A Project Report On

"RENTEASE - AN ONLINE RENTAL MARKETPLACE FOR ELECTRONIC GADGETS"

Submitted in Partial Fulfilment of

POST GRADUATE DIPLOMA IN ADVANCE COMPUTING (PG-DAC)

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<u>CERTIFICATE</u>

<u>This is to certify that the report titled "Rentease - An Online Rental Marketplace for Electronic Gadgets" has been prepared by POOJA SURYAKANT BAND for the purpose of academic fulfilment or professional presentation. The content of this report is the result of her own research, analysis, and understanding of the subject matter.</u>

<u>I hereby confirm that POOJA SURYAKANT BAND has undertaken this project with integrity, diligence, and professionalism. This report represents a culmination of his efforts and demonstrates his ability to effectively conceptualize, develop, and document a complex software solution.</u>

<u>Date: 16th August 2024</u>

<u>ACKNOWLDGEMENT</u>

<u>I would like to express my sincere gratitude to my teacher, Pradnya Nyaharkar, for her invaluable guidance, encouragement, and support throughout the duration of this project. Her expertise, insights, and constructive feedback have been instrumental in shaping the direction and quality of my work.</u>

<u>I am also deeply thankful to our Director, Nitin Khudale, for providing me with the golden opportunity to undertake this wonderful project on the topic of Online Rental Marketplace. His belief in my abilities and unwavering support have been a source of motivation and inspiration throughout the project journey.</u>

<u>Furthermore, I am grateful for the opportunity this project has provided me to delve into extensive research. It has been a truly enlightening experience, allowing me to broaden my knowledge and gain insights into new and emerging trends in the field.</u>

<u>Once again, I extend my heartfelt thanks to Pradnya Nyaharkar mam, Nitin Khudale sir, and everyone else who has contributed to the success of this project. Their support and encouragement have been invaluable, and I am truly grateful for their guidance and mentorship.</u>

ABSTRACT

The "Rentease - An Online Rental Marketplace for Electronic Gadgets" project aims to revolutionize the traditional process of consuming and lending electronic gadgets by providing a convenient and efficient online platform for users. In today's fast-paced world, where digitalization has become a norm, this system serves as a modern solution to streamline the use of electronic gadgets.

The system offers a user-friendly interface accessible through web browsers and mobile devices, allowing lessees to browse through a wide selection of products, view product details, and book products from the comfort of their homes or on-the-go. With features such as user authentication, browse and search, product listings, lessee ratings and reviews, separate dashboards for lessor, lassie and admin, instant booking confirmation, the system ensures a hassle-free booking process for las lessee.

Furthermore, the system caters to the diverse preferences of lessee by providing personalized recommendations based on their viewing history and preferences. Additionally, it offers promotional deals, discounts, and loyalty programs to enhance user engagement and retention.

For lessors, it offers an online platform, wherein they can lend the electronic gadgets from the comfort of their homes or on-the-go. For administrators, the system provides comprehensive management tools to efficiently handle product listings, booking schedules and analytics. Through intuitive dashboards and reporting functionalities, administrators can gain insights into booking trends, revenue generation, and customer feedback, enabling data-driven decision-making to optimize operations and improve customer satisfaction.

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__INTRODUCTION__

The Rentease is a revolutionary platform designed to modernize and simplify the process of renting electronic devices. In today's fast-paced world, where convenience and accessibility are paramount, traditional methods of renting are no longer sufficient to meet the demands of modern consumers. This project aims to bridge this gap by providing a user-friendly, efficient, and convenient solution for renting and lending effortlessly.

The traditional process of lending electronic devices often involves long queues at cinema box offices, uncertainty about seat availability, and limited options for payment. Moreover, factors such as busy schedules and last-minute planning can further complicate the ticket booking experience. Recognizing these challenges, the Online Movie Ticket Booking System seeks to transform the way audiences interact with cinema services by offering a seamless online platform accessible through web browsers and mobile applications.

In an era where convenience and flexibility are paramount, the traditional models of ownership are evolving rapidly. The online rental marketplace is a modern solution designed to meet the growing demand for temporary access to goods and services, allowing users to enjoy the benefits of a wide range of products without the long-term commitment of ownership.

An online rental marketplace is a digital platform that facilitates the temporary use of items by connecting lessors—those who have products available for rent—with lessees—individuals or businesses looking to rent those items. This platform serves as a bridge between supply and demand, offering a seamless experience for both parties.

__OBJECTIVE:__

The primary objective of this online rental marketplace project is to develop a user-centric platform that simplifies the process of renting products.

PROJECT OVERVIEW AND SUMMARY

PURPOSE:

The purpose of this project is to revolutionize the online renting experience by developing an innovative online rental platform. This system aims to provide users with a convenient and efficient platform to book electronic gadgets from anywhere, at any time. By modernizing the traditional renting process and leveraging technology, the project seeks to enhance accessibility, streamline booking procedures and improve user satisfaction. Ultimately, the purpose is to create a seamless renting experience for users.

