD copy.
Public ActionResult	Create(IFormCollection collection) This method creates a view which allows to add new DVD copy.
Public ActionResult	Edit(int id, IFormCollection collection) This method creates a view which allows to edit DVD copy.
Public ActionResult	Delete(int id, IFormCollection collection) This method creates a view which allows to delete DVD copy.

Table 13: Method Description of ActorDVDCopiesController.cs

5.2. Method Description of ActorDVDsController.cs

Modifier and type	Method and Description
Public async Task<ActionResult>	Index(string lastName) This method is used to sort the DVD by the actor's last name.
Public ActionResult	Details(int id) This method retrieves the details of the DVD by id.
Public ActionResult	Create() This method shows the view to which user can fill the details of new DVD.
Public ActionResult	Edit(int id) This method shows the view to which user can edit the details.
Public ActionResult	Delete(int id) This method shows the view to which user can delete the details.
Public ActionResult	Create(IFormCollection collection) This method creates a view which allows to add new details.
Public ActionResult	Edit(int id, IFormCollection collection) This method creates a view which allows to edit details.
Public ActionResult	Delete(int id, IFormCollection collection) This method creates a view which allows to delete details.

Table 14: Method Description of ActorDVDsController.cs

5.3. Method Description of ActorsController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of actors.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific actor.
Public IActionResult	Create() This method shows the view to which user can fill the details of new actor.
Public async Task<IActionResult>	Edit(int id) This method is used to edit an actor with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete an actor from the database.
Public async Task<IActionResult>	Create(Actor actor) This method creates a new actor in the database.
Public async Task<IActionResult>	Edit(int id, Actor actor) This method creates an edit an actor with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the actor.
Private boolean	ActorExists(int id) This method checks if the actor with the given ID exists.

Table 15: Method Description of ActorsController.cs

5.4. Method Description of DVDCastController.cs

Modifier and type	Method and Description
Public ActionResult	Index() This method lists the DVDTitles along with producers and studios
Public ActionResult	Details(int id) This method retrieves the details by id.
Public ActionResult	Create() This method shows the view to which user can fill the details of new.
Public ActionResult	Edit(int id) This method shows the view to which user can edit the details.
Public ActionResult	Delete(int id) This method shows the view to which user can delete the details.
Public ActionResult	Create(IFormCollection collection) This method creates a view which allows to add new details.
Public ActionResult	Edit(int id, IFormCollection collection) This method creates a view which allows to edit details.
Public ActionResult	Delete(int id, IFormCollection collection) This method creates a view which allows to delete details.

Table 16: Method Description of DVDCastController.cs

5.5. Method Description of DVDCategoriesController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of categories.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific category.
Public IActionResult	Create() This method shows the view to which user can fill the details of new category.
Public async Task<IActionResult>	Edit(int id) This method is used to edit a category with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete a category from the database.
Public async Task<IActionResult>	Create(DVDCategory dVDCategory) This method creates a new category in the database.
Public async Task<IActionResult>	Edit(int id, DVDCategory) This method creates edit a category with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the category.
Private boolean	DVDCategoryExists(int id) This method checks if the category with the given ID exists.

Table 17: Method Description of DVDCategoriesController.cs

5.6. Method Description of DVDCopiesController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of DVD copy.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific DVD copy.
Public IActionResult	Create() This method shows the view to which user can fill the details of new DVD copy.
Public async Task<IActionResult>	Edit(int id) This method is used to edit an DVD copy with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete an DVD copy from the database.
Public async Task<IActionResult>	Create(DVDCopy dVDCopy) This method creates a new DVD copy in the database.
Public async Task<IActionResult>	Edit(int id, DVDCopy) This method creates edit an DVD copy with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the DVD copy.
Private boolean	DVDCopyExists(int id) This method checks if the DVD copy with the given ID exists.

Table 18: Method Description of DVDCopiesController.cs

5.7. Method Description of DVDTitlesController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of DVD title.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific DVD title.
Public IActionResult	Create() This method shows the view to which user can fill the details of new DVD title.
Public async Task<IActionResult>	Edit(int id) This method is used to edit an DVD title with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete an DVD title from the database.
Public async Task<IActionResult>	Create(DVDTITLE dVDTITLE) This method creates a new DVD title in the database.
Public async Task<IActionResult>	Edit(int id, DVDTITLE dVDTITLE) This method creates edit an DVD title with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the DVD title.
Private boolean	DVDTITLEExists(int id) This method checks if the DVD title with the given ID exists.

Table 19: Method Description of DVDTitlesController.cs

5.8. Method Description of InactiveDVDCopiesController.cs

Modifier and type	Method and Description
Public ActionResult	Index() This method lists the inactive DVD copy.
Public ActionResult	Details(int id) This method retrieves the details by id.
Public ActionResult	Create() This method shows the view to which user can fill the details of new inactive DVD copy.
Public ActionResult	Edit(int id) This method shows the view to which user can edit the details.
Public ActionResult	Delete(int id) This method shows the view to which user can delete the details.
Public ActionResult	Create(IFormCollection collection) This method creates a view which allows to add new details.
Public ActionResult	Edit(int id, IFormCollection collection) This method creates a view which allows to edit details.
Public ActionResult	Delete(int id, IFormCollection collection) This method creates a view which allows to delete details.

Table 20: Method Description of InactiveDVDCopiesController.cs

5.9. Method Description of InactiveMembersController.cs

Modifier and type	Method and Description
Public ActionResult	Index() This method lists the inactive member.
Public ActionResult	Details(int id) This method retrieves the details by id.
Public ActionResult	Create() This method shows the view to which user can fill the details of new inactive member.

