

Software Engineering Assignment  
Group 27

# Video Rental System



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# Description of Problem Statement



Design a Video Rental System (VRS) software to automate issuing and returning movies.



Should facilitate sign-up/login by different entities (like Customer, Staff, Manager)



Implement functionality allowing online inventory management, profile management and accounts auditing.



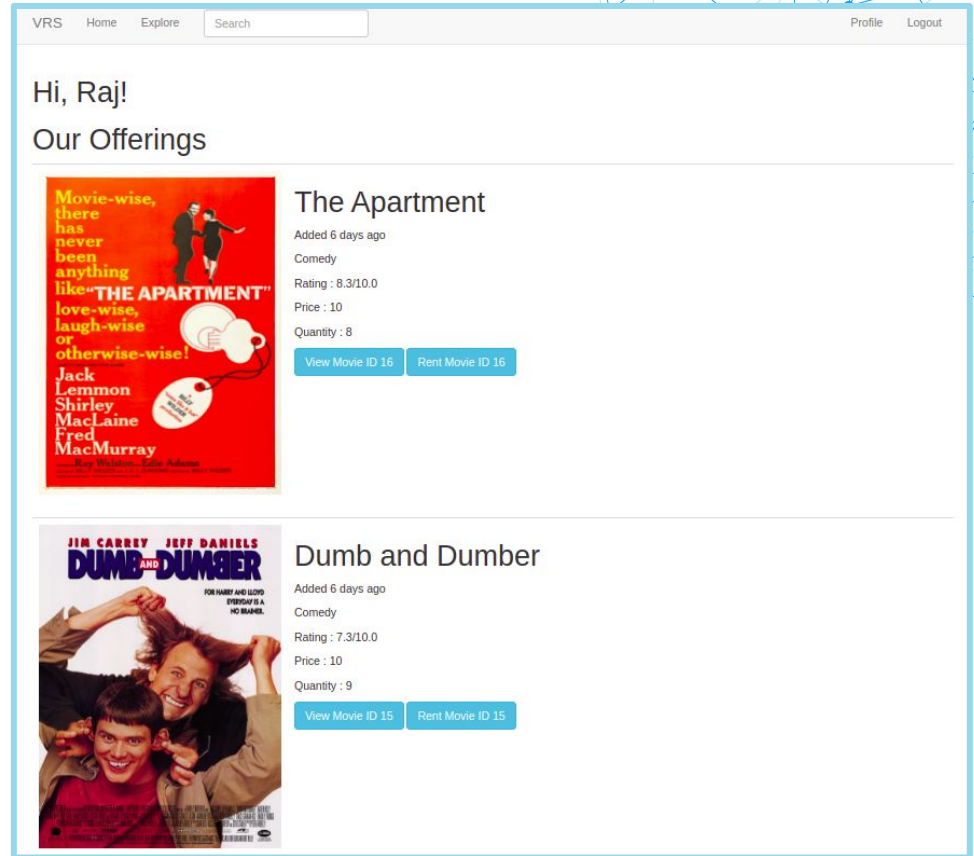
Customers must be able to search for a movie by searching by name or genre.

# Purpose of the Project

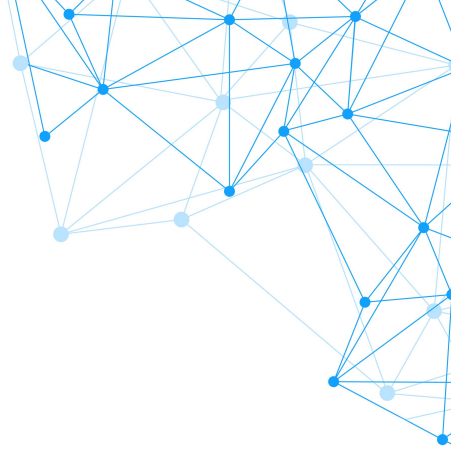
➤ To create Online Video Rental Store for catering to Cinema Lovers on the internet.

➤ To facilitate a convenient mode to issue movies, display deadlines and return.