SCOPE:

Creating an online rental marketplace for electronics presents an exciting project with a broad scope. Here's a comprehensive outline of the project scope:

- **Market Research and Analysis**:
  - Conduct market research to understand the demand for renting electronics in various market segments.
  - Identify target demographics, including individuals, businesses, and industries.
  - Analyse competitors and their offerings to identify unique selling points and areas for differentiation.
- **Platform Features**:
  - User Authentication: Allow users to register, login, and manage their accounts securely.
  - Browse and Search: Implement search and filter functionalities to help users find electronics based on category, brand, specifications, and availability.
  - Product Listings: Enable users to list their electronics for rent, including detailed descriptions, images, rental terms, and pricing.
  - Booking and Reservation System: Develop a booking system that allows users to reserve electronics for specific dates and durations.
  - Payment Integration: Integrate secure payment gateways to facilitate transactions between renters and owners.

- User Ratings and Reviews: Implement a rating and review system to build trust and credibility among users.
- Notifications: Provide notifications for booking confirmations, rental reminders, and updates on listings.
- Admin Dashboard: Create a dashboard for administrators to manage users, listings, payments, and resolve disputes.

- **User Experience (UX) Design**:
  - Design an intuitive and user-friendly interface for seamless navigation and interaction.
  - Ensure responsiveness across devices, including desktops, tablets, and smartphones.
  - Optimize the checkout process to streamline rental transactions and minimize friction.

- **Inventory Management**:
  - Develop inventory management tools for owners to add, edit, and track their electronics listings.
  - Implement inventory tracking to prevent double bookings and ensure accurate availability status.

- **Scalability and Future Expansion**:
  - Design the platform with scalability in mind to accommodate growth in user traffic and listings.
  - Plan for future expansion into new geographic regions or product categories based on market demand.

By addressing these aspects, the online rental marketplace for electronics can provide a comprehensive platform for users to easily rent, manage, and enjoy a wide range of electronic devices for various purposes.

TECHNOLOGIES USED:

1) FRONT END
- HTML
- CSS
- JavaScript
- Bootstrap
- React
- Axios

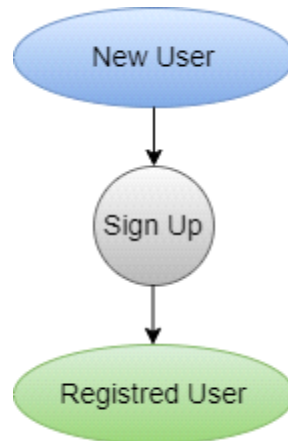## 2) BACK END

- Spring Boot
- Spring Data JPA
- Hibernate
- REST

3)DATABASE MANAGEMENT SYSTEM

- MySQL

FUNCTIONAL REQUIREMENTS

1)Use case for all users:

Any user can sign up.

2)Use case for lessor:

Browse – Lessors can browse the homepage to explore the entire collection of categories available, as well as view details for individual category.

Register, login & logout – New users can register on the site. Existing users can then login to access their account information and logout when the account is not in use.

View & update profile – When logged in, lessors can view their profile and update their details.

Add the product to a category – The lessor can add a product to a category with all its details.

Update the product details – The lessor can update the details of the product that has been already added.

Delete product – If the lessor wants to delete the product he has added, he can do so by admin permission.

View reviews - Lessor can view reviews of products he is lending.

View all bookings of product – Lessor can view bookings of the products he added .
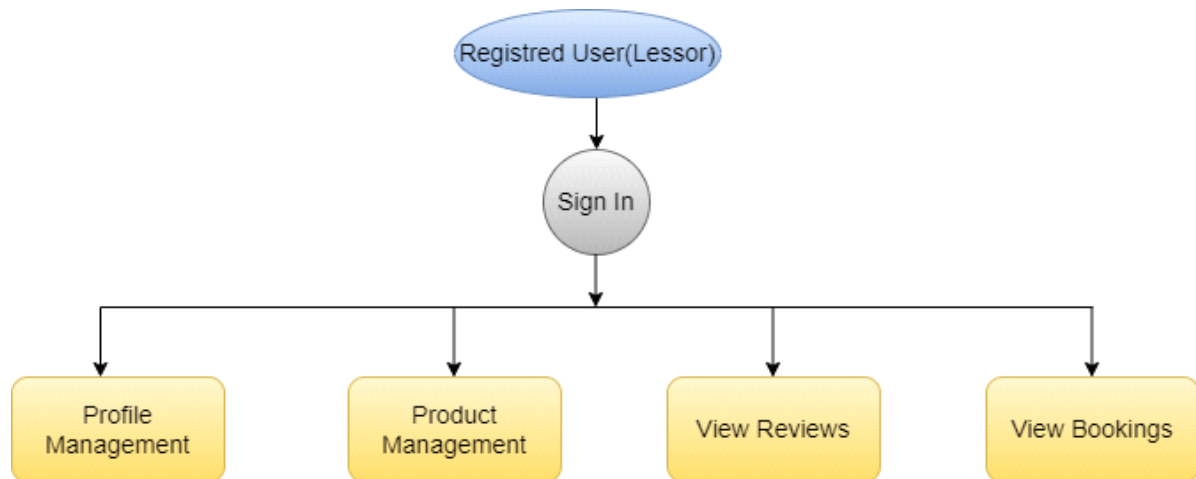
3)Use case for lessee:

Browse – Lessee can browse the homepage to explore the entire collection of products available, as well as view details for individual product.