Public ActionResult	Edit(int id) This method shows the view to which user can edit the details.
Public ActionResult	Delete(int id) This method shows the view to which user can delete the details.
Public ActionResult	Create(IFormCollection collection) This method creates a view which allows to add new details.
Public ActionResult	Edit(int id, IFormCollection collection) This method creates a view which allows to edit details.
Public ActionResult	Delete(int id, IFormCollection collection) This method creates a view which allows to delete details.

Table 21: Method Description of InactiveMembersController.cs

5.10. Method Description of LastLoanedDVDCopiesController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index(string copyNumber) This method is used to sort the last loaned DVD copies by the DVD copy number.
Public async Task<IActionResult>	CurrentlyLoanedDVDs() This method lists the DVDs that are currently loaned.
Public async Task<IActionResult>	DVDsSortedByTitle() This method lists the list of the DVDs by the DVD Title.
Public ActionResult	Details(int id) This method retrieves the details of the last loaned DVD copies by id.
Public ActionResult	Create() This method shows the view to which user can fill the details of new loaned DVD copy.
Public ActionResult	Edit(int id) This method shows the view to which user can edit the details.
Public ActionResult	Delete(int id) This method shows the view to which user can delete.
Public ActionResult	Create(IFormCollection collection) This method creates a view which allows to add new DVD copy.
Public ActionResult	Edit(int id, IFormCollection collection) This method creates a view which allows to edit DVD copy.
Public ActionResult	Delete(int id, IFormCollection collection) This method creates a view which allows to delete DVD copy.

Table 22: Method Description of LastLoanedDVDCopiesController.cs

5.11. Method Description of LoanedDVDCopiesController.cs

Modifier and type	Method and Description
Public async Task<ActionResult>	Index(string lastName) This method is used to sort the loaned DVD by last name.
Public ActionResult	Details(int id) This method retrieves the details of the DVD by id.
Public ActionResult	Create() This method shows the view to which user can fill the details of new loaned DVD.
Public ActionResult	Edit(int id) This method shows the view to which user can edit the details.
Public ActionResult	Delete(int id) This method shows the view to which user can delete the details.
Public ActionResult	Create(IFormCollection collection) This method creates a view which allows to add new details.
Public ActionResult	Edit(int id, IFormCollection collection) This method creates a view which allows to edit details.
Public ActionResult	Delete(int id, IFormCollection collection) This method creates a view which allows to delete details.

Table 23: Method Description of LoanedDVDCopiesController.cs

5.12. Method Description of LoansController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of loaned DVDs.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific loaned DVD.
Public IActionResult	Create() This method shows the view to which user can fill the details of new loaned DVD.
Public async Task<IActionResult>	Edit(int id) This method is used to edit a loaned DVD with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete a loaned DVD from the database.
Public async Task<IActionResult>	Create(Loan loan) This method creates a new loaned DVD in the database.
Public async Task<IActionResult>	Edit(int id, Loan) This method creates edit a loaned DVD with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the loaned DVD.
Private boolean	LoanExists(int id) This method checks if the loaned DVD with the given ID exists.

Table 24: Method Description of LoansController.cs

5.13. Method Description of LoanTypesController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of loan type.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific loan type.
Public IActionResult	Create() This method shows the view to which user can fill the details of new loan type.
Public async Task<IActionResult>	Edit(int id) This method is used to edit a loan type with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete a loan type from the database.
Public async Task<IActionResult>	Create(LoanType loanType) This method creates a new loan type in the database.
Public async Task<IActionResult>	Edit(int id, LoanType) This method creates edit a loan type with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the loan type.
Private boolean	LoanTypeExists(int id) This method checks if the loan type with the given ID exists.

Table 25: Method Description of LoanTypesController.cs

5.14. Method Description of MembersController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of members.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific member.
Public IActionResult	Create() This method shows the view to which user can fill the details of new member.
Public async Task<IActionResult>	Edit(int id) This method is used to edit a member with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete a member from the database.
Public async Task<IActionResult>	Create(Member member) This method creates a new member in the database.
Public async Task<IActionResult>	Edit(int id, Member member) This method creates edit a member with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the member.
Private boolean	MemberExists(int id) This method checks if the member with the given ID exists.

Table 26: Method Description of MembersController.cs

5.15. Method Description of MembershipCategoriesController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of member category.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific member category.
Public IActionResult	Create() This method shows the view to which user can fill the details of new member category.
Public async Task<IActionResult>	Edit(int id) This method is used to edit a member category with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete a member category from the database.
Public async Task<IActionResult>	Create(MembershipCategory membershipCategory) This method creates a new member category in the database.
Public async Task<IActionResult>	Edit(int id, MembershipCategory) This method creates edit a member category with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the member category.
Private boolean	MembershipCategoryExists(int id) This method checks if the member category with the given ID exists.

Table 27: Method Description of MembershipCategoriesController.cs

5.16. Method Description of ProducersController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of producers.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific producer.
Public IActionResult	Create() This method shows the view to which user can fill the details of new producer.
Public async Task<IActionResult>	Edit(int id) This method is used to edit a producer with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete a producer from the database.
Public async Task<IActionResult>	Create(Producer producer) This method creates a new producer in the database.
Public async Task<IActionResult>	Edit(int id, Producer) This method creates edit a producer with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the producer.
Private boolean	ProducerExists(int id) This method checks if the producer with the given ID exists.