➤ Hassle-free tracking of all purchases and stock inventory with ease



# Salient Features





# Secure Login

VRS Explore

## Sign In

User Category

Username

Password

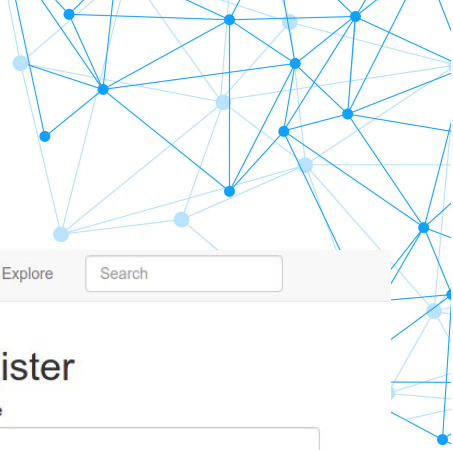
☐ Remember Me

New User? [Click to Register!](#) [Click to Register as staff!](#)

Forgot Your Password? [Click to Reset It](#)



Login to your profile  
securely!



VRS Explore

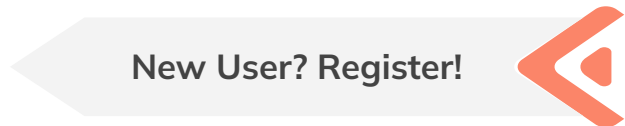
## Register

Username

Email

Password

Repeat Password



New User? Register!



# View Users and Staff



User: user\_3

Last seen on: March 30, 2022 2:41 PM

Balance : 0

[View Orders of User ID 6](#)

[View Deadlines of User ID 6](#)

[Delete User ID 6](#)



User: staff\_2

Last seen on: March 30, 2022 2:19 PM

Balance : 0

[Delete User ID 8](#)



View Users

View Staff





# Maintain Movie Database

## Add Stock of Movie

Movie ID

Stock to add

Submit



Hi, admin!

Name

Image URL

Description

Genre

Rating

Price

Quantity

Submit

[Back to Explore](#)



Restock Movies

Add New Movies





# Generate Audits

## Manager Audit Report

### VRS Movie Rentals

Audit Date: 2022-04-05

**Total Revenue: Rs. 160.0**

**43% of Rentals Outstanding.**

#### Top Revenue Generators:

Movie ID	Movie Name	Revenue
3	Spider-Man: No Way Home	Rs.40.0
16	The Apartment	Rs.40.0
13	Interstellar	Rs.20.0
15	Dumb and Dumber	Rs.20.0
12	Free Guy	Rs.10.0
5	The King's Man	Rs.10.0
4	Baahubali: The Beginning	Rs.10.0
10	The Matrix Resurrections	Rs.10.0

#### Remaining Inventory:

Movie ID	Movie Name	Quantity Left
1	The Batman	10
2	RRR	10



Generate Audit Report







# Movie Recommendations and Viewing

## Recommended Movies



### Interstellar

Added 6 days ago

Sci-fi

Rating : 8.7/10.0

Price : 10

Quantity : 8

[View Movie ID 13](#)

[Rent Movie ID 13](#)



### Spider-Man: No Way Home

Added 9 days ago

Sci-fi

Rating : 8.5/10.0

Price : 10

Quantity : 9

[View Movie ID 3](#)

[Rent Movie ID 3](#)



### Interstellar

Added 6 days ago

Sci-fi

A team of explorers travel through a wormhole in sp

Rating : 8.7/10.0

Price : 10

Quantity : 8

[Rent Movie ID 13](#)



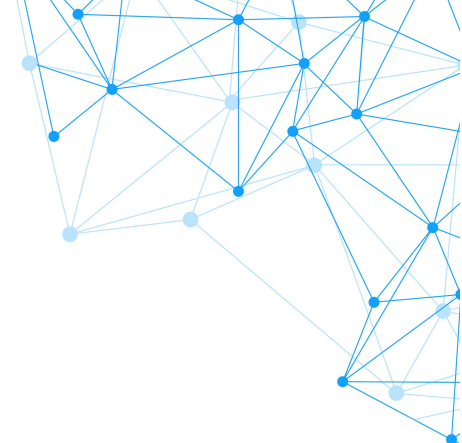
Recommended  
Movies

View Movies  
(Rent for Users)





# Movie Rental and Funds



VRS Movie Rentals

Receipt



Order ID: 14  
Customer ID: 4  
Customer Name: user\_1  
Movie ID: 15  
Movie Name: Dumb and Dumber  
Movie Genre: Comedy  
Date: 2022-03-30