Register, login & logout – New customers can register on the site. Existing customers can then login to access their account information and logout when the account is not in use.

View & update profile – When logged in, lessee can view their profile and update their details.

Search – Lessee can search for the product they like by the product name.

-Advanced Search by Criteria – Customers can filter and search through products by advanced criteria like category, brand and price,

View and give reviews – The lessee can view all the reviews and provide their feedback after using the product.

Add to cart & place orders – If lessee find product that they like, he can save the product in the cart until he decides to take it for rent. When he wishes to do so, he can place orders for those products .

View booking history – Every lessee can view his bookings history in order to get an idea about his past spendings.
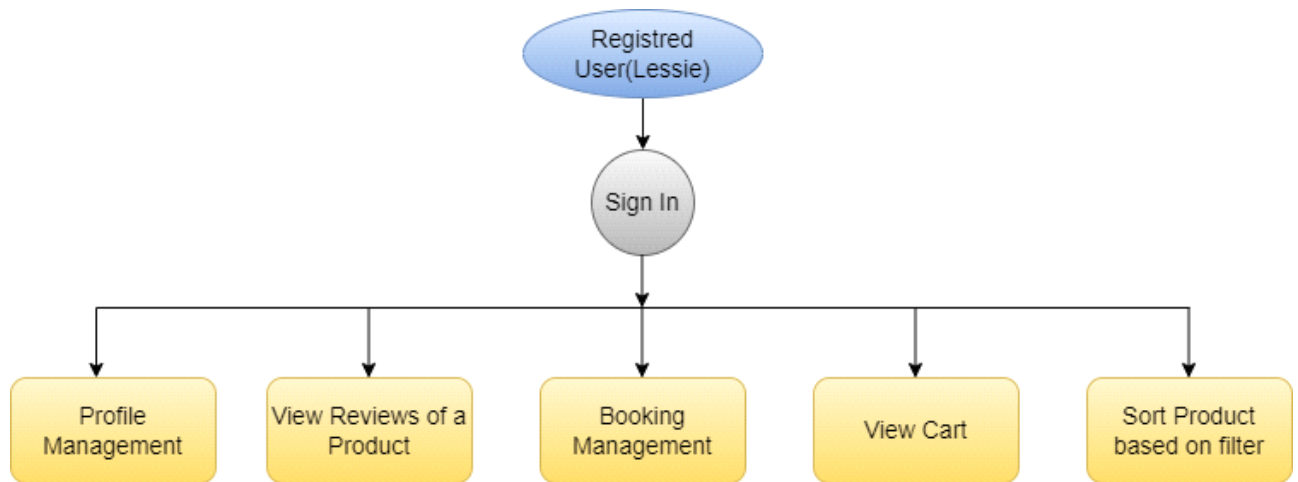
4)Use case for admin:

Login & logout – Similar to customers, admins can login & logout to access their account.

Manage profile - Admin can update his profile.

Delete users –The admins can delete a user account if they need to forany purpose.

Add and view New product– Admins can add new item with all the necessary details like product name, description , quantity, price, discount ,rating   .also admin   can access all available product list.

Update product Details – Often, the price of product fluctuate. In such cases, the admins can update those product details to reflect the change on the application.
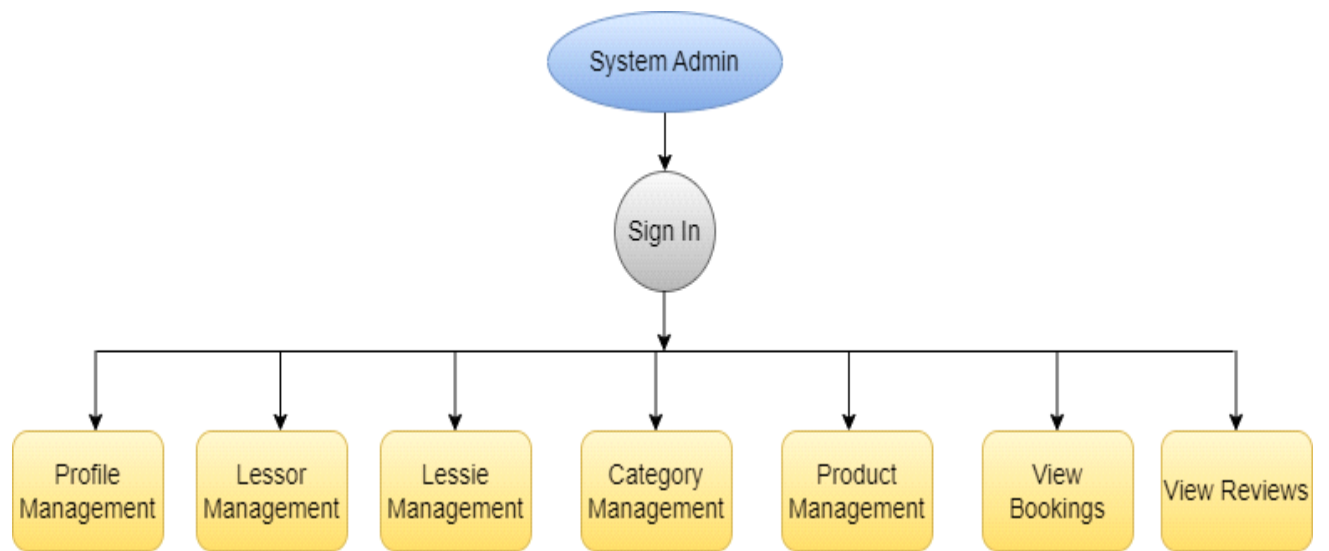
Manage category– The admins can manage category of products on website.