Table 28: Method Description of ProducersController.cs

5.17. Method Description of RemoveDVDCopiesController.cs

Modifier and type	Method and Description
Public async Task<ActionResult>	Index() This method is used to retrieve the list of removed DVD copy.
Public async Task<ActionResult>	Details(int id) This method shows the details of retrieve a specific removed DVD copy.
Public ActionResult	Create() This method shows the view to which user can fill the details of new removed DVD copy.
Public ActionResult	Edit(int id) This method is used to edit a removed DVD copy with the given ID.
Public async Task<ActionResult>	Delete(int id) This method is used to delete a removed DVD copy from the database.
Public ActionResult	Create(IFormCollection Collection) This method creates a new removed DVD copy in the database.
Public ActionResult	Edit(int id,IFormCollection Collection) This method creates edit a removed DVD copy with the specific ID.
Public async Task<ActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the removed DVD copy.
Private boolean	DVDCopyExists(int id) This method checks if the removed DVD copy with the given ID exists.

Table 29: Method Description of RemoveDVDCopiesController.cs

5.18. Method Description of StudiosController.cs

Modifier and type	Method and Description
Public async Task<IActionResult>	Index() This method is used to retrieve the list of studios.
Public async Task<IActionResult>	Details(int id) This method shows the details of retrieve a specific studio.
Public IActionResult	Create() This method shows the view to which user can fill the details of new studio.
Public async Task<IActionResult>	Edit(int id) This method is used to edit a studio with the given ID.
Public async Task<IActionResult>	Delete(int id) This method is used to delete a studio from the database.
Public async Task<IActionResult>	Create(Studio studio) This method creates a new studio in the database.
Public async Task<IActionResult>	Edit(int id, Studio studio) This method creates edit a studio with the specific ID.
Public async Task<IActionResult>	DeleteConfirmed(int id) This method is used to confirm the delete of the studio.
Private boolean	StudioExists(int id) This method checks if the studio with the given ID exists.

Table 30: Method Description of StudiosController.cs

6. Testing

6.1. Testing 1: User login

Objective	Login to system
Expected result	Users must be able to log into the system after entering the credentials.
Actual result	The user was able to login in the system after entering the username and password
Conclusion	Successful

Table 31: Test 1

Ropey DVDs Actor DVDs Available DVD Copies Loaned DVDs DVD Cast Last loaned DVD Copies DVD Loans Member DVDs DVDs Old DVD Copies Inactive Members Inactive DVDs Register Login

Log in

Use a local account to log in.

Email
john.mayers@gmail.com

Password
.....

Remember me?

Log in

[Forgot your password?](#)

[Register as a new user](#)

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Figure 31: Test 1

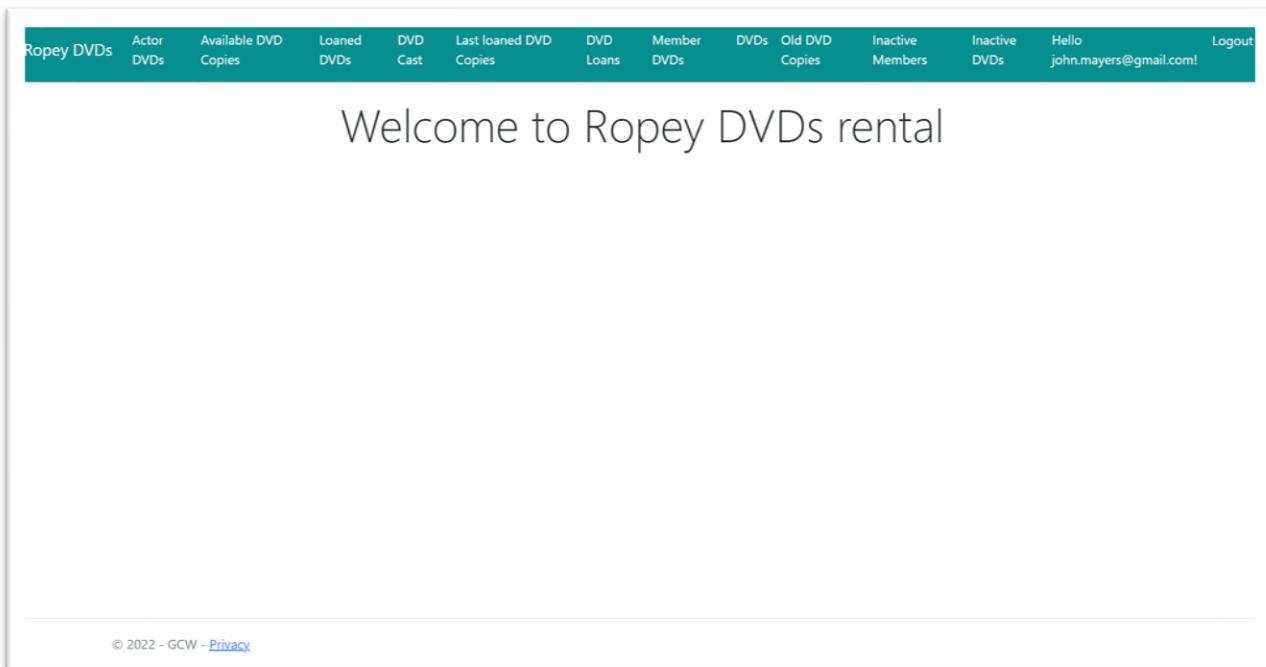


Figure 32: Test 1 successful

6.2. Testing 2: User registration:

Objective	Register new user in the system
Expected result	The user must be able to register enter the system after entering the required fields
Actual result	The user was able to successfully register in the system after entering the required field.
Conclusion	Successful

Table 32: Test 2

Ropey DVDs Actor DVDs Available DVD Copies Loaned DVDs DVD Cast Last loaned DVD Copies DVD Loans Member DVDs DVDs Old DVD Copies Inactive Members Inactive DVDs Register Login

Register

Create a new account.