Status: Not Returned  
Total Price: 10.0



## Add Funds

Funds to add

Submit



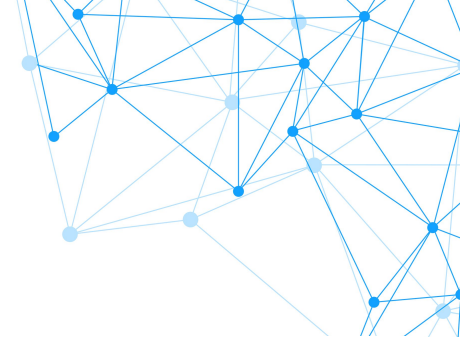
Receipt for Rental

Add Funds



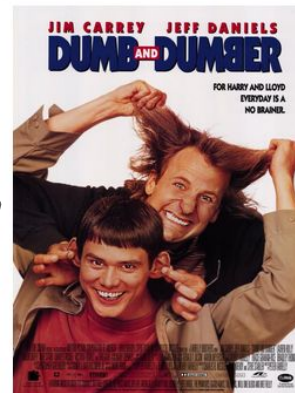


# View Orders and Deadlines



## The Apartment

Ordered 6 days ago  
Returned 2 hours ago  
Price : 10.0  
Quantity : 1  
Status : YES



## Dumb and Dumber

Ordered 6 days ago  
Deadline : 2022-04-29 09:24:04.530628  
Price : 10.0  
Quantity : 1  
Status : NO

[Return Order ID 14](#)

[Generate Receipt for Order ID 14](#)



View Order  
History

View Deadlines



# Challenging Use Cases

01



Search Functionality

Unique Dashboards



02

03



Complete control for  
Admin

# Search Functionality



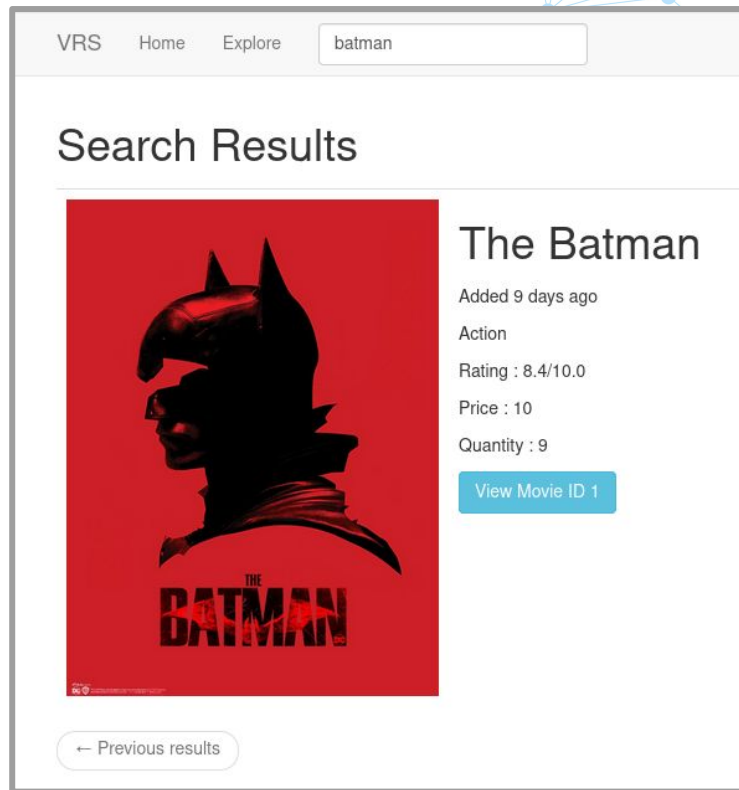
Natural Language searches supported.



Auto updating search index for up-to-date results.



Movies indexed by Name, Description, Genre, Rating and Price.



# Unique Dashboards



User's Dashboard



Manager's Dashboard

Same URL  
Multiple Views and Controls



Guest



User



Staff



Admin

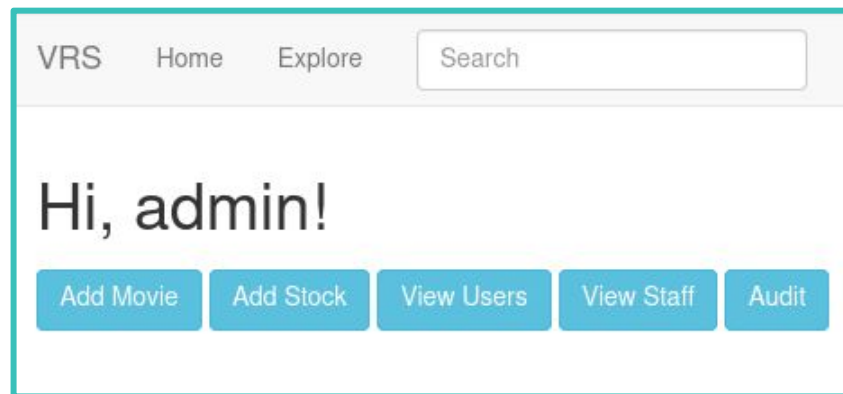
# Complete Control for Admin



Audit all orders  
and inventory  
with a click.