Manage lessee account– Admins can manage the seller account .If there are some seller which are not able to operate website. In such cases, admin can act as seller .
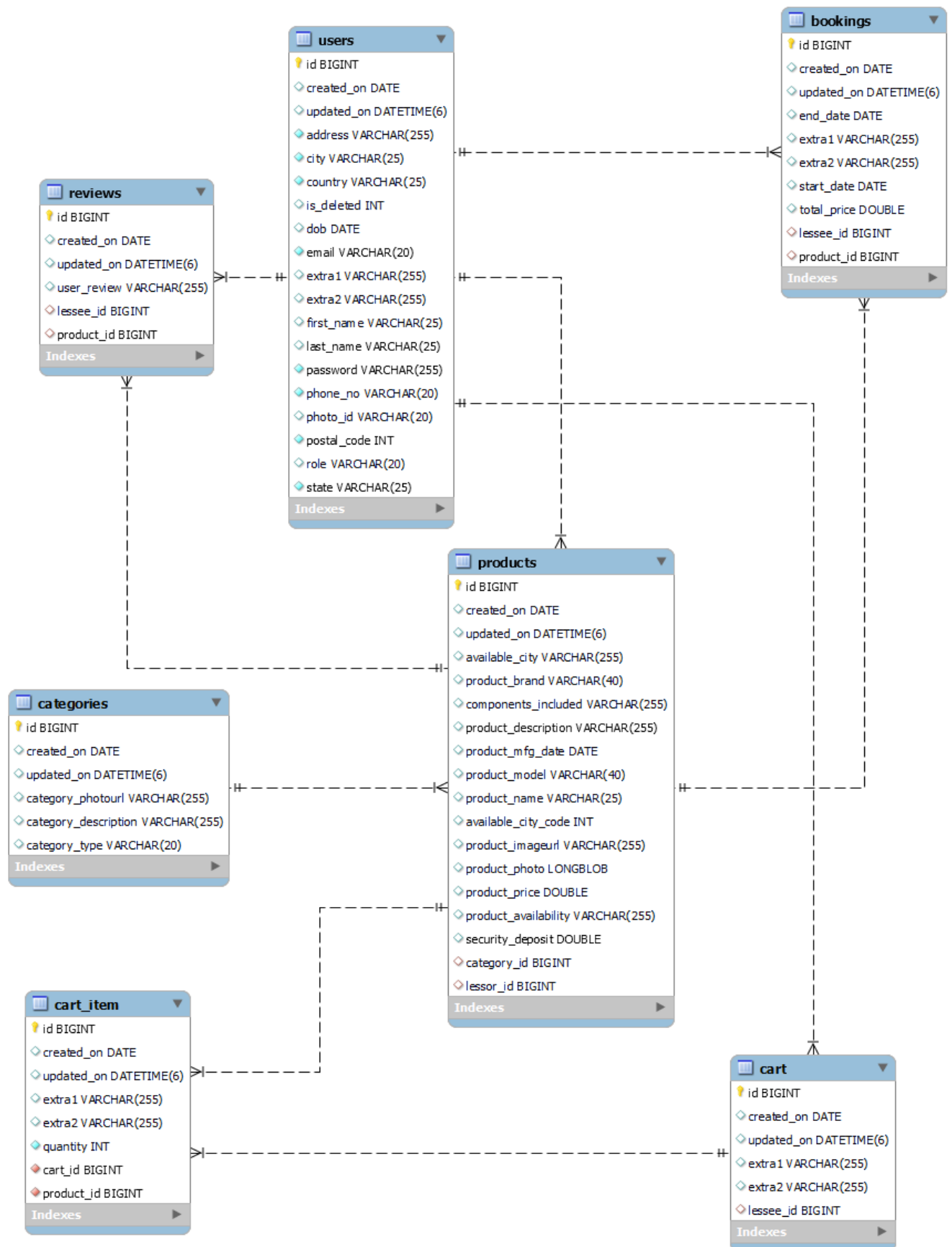
Manage lessor account– Admins can manage the lessor account .If there are some lessors which are not able to operate website. In such cases, admin can act as lessor .