First name
john

Last name
mayers

Email
john.mayers@gmail.com

Password

Confirm password

Register

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Figure 33: Test 2

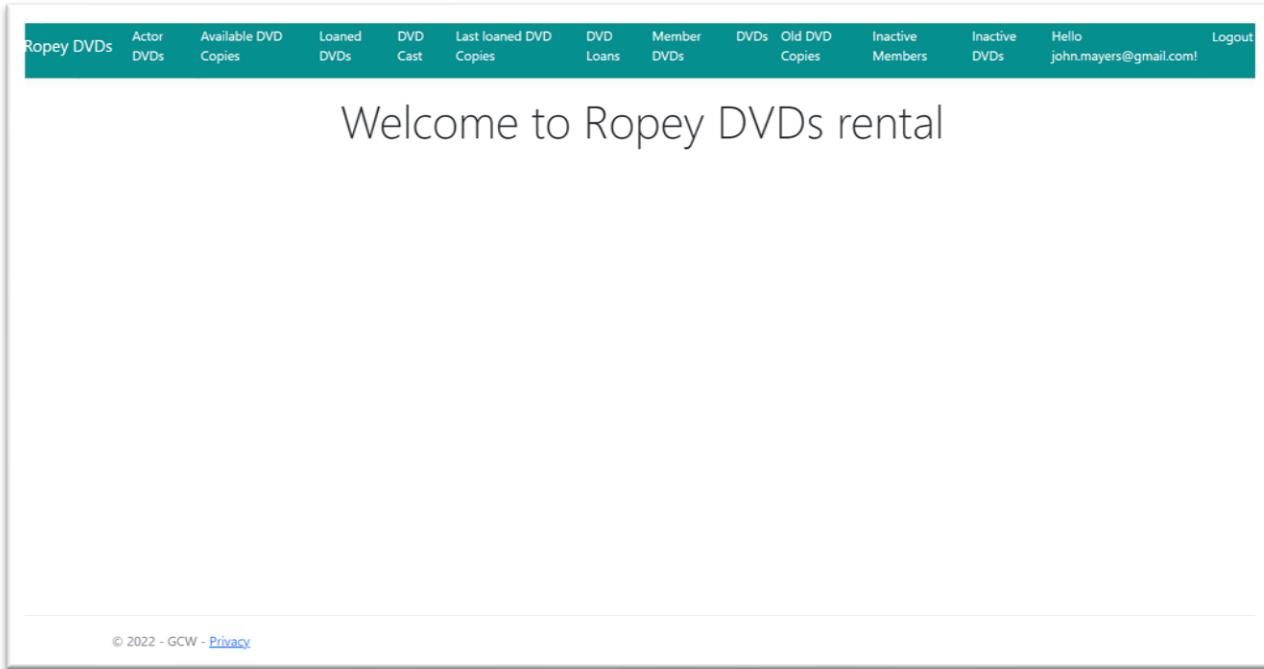


Figure 34: Test 2 successful

6.3. Testing 3: Searching stocked DVDs according to actor last name:

Objective	Searching stocked DVDs according to actor last name:
Expected result	The user should be able to view the stocked DVDs of each actor by searching with actor's last name.
Actual result	The user was able to view the stocked DVDs of each actor by searching with actor's last name
Conclusion	Successful

Table 33: Test 3

Privacy'."/>

ACTOR DVDS

DVD Title	Date released	Standard charge	Penalty charge
billie jeans	5/2/2022 12:05:00 PM	1000	2000
stairway to heaven	5/2/2022 12:10:00 PM	1000	20000
hotel california	3/10/2022 1:26:00 PM	4000	6000
naruto	5/2/2022 3:22:00 PM	1000	2000
demon slayer	5/2/2022 3:28:00 PM	4000	6000

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Figure 35: Test 3

6.4. Testing 4: Searching available DVD copies according to actor last name:

Objective	Searching available DVD copies according to actor last name:
Expected result	The user should be able to view the available DVD copies of each actor by searching with actor's last name.
Actual result	The user was able to view the available DVD copies of each actor by searching with actor's last name
Conclusion	Successful

Table 34: Test 4

The screenshot shows a web-based application for managing DVD copies. At the top, there is a navigation bar with links: Ropedy DVDs, Actor DVDs, Available DVD Copies, Loaned DVDs, DVD Cast, Last loaned DVD Copies, DVD Loans, Member DVDs, Manage DVDs, Old DVD Copies, Inactive Members, Inactive DVDs, Register, and Login. Below the navigation bar, the title "AVAILABLE DVD COPIES" is displayed. Underneath the title, there is a search form with a text input field labeled "Actor's surname" and a blue "Search" button. The search results are presented in a table with three columns: "DVD Number", "DVD Count", and "Title". The table shows one row of data: "1", "1 available", and "billie jeans".

DVD Number	DVD Count	Title
1	1 available	billie jeans

Figure 36: Test 4

6.5. Testing 5: Searching loaned DVD copies of last 31 days according to member's last name:

Objective	Searching loaned DVD copies of last 31 days according to member's last name
Expected result	The user should be able to view the DVD copies that were loaned in the past 31 days for searched member
Actual result	The user was able to view the DVD copies that were loaned in the past 31 days for searched member
Conclusion	Successful

Table 35: Test 5

The screenshot shows a web-based application for managing DVD loans. At the top, there is a navigation bar with links: Ropely DVDs, Actor DVDs, Available DVD Copies, Loaned DVDs, DVD Cast, Last loaned DVD Copies, DVD Loans, Member DVDs, Manage DVDs, Old DVD Copies, Inactive Members, Inactive DVDs, Register, and Login. Below the navigation bar, the page title is "LOANED DVDS". There is a search form with a "Member last name" input field and a "Search" button. The main content area displays a table of loaned DVD records. The table has columns: First name, Last name, DVD number, Copy number, Date out, Date due, and Date returned. The data in the table is as follows:

First name	Last name	DVD number	Copy number	Date out	Date due	Date returned
biman	lakhey	2	8	5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM
biman	lakhey	2	7	5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM
biman	lakhey	2	7	5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM
biman	lakhey	1	6	5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM
biman	lakhey	1	6	5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM	
biman	lakhey	1	6	5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM	

At the bottom of the page, there is a copyright notice: © 2022 - GCW - [Privacy](#).