Delete Users and  
Edit Profiles.

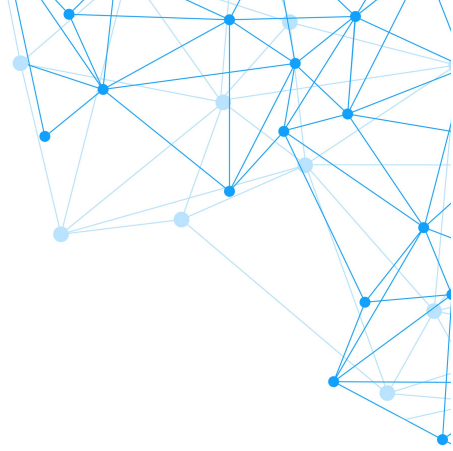


Delete Staff and  
Edit Profiles.



Add and Modify  
movies in store.

# Programming Languages and Frameworks







## Core Functionality



Python 3.7

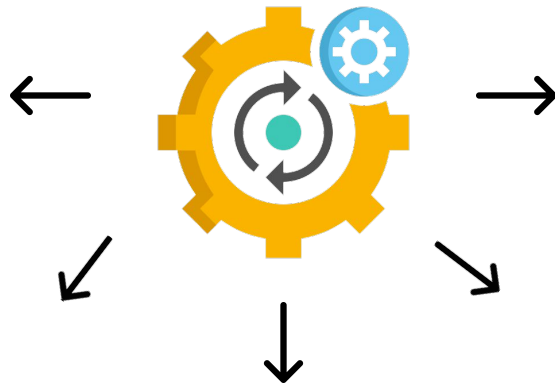


## Databases



SQLAlchemy 1.4

## Our VRS

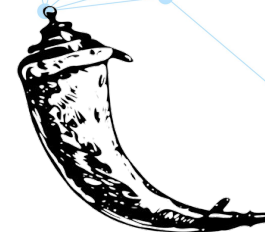


## Facelift



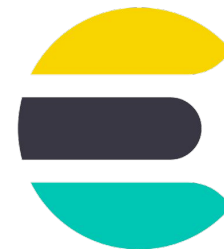
Bootstrap 4

## Web-App Framework



Flask 2.1.1

## Search API



elasticsearch

# Implementation Challenges

01



Stack Integration

Modularity & Scalability



02

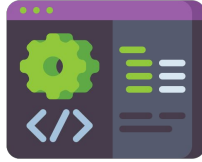
03



The Software Engineer  
Way

# Stack Integration

Backend



Databases



Frontend



Integrating the three crucial components was time-taking.



Technology choices had to be made after proper compatibility checks.

# Modularity and Scalability

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Our VRS renders dynamic HTML Templates to achieve different dashboards.



Commands and Actions had to be modular to have placement at multiple places.



Mail Server and Search Server implemented independently to allow for upgrades.



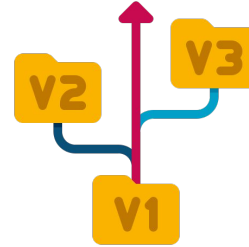
# The Software Engineer Way



SRS Document



Test Plan & Test Suite

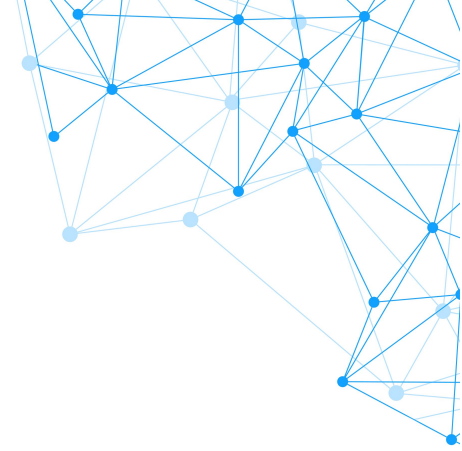


Team Work on a Version  
Control System



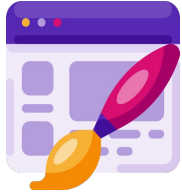
Compliance Report

# Future Scope



# Future Scope

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Improved Website  
Design



Better  
Recommendations



Email Server for  
Resetting Password



Hosting Website on  
Internet

Let's have a  
demo!