View history of bookings – Admin view total no of bookings takes place in website.

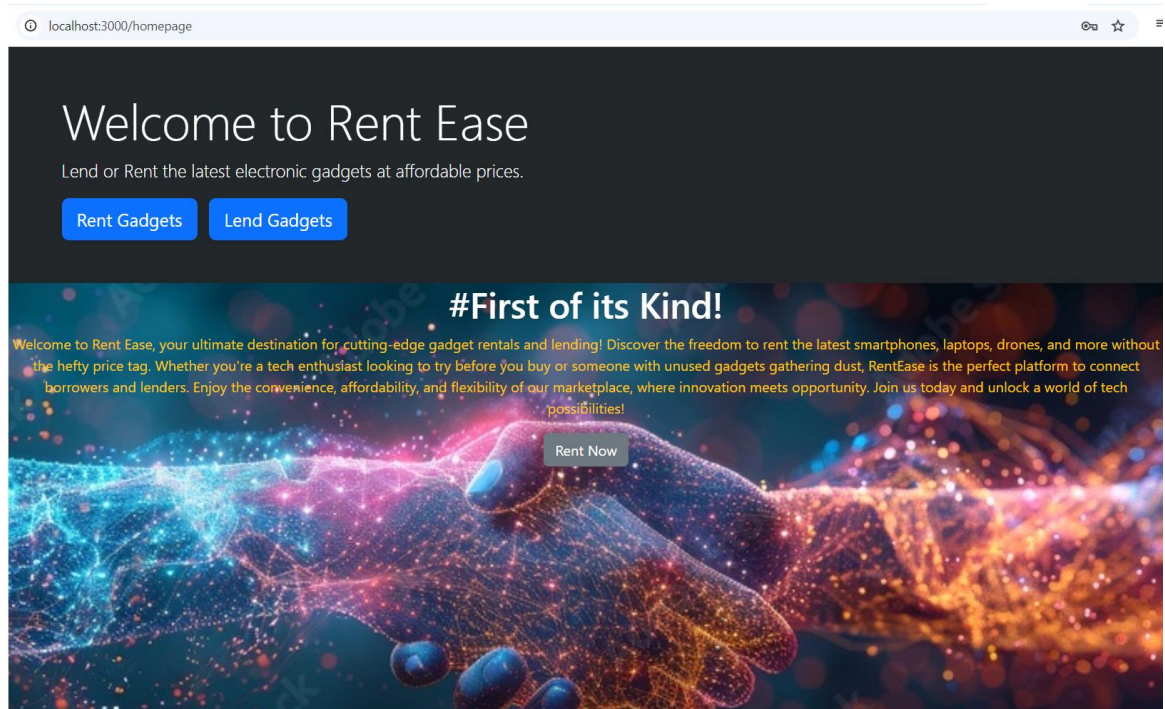**View reviews** - Admin can view reviews of a product.

```
                    ┌─────────────────┐
                    │   System Admin  │
                    └────────┬────────┘
                             │
                             ▼
                    ┌─────────────────┐
                    │     Sign In     │
                    └────────┬────────┘
                             │
   ┌──────┬──────┬──────┬────┴────┬──────┬──────┬──────┐
   ▼      ▼      ▼      ▼         ▼      ▼      ▼
```

| Profile Management | Lessor Management | Lessie Management | Category Management | Product Management | View Bookings | View Reviews |

DATA MODEL

users
- 🔑 id BIGINT
- ◇ created_on DATE
- ◇ updated_on DATETIME(6)
- ◇ address VARCHAR(255)
- ◇ city VARCHAR(25)
- ◇ country VARCHAR(25)
- ◇ is_deleted INT
- ◇ dob DATE
- ◆ email VARCHAR(20)
- ◇ extra1 VARCHAR(255)
- ◇ extra2 VARCHAR(255)
- ◆ first_name VARCHAR(25)
- ◇ last_name VARCHAR(25)
- ◆ password VARCHAR(255)
- ◆ phone_no VARCHAR(20)
- ◇ photo_id VARCHAR(20)
- ◆ postal_code INT
- ◇ role VARCHAR(20)
- ◆ state VARCHAR(25)
- Indexes

bookings
- 🔑 id BIGINT
- ◇ created_on DATE
- ◇ updated_on DATETIME(6)
- ◇ end_date DATE
- ◇ extra1 VARCHAR(255)
- ◇ extra2 VARCHAR(255)
- ◇ start_date DATE
- ◇ total_price DOUBLE
- ◆ lessee_id BIGINT
- ◆ product_id BIGINT
- Indexes

reviews
- 🔑 id BIGINT
- ◇ created_on DATE
- ◇ updated_on DATETIME(6)
- ◇ user_review VARCHAR(255)
- ◆ lessee_id BIGINT
- ◆ product_id BIGINT
- Indexes