Figure 37: Test 5

6.6. Testing-6: To view the name of the producer, studio, cast lists and details of all the DVDs in the shop in increasing order of date released:

Objective	To view the name of the producer, studio, cast lists and details of all the DVDs in the shop in increasing order of date released.
Expected result	The user must be able to view the name of the producer, studio, cast lists and details of all the DVDs in the shop in increasing order of date released.
Actual result	The user was be able to view the name of the producer, studio, cast lists and details of all the DVDs in the shop in increasing order of date released.
Conclusion	Successful

Table 36: Test 6

DVD CAST

DVD number	DVD title	Date released	Producer name	Studio name	Actor first name	Actor last name
3	hotel california	3/10/2022 1:26:00 PM	biman lakhey	lakhey studio	bibek	khatri
1	billie jeans	5/2/2022 12:05:00 PM	biman lakhey	lakhey studio	bibek	khatri
2	stairway to heaven	5/2/2022 12:10:00 PM	biman lakhey	lakhey studio	bibek	khatri
3	hotel california	3/10/2022 1:26:00 PM	biman lakhey	lakhey studio	biman	lakhey
1	billie jeans	5/2/2022 12:05:00 PM	biman lakhey	lakhey studio	biman	lakhey

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Figure 38: Test 6

6.7. Testing-7: To view the last loaned DVD copy loan details with the details of the member who borrowed it according to the copy's number:

Objective	To view the last loaned DVD copy loan details with the details of the member who borrowed it according to the copy's number.
Expected result	User must be able to view the last loaned DVD copy loan details with the details of the member who borrowed it according to the copy's number.

Actual result	User was able to view the last loaned DVD copy loan details with the details of the member who borrowed it according to the copy's number.
Conclusion	Successful

Table 37: Test 7

First name	Last name	DVD title	Copy number	Date out	Date due	Date returned
biman	lakhey	stairway to heaven	8	5/3/2022 2:49:00 PM	5/4/2022 2:49:00 PM	5/3/2022 2:49:00 PM

Figure 39: Test 7

6.8. Testing-8: To check if the member is under 18 and is able to loan an age restricted DVD:

Objective	To check if the member is under 18 and is able to loan an age restricted DVD.
------------------	---

Expected result	User must not be able to create a loan if the member is under 18 and the DVD has an age restriction.
Actual result	User was not be able to create a loan for the member of under 18 and the DVD with age restriction.
Conclusion	Successful

Table 38: Test 8

Ropay DVDs Actor DVDs Available DVD Copies Loaned DVDs DVD Cast Last loaned DVD Copies DVD Loans Member DVDs Manage DVDs Old DVD Copies Inactive Members Inactive DVDs Hello manish@gmail.com! Logout

Create

Loan

- The DVD is for 18+ members only

Loan type number
1

Copy number
8

Member number
1

Create

Figure 40: Test 8

6.9. Testing-9: To check if the member's loan count exceeds the granted loan count:

Objective	To check if the member's loan count has exceeded the granted loan count and is able to loan a DVD.
------------------	--

Expected result	User must not be able to loan a DVD if the member's loan count exceeds the granted loan count
Actual result	User was not be able to loan a DVD for the member with an exceeded loan count
Conclusion	Successful

Table 39: Test 9

Create

Loan

- The member has already loaned more than their available loans

Loan type number
1

Copy number
6

Member number
1

Create

Figure 41: Test 9

6.10. Testing-10: To check if a user is able to create a new loan for the member and the standard charge is displayed:

Objective	To check if a user is able to create a new loan for the member and the standard charge is displayed:
Expected result	User must able to create a new loan for the member and the standard charge should be displayed:
Actual result	User was able to create a new loan for the member and the standard charge was displayed:
Conclusion	Successful

Table 40: Test 10

Ropey DVDs Actor DVDs Available DVD Copies Loaned DVDs DVD Cast Last loaned DVD Copies DVD Loans Member DVDs Manage DVDs Old DVD Copies Inactive Members Inactive DVDs Hello manish@gmail.com! Logout

Create

Loan

- DVD loaned

Loan type number

Copy number

Member number

Create

4000

[Back to List](#)

Figure

42:

Test

10

6.11. Testing-11: To check if a user is able to update the date returned for the returned DVD and view the total penalty charge if the date returned exceeds the date due:

Objective	To check if a user is able to update the date returned for the returned DVD and view the total penalty charge if the date returned exceeds the date due
Expected result	User must be able to update the date returned for the returned DVD and view the total penalty charge if the date returned exceeds the date due
Actual result	User was able to update the date returned for the returned DVD and view the total penalty charge.
Conclusion	Successful

Table 41: Test 11

The screenshot shows a form titled "Loan". It contains the following fields:

- Date out: 05/09/2022 12:54:03.606 AM
- Date due: 05/14/2022 12:54:03.606 AM
- Date returned: 05/17/2022 01:31 PM
- Loan type number: 1
- Copy number: 10
- Member number: 2

Below the form is a blue "Save" button. A message below the button states: "Total over dued amount to be paid: Rs. 7051.31". At the bottom left, there is a copyright notice: "© 2022 - GCW - [Privacy](#)".