products
- 🔑 id BIGINT
- ◇ created_on DATE
- ◇ updated_on DATETIME(6)
- ◇ available_city VARCHAR(255)
- ◇ product_brand VARCHAR(40)
- ◇ components_included VARCHAR(255)
- ◇ product_description VARCHAR(255)
- ◇ product_mfg_date DATE
- ◇ product_model VARCHAR(40)
- ◇ product_name VARCHAR(25)
- ◇ available_city_code INT
- ◇ product_imageurl VARCHAR(255)
- ◇ product_photo LONGBLOB
- ◇ product_price DOUBLE
- ◇ product_availability VARCHAR(255)
- ◇ security_deposit DOUBLE
- ◆ category_id BIGINT
- ◆ lessor_id BIGINT
- Indexes

categories
- 🔑 id BIGINT
- ◇ created_on DATE
- ◇ updated_on DATETIME(6)
- ◇ category_photourl VARCHAR(255)
- ◇ category_description VARCHAR(255)
- ◇ category_type VARCHAR(20)
- Indexes

cart_item
- 🔑 id BIGINT
- ◇ created_on DATE
- ◇ updated_on DATETIME(6)
- ◇ extra1 VARCHAR(255)
- ◇ extra2 VARCHAR(255)
- ◆ quantity INT
- ◆ cart_id BIGINT
- ◆ product_id BIGINT
- Indexes

cart
- 🔑 id BIGINT
- ◇ created_on DATE
- ◇ updated_on DATETIME(6)
- ◇ extra1 VARCHAR(255)
- ◇ extra2 VARCHAR(255)
- ◆ lessee_id BIGINT
- Indexes

SCREENSHOTS

1) Home page

2) User Signup/Register

Rent Ease

Registration Page

Create an Account

First Name *

Akhilesh

Last Name *

Kumar

Email *

kumar@gmail.com

Password *

••••••••••

Confirm Password *

••••••••

••••••••

Phone Number *

9923058432

Date of Birth *

02-12-2004

Photo ID *

3452352345

Address *

HINJEWADI

Country *

India

State *

Maharashtra

City *

Pune

Postal Code *

411057

localhost:3000/register

	02-12-2004 📅

Photo ID *

3452352345

Address *

HINJEWADI

Country *

India ⌄

State *

Maharashtra ⌄

City *

Pune ⌄

Postal Code *

411057

Role *

Lessee ⌄

[Register] [Cancel]