Figure 43: Test 11

6.12. Testing-12: To test if a user is able to view a list of all the members with membership details and the total number of DVDs on loan and loan status:

Objective	To test if a user is able to view a list of all the members with membership details and the total number of DVDs on loan and loan status.
Expected result	user must able to view a list of all the members with membership details and the total number of DVDs on loan and loan status
Actual result	User was able to view a list of all the members with membership details and the total number of DVDs on loan and loan status

Conclusion	Successful
-------------------	------------

Table 42: Test 12

Ropey DVDs	Actor DVDs	Available DVD Copies	Loaned DVDs	DVD Cast	Last loaned DVD Copies	DVD Loans	Member DVDs	Manage DVDs	Old DVD Copies	Inactive Members	Inactive DVDs	Hello manish@gmail.com!	Logout																																																							
MEMBER DVDS																																																																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Member numebr</th><th>Member first name</th><th>Member last name</th><th>Member address</th><th>Member date of birth</th><th>Membership category description</th><th>Total loans granted</th><th>Total loans taken</th><th>Loan status</th><th colspan="5"></th></tr> </thead> <tbody> <tr> <td>1</td><td>biman</td><td>lakhey</td><td>kathmandu</td><td>5/3/2022 2:06:00 PM</td><td>bronze</td><td>3</td><td>3</td><td></td><td colspan="5"></td></tr> <tr> <td>2</td><td>bibek</td><td>paudel</td><td>baluwatar</td><td>7/7/2000 5:28:00 PM</td><td>silver</td><td>10</td><td>7</td><td>Too Many DVDs</td><td colspan="5"></td></tr> <tr> <td>3</td><td>sumit</td><td>khatri</td><td>butwal</td><td>1/8/1990 2:27:00 PM</td><td>silver</td><td>10</td><td>1</td><td>Too Many DVDs</td><td colspan="5"></td></tr> </tbody> </table>													Member numebr	Member first name	Member last name	Member address	Member date of birth	Membership category description	Total loans granted	Total loans taken	Loan status						1	biman	lakhey	kathmandu	5/3/2022 2:06:00 PM	bronze	3	3							2	bibek	paudel	baluwatar	7/7/2000 5:28:00 PM	silver	10	7	Too Many DVDs						3	sumit	khatri	butwal	1/8/1990 2:27:00 PM	silver	10	1	Too Many DVDs					
Member numebr	Member first name	Member last name	Member address	Member date of birth	Membership category description	Total loans granted	Total loans taken	Loan status																																																												
1	biman	lakhey	kathmandu	5/3/2022 2:06:00 PM	bronze	3	3																																																													
2	bibek	paudel	baluwatar	7/7/2000 5:28:00 PM	silver	10	7	Too Many DVDs																																																												
3	sumit	khatri	butwal	1/8/1990 2:27:00 PM	silver	10	1	Too Many DVDs																																																												

Figure 44: Test 12

6.13. Testing-13: To test if a user is able to view the list of all DVD copies which are more than 365 days old:

Objective	To test if a user is able to view the list of all DVD copies which are more than 365 days old.
Expected result	user must be able to view the list of all DVD copies which are more than 365 days old.

Actual result	User was able to view the list of all DVD copies which were more than 365 days old.
Conclusion	Successful

Table 43: Test 13

The screenshot shows a web-based application interface. At the top, there is a navigation bar with several links: 'Ropey DVDs', 'Actor DVDs', 'Available DVD Copies', 'Loaned DVDs', 'DVD Cast', 'Last loaned DVD Copies', 'DVD Loans', 'Member DVDs', 'Manage DVDs', 'Old DVD Copies', 'Inactive Members', 'Inactive DVDs', 'Hello biman.lakhey74@gmail.com!', and 'Logout'. Below the navigation bar, the main content area has a title 'OLD DVD COPIES'. Underneath the title is a table with four columns: 'DVD title', 'DVD copy number', 'Date purchased', and 'Date returned'. A single row of data is visible in the table, showing 'stairway to heaven' in the 'DVD title' column, '8' in the 'DVD copy number' column, '1/7/2021 2:49:00 PM' in the 'Date purchased' column, and '5/3/2022 2:49:00 PM' in the 'Date returned' column. To the right of the 'Date returned' column, there is a red rectangular button with the word 'Delete' in white text.

Figure 45: Test 13

6.14. Testing-14: To test if a user is able to delete the old DVD copies:

Objective	To test if a user is able to delete the old DVD copies.
------------------	---

Expected result	user must be able to delete the old DVD copies.
Actual result	User was able to delete the old DVD copies.
Conclusion	Successful

Table 44: Test 14

The screenshot shows a web-based application for managing DVD copies. At the top, there is a navigation bar with links: 'Ropey DVDs', 'Actor DVDs', 'Available DVD Copies', 'Loaned DVDs', 'DVD Cast', 'Last loaned DVD Copies', 'DVD Loans', 'Member DVDs', 'Manage DVDs', 'Old DVD Copies', 'Inactive Members', 'Inactive DVDs', 'Hello manish@gmail.com!', and 'Logout'. Below the navigation bar, the title 'OLD DVD COPIES' is centered. A table below the title has four columns: 'DVD title', 'DVD copy number', 'Date purchased', and 'Date returned'. There are no visible rows of data in the table.

Figure 46: Test 14

6.15. Testing-15: To test if a user is able to sort the DVD copies according to the Date out:

Objective	To test if a user is able to sort the DVD copies according to the Date out.
Expected result	user must be able to sort the DVD copies according to the Date out.
Actual result	User was able to sort the DVD copies according to the Date out.
Conclusion	Successful

Table 45: Test 15

First name	Last name	DVD title	Copy number	Date out	Date due	Date returned
biman	lakhey	stairway to heaven	7	5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM
biman	lakhey	stairway to heaven	7	5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM
bibek	paudel	billie jeans	6	5/5/2022 5:30:00 PM	5/7/2022 5:31:00 PM	5/9/2022 12:17:00 AM
biman	lakhey	billie jeans	6	5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM
bibek	paudel	naruto	10	5/9/2022 12:54:03 AM	5/14/2022 12:54:03 AM	
biman	lakhey	billie jeans	6	5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM	
biman	lakhey	billie jeans	6	5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM	
sumit	khatri	naruto	9	5/9/2022 10:46:26 AM	5/16/2022 10:46:26 AM	
biman	lakhey	billie jeans	6	5/9/2022 1:19:02 PM	5/16/2022 1:19:02 PM	
bibek	paudel	billie jeans	6	5/9/2022 1:19:06 PM	5/16/2022 1:19:06 PM	
bibek	paudel	naruto	9	5/9/2022 1:29:11 PM	5/16/2022 1:29:11 PM	
bibek	paudel	naruto	10	5/9/2022 1:29:15 PM	5/16/2022 1:29:15 PM	
bibek	paudel	billie jeans	6	5/9/2022 1:29:17 PM	5/16/2022 1:29:17 PM	
bibek	paudel	demon slayer	11	5/9/2022 1:29:19 PM	5/16/2022 1:29:19 PM	

Figure 47: Test 15

6.16. Testing-16: To test if a user is able to sort the DVD copies according to the DVD title:

Objective	To test if a user is able to sort the DVD copies according to the DVD title.
Expected result	user must be able to sort the DVD copies according to the DVD title.
Actual result	User was able to sort the DVD copies according to the DVD title.
Conclusion	Successful

Table 46: Test 16

First name	Last name	DVD title	Copy number	Date out	Date due	Date returned
biman	lakhey	billie jeans	6	5/6/2022 6:04:00 PM	5/5/2022 6:05:00 PM	5/6/2022 6:05:00 PM
biman	lakhey	billie jeans	6	5/9/2022 1:57:14 AM	5/16/2022 1:57:14 AM	
biman	lakhey	billie jeans	6	5/9/2022 2:10:32 AM	5/16/2022 2:10:32 AM	
biman	lakhey	billie jeans	6	5/9/2022 1:19:02 PM	5/16/2022 1:19:02 PM	
bibek	paudel	billie jeans	6	5/5/2022 5:30:00 PM	5/7/2022 5:31:00 PM	5/9/2022 12:17:00 AM
bibek	paudel	billie jeans	6	5/9/2022 1:19:06 PM	5/16/2022 1:19:06 PM	
bibek	paudel	billie jeans	6	5/9/2022 1:29:17 PM	5/16/2022 1:29:17 PM	
bibek	paudel	demon slayer	11	5/9/2022 1:29:19 PM	5/16/2022 1:29:19 PM	
bibek	paudel	naruto	10	5/9/2022 12:54:03 AM	5/14/2022 12:54:03 AM	
bibek	paudel	naruto	9	5/9/2022 1:29:11 PM	5/16/2022 1:29:11 PM	
bibek	paudel	naruto	10	5/9/2022 1:29:15 PM	5/16/2022 1:29:15 PM	
sumit	khatri	naruto	9	5/9/2022 10:46:26 AM	5/16/2022 10:46:26 AM	
biman	lakhey	stairway to heaven	7	5/4/2022 5:24:00 PM	5/6/2022 5:25:00 PM	5/6/2022 5:25:00 PM
biman	lakhey	stairway to heaven	7	5/3/2022 6:04:00 PM	5/5/2022 6:04:00 PM	5/3/2022 12:54:00 AM

Figure 48: Test 16

6.17. Testing-19: To test if a user is able to view the list of DVD titles which have not been loaned in the last 31 days:

Objective	To test if a user is able to view the list of DVD titles which have not been loaned in the last 31 days.
Expected result	user must be able to view the list of DVD titles which have not been loaned in the last 31 days:
Actual result	user was able to view the list of DVD titles which have not been loaned in the last 31 days:
Conclusion	Successful

Table 47: Test 17

The screenshot shows a web-based application interface. At the top, there is a navigation bar with several links: 'Ropey DVDs', 'Actor DVDs', 'Available DVD Copies', 'Loaned DVDs', 'DVD Cast', 'Last loaned DVD Copies', 'DVD Loans', 'Member DVDs', 'Manage DVDs', 'Old DVD Copies', 'Inactive Members', 'Inactive DVDs', 'Hello manish@gmail.com!', and 'Logout'. Below the navigation bar, the title 'INACTIVE DVD COPIES' is centered. A table follows, with columns labeled 'DVD number' and 'DVD title'. The table contains one row with data: '3' in the 'DVD number' column and 'hotel california' in the 'DVD title' column.

DVD number	DVD title
3	hotel california

Figure 49: Test 17

6.18. Testing-18: To test if a user is able to view the list of members who have not loaned any DVDs in the last 31 days:

Objective	To test if a user is able to view the list of members who have not loaned any DVDs in the last 31 days.
Expected result	user must be able to view the list of members who have not loaned any DVDs in the last 31 days.
Actual result	user was able to view the list of members who have not loaned any DVDs in the last 31 days.
Conclusion	Successful

Table 48: Test 18

The screenshot shows a web-based application interface. At the top, there is a navigation bar with various links: 'Ropey DVDs', 'Actor DVDs', 'Available DVD Copies', 'Loaned DVDs', 'DVD Cast', 'Last loaned DVD Copies', 'DVD Loans', 'Member DVDs', 'Manage DVDs', 'Old DVD Copies', 'Inactive Members', 'Inactive DVDs', 'Hello manish@gmail.com!', and 'Logout'. Below the navigation bar, the title 'INACTIVE MEMBERS' is centered. Underneath the title is a horizontal search form consisting of five input fields separated by vertical lines: 'Member first name', 'Member last name', 'Member address', 'DVD title', and 'Date out'. The entire interface is contained within a light gray rectangular frame.