Already have an account? Login here

3) User -Edit Profile

localhost:3000/profile

Rent Ease--lessee Home Profile Orders Cart Logout

User Profile

First Name

Swapnil

Last Name

Chowgule

Email

swapnil@gmail.com

Date of Birth

02-01-2001

Phone Number

9923058654

Address

HINJEWADI

City

PUN

State

MAHARASHTRA

Country

First Name

Swapnil

Last Name

Chowgule

Email

swapnil@gmail.com

Date of Birth

02-01-2001

Phone Number

9923058654

Address

HINJEWADI

City

PUN

State

MAHARASHTRA

Country

INDIA

Postal Code

411057

Edit Profile

First Name

Swapnil

Last Name

Chowgule

Email

swapnil@gmail.com

Date of Birth

02-01-2001

Phone Number

9923058654

Address

HINJEWADI

City

PUN

State

MAHARASHTRA

Country

INDIA

Postal Code

411057

Edit Profile

User updated successfully

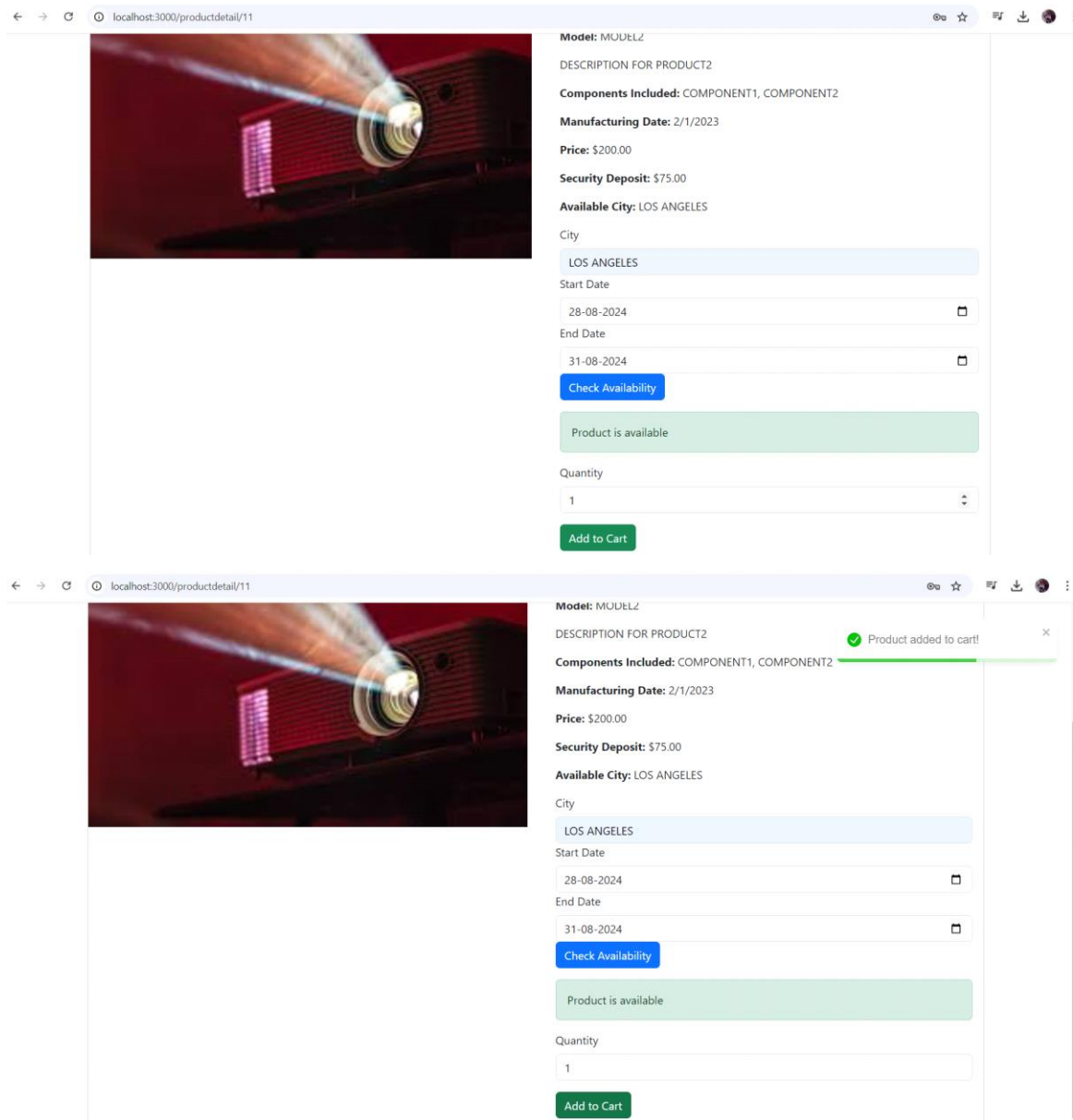## 4) User login

5)Lessee -Home Page(List of products)

6)Lessee-Browse product details
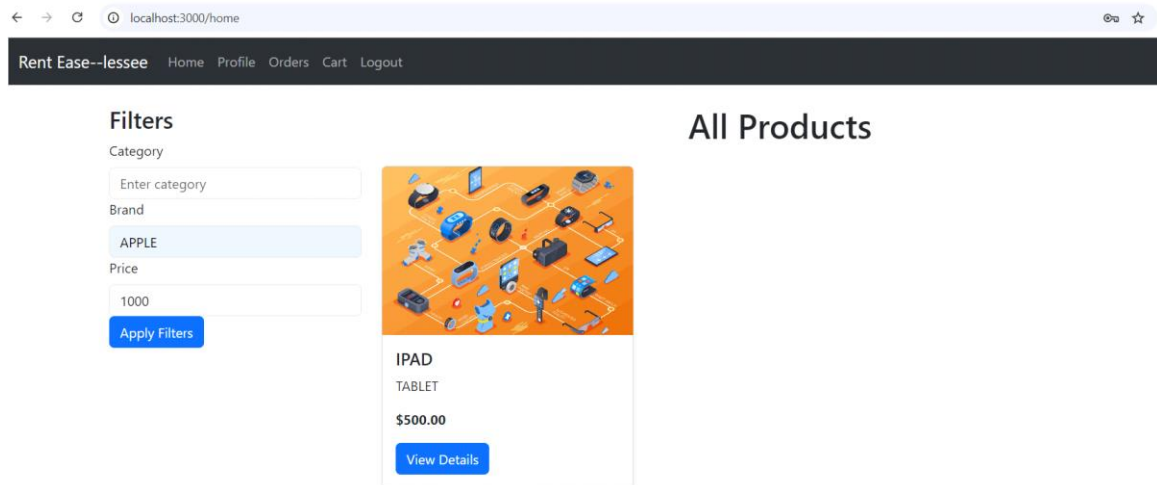
7)Lessee-Check availability of product
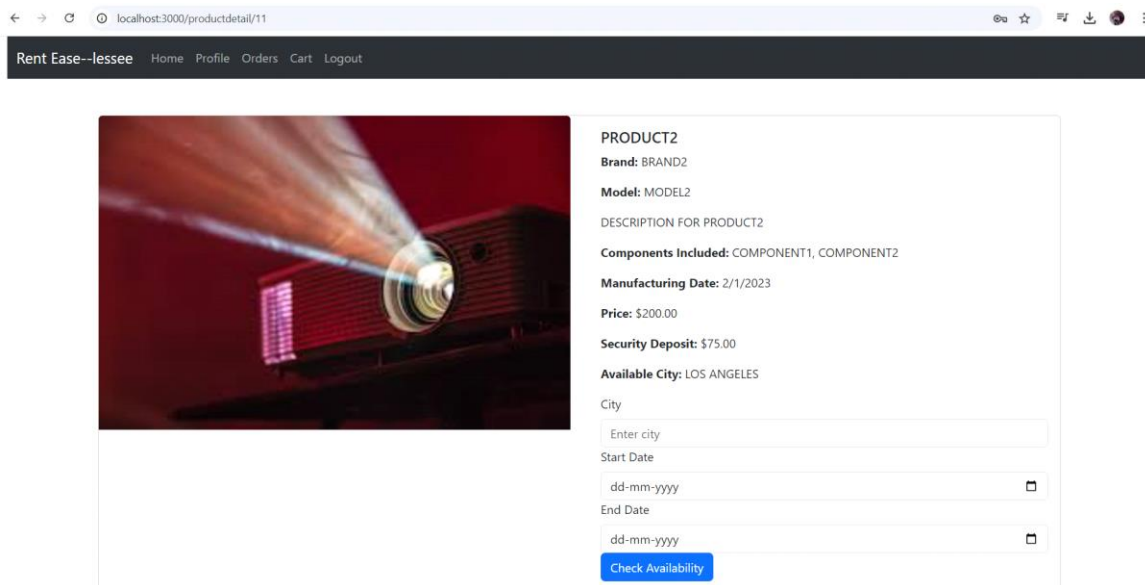
8)Lessee- add to cart(Product)

9)Lessee- Cart details

10)Lessee checkout orders

11)Lessee booking confirmation

Booking Confirmation

Product ID	Product Name	Start Date	End Date	Total Price	Status
11	PRODUCT2	8/28/2024	8/31/2024	$200.00	Booked Successfully

Continue Renting

12) Lessee booking history

Order History

ID	Start Date	End Date
5	2024-08-05	2024-08-25
6	2024-08-10	2024-08-30
17	2024-09-05	2024-09-07
18	2024-09-05	2024-09-07
19	2024-09-19	2024-09-21
20	2024-09-19	2024-09-21
21	2024-08-18	2024-08-20
22	2024-08-18	2024-08-20
23	2024-08-30	2024-08-31
24	2024-08-30	2024-08-31
25	2024-09-01	2024-08-03
26	2024-09-01	2024-08-03
27	2024-08-28	2024-08-31

13) Admin - Add category

Rent Ease--admin   Home Profile Orders Cart Logout

Add New Category

Category Description

Select Category Type

Add Category

Existing Categories

Category Id	Category Type	Category Description	Actions	
1	ELECTRONICS1	Updated new description for category 1 type 3	Edit	Delete
2	ELECTRONICS7	DESCRIPTION FOR ELECTRONICS2	Edit	Delete
3	ELECTRONICS3	DESCRIPTION FOR ELECTRONICS3	Edit	Delete
4	ELECTRONICS4	DESCRIPTION FOR ELECTRONICS 4	Edit	Delete
5	ELECTRONICS5	UPDATED DESCRIPTION	Edit	Delete

14) Admin - Update category

Rent Ease--admin   Home Profile Orders Cart Logout

Update Category

Category Type

ELECTRONICS5

Category Description

UPDATED DESCRIPTION

Save Changes

<u>CONCLUSION</u>

<u>The development of the online rental marketplace has successfully addressed the growing demand for flexible, cost-effective access to various products and services. By providing a centralized platform where users can easily browse, rent, and manage products across diverse categories, the project has facilitated a seamless connection between lessors and Lessees.</u>

<u>Throughout the development process, several challenges were encountered, including managing state across components, implementing secure authentication and authorization mechanisms, and optimizing database queries for improved performance. However, these challenges were overcome through thorough research, collaboration, and experimentation.</u>

<u>Overall, the online rental management project has been a valuable learning experience, allowing us to gain practical insights into full-stack web development using the Hybrid Programming. It has equipped us with valuable skills and knowledge that can be applied to future projects in the field of web development.</u>

FUTURE WORK

Looking ahead, there are several areas for potential improvement and expansion. Enhancements could include implementing additional features such as integrating payment gateways for online transactions, incorporating a recommendation system based on user preferences, and expanding the platform to include a mobile application for enhanced accessibility.

REFERENCES

1)Setup and Downloads

MySQL setup : https://dev.mysql.com/downloads/mysql/

React,js setup : https://react.dev/learn/installation

Node.js setup : https://nodejs.org/en/download

Spring-boot Setup : https://spring.io/projects/spring-boot

2)Designing the Database Schema:

Hibernate Documentation : https://hibernate.org/orm/documentation/6.4/

Spring Data JPA Documentation : https://docs.spring.io/spring-data/jpa/reference/index.html

3)Building the Back-end (Java Spring Boot):

Building Restful Web Services with Spring Boot : https://spring.io/guides/tutorials/rest

Spring Security Documentation :

https://docs.spring.io/spring-security/reference/index.html

4)Developing the Front-end:

React Documentation : https://legacy.reactjs.org/docs/getting-started.html

Bootstrap Documentation : https://getbootstrap.com/docs/5.0/getting-started/introduction/

5)Integration Testing

Swagger Documentation : https://swagger.io/docs/

Postman Documentation : https://learning.postman.com/docs/publishing-your-api/publishing-your-docs/