Figure 50: Test 18

7. Conclusion

This project is about developing a DVD Rental System for renting and returning the DVDs. The goal of this system is to provide a user-friendly working environment in which more output can be generated. As per the given scenario, the details instruction to run the programs are explained. The architecture of software in terms of software classes and their purpose are briefly explained. A detailed description of the classes, properties, and methods is elaborated. The individual group member's reflections of issues experienced and solutions to overcome using Visual Studio, C#, ASP.NET, and MS SQL to develop a web application interfacing a backend database are explained.

This research has also assisted in sharpening our Database, Visual Studio, C#, ASP.NET, and MS SQL skills. The application is aimed at assisting Ropey DVDs operations, specifically the administration of DVD rental and return. The application described here is simplified and is an example, of an Inaccurate depiction of standard practice and/or legal requirements. Overall, this project was very challenging, and it was completed after a grand discussion and research. Also, we got help from our module leader, lecture slides as well as a reference of the work-related files provided by him. Furthermore, we were previously uncertain of similar terms such as DVD Rental Management System. However, because of the implementation of this project, we are more familiar with terms such as stored procedures, MS SQL Server, and Visual Studio, among other technology and concepts. It is also worth mentioning that this project has helped each of us improve our programming and debugging skills. During this period, we have gained numerous experiences in the importance, working, implementation, and application of Visual Studio, C#, ASP.NET, and MS SQL. And those experiences were quite good and useful for further. This project was built after analysing the problem of managing the DVD Rental. With great effort, this system is completed and there is a hope that our system will be fruitful to solve most of the problems of the shop in renting and returning the DVDs.

7.1. Personal reflection of biman lakhey:

The development of the project helped me to gain knowledge of a lot of new things. Technically, it helped me to learn about developing a web application using .Net 6 and entity framework which also helped me to gain knowledge of the newly released version of ASP.Net. It also taught me various git features such as cloning, pulling and pushing.

Apart from the gain in technical knowledge, the project also helped me to learn about the various factors of team work such as the pros and cons of working with a team. It taught me how working with a team in a project solved the various issues that would have been created when working alone. It also helped me to gain knowledge of the new difficulties created by working in a team.

7.2. Personal reflection of sumit khatri:

This Coursework was a group coursework, group of 4 were involved in this project and each member of the group were helpful and provided a insight about the things that I wasn't familiar. This project was new to me as it was to be developed using asp.net core 6 which is one of the latest version of asp .net. While creating the project, we faced a lot problems and it was hard to cope with as there were less result of the research that was to be done about the topic. In this project we had to develop a system for the dvd rental shop. In this project, we used Asp.net identity to login and register users. Identity offers password hashing, password validation, user storage, and claims management capabilities. It usually comes with some basic authentication as well, such as cookies and multi-factor authentication. Also, Learnt about managing roles and user will have access to the features if only roles is suitable to use the features. Also learnt about how the controller, view, model works and as well as the use of ssms in this project.

In a nutshell, this project have broadend my knowledge about Asp.net core 6, MVC format and how to cope with the error encounered while doing the project as knowledge about how to research properly and effectively about the asp.net core 6 was gained. I aslo learned how to communicate in the group to increase the productivity while doing the project.

7.3. Personal reflection of manish karki:

This coursework was group coursework and a group of 4 was formed to complete this project. I learned about the use of different tools used in this project and learned about different libraries to be used in this project to complete all the functional requirements of the project. At first, it was difficult to work in a group and work my way up to communicate and make it work from this coursework, I experienced unknown knowledge and polished my both technical skill as well as communication skills. This project assisted me in improving and gaining a deeper understanding of how web applications are built, my problem-solving abilities, and how flexible they can be, as well as my research and development skills. This project also aided in the collaboration of team members. Using GitHub, you can share and track project updates. This project assisted me in working more accurately with the database's advanced query. I was familiar with the visual studio 2022 IDE because I had used it previously for the first coursework of this module. Overall, the experience of working together to complete this project was very enjoyable. We held regular online meetings about project development using Google Meet. Our team assigned us a different task with a deadline. The project's technical components include Working in MVC format, extensive knowledge of .net core, and use of visual studio. The best parts were the user interface designs and understanding of user flexibility while using the application. The database design was an important aspect of the project as well. Working with the example of a real-life database module, the work of the database has broadened my knowledge of database design. Working as part of a team was another enjoyable aspect of the project. It has increased my ability to work in groups, which will undoubtedly help me find work after finishing my studies.

7.4. Personal reflection of sanket kadel:

This coursework provided the platform to work on the group and increase my both technical as well as communication skills. This coursework provided the opportunity to learn more about the MVC, Asp.net core 6 in depth. This coursework was possible as a great team work was there between the group members.

7.5. Personal reflection of bibek paudyal:

It was a honor working in the project which aims to demonstrate the both programming and software engineering approaches . The project gave a lot of exposure from requirement analysis to understanding the client requirements .The technical part of the project include Working in MVC format, .net core extensive knowledge ,the use of visual studio .The best part was the UI designs and understanding user flexibility while using the application . The database design was also the great part of the project . Working the example like real life module of the database , the work of the database have expanded my knowledge towards database design . Working on the team was another great part of the project .It has enhanced my potential towards working in group which will surely help to land in market after studies . The preparation of the testing cases of the application and testing have expanded my knowledge towards QA (Quality Assurance).

Moreover the project was a full pack which demonstrated my and my group members work .

