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DRIVING LICENSE HUB

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ABSTRACT

This research report is a review of my study “Driving License Hub”. To make it easier for users to retain information about a registered vehicle, the Road Transport Office developed the RTO Information System as an online information source. Information about insurance, emissions testing, and fines for breaking traffic laws. A QR-Code card is given to the vehicle when it is registered, allowing system users to quickly and easily identify the vehicle. The purpose of this technology is to improve information flow inside the company. RTO offers the ability to view insurance information, information about emission tests, and fine details.

It is inefficient to undertake office work for RTO services in this system. It maintains a local data base and involves numerous time-consuming and manual processes. It does not produce accurate reports. After system analysis, the "Road Transport Office Management System" is recommended as a new RTO service to address issues with the current system. The system's goals are to ensure data security and integrity, use less labor, create precise reports and handle details with accuracy.

ACKNOWLEDGEMENT

I take this occasion to thank God, almighty for blessing us with his grace and taking our endeavor to a successful culmination. I extend my sincere and heartfelt thanks to our esteemed guide, Mrs. Geeta Darunte for providing me with the right guidance and advice at the crucial juncture and for showing me the right way. I extend my sincere thanks to our respected Centre Co-Coordinator Mr. Rohit Puranik, for allowing us to use the facilities available. I would like to thank the other faculty members also, at this occasion. Last but not the least, I would like to thank my friends and family for the support and encouragement they have given me during the course of our work.

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1. INTRODUCTION

“Driving License Hub” is a web application for maintaining details of a registered vehicle. Details include insurance, emission test and fine for violating traffic rules. On registration the vehicle is provided with a QR-Code card that enables easy and fast identification of the vehicle by various users of the system. The users include RTO, insurance company, emission test center, traffic police and vehicle owner. The current scenario is that when traffic police ask for insurance information, emission test results, etc., the owner of the vehicle is obligated to show all documents relating to the vehicle, but sometimes they are not kept on hand. Additionally, everyone is in a rush these days, therefore we developed a web application that addresses this issue and finds a solution quickly by assessing and taking into account these issues. We will give a brief overview of our project below given that we are developing a web application for RTO. Allowing the less fortunate user to access this site for work-related RTO reasons will help to create a familiar environment. For instance, under the previous method, before we could provide the RTO office with a user's vehicle number, the user would first need to register on our site and provide us with all the necessary and crucial information about the vehicle. To make this job go more quickly, we offer the option here that a user who buys a new vehicle must first register on our site and fill out all the necessary and vital facts about the vehicle. The administrator controls all operations as well as the RTO database and acts as an authentication mechanism.

1.1 Purpose

The purpose of this document is to provide a detailed specification of the features and functionalities of the “Driving License “It outlines the requirements, system architecture, and user interactions.

1.2 Scope

The system is designed to manage information related to users, buys new vehicle, candidates. It facilitates tasks such as users’ registration, user management, applying for the driving license.

1.3 Objective of Project on Driving License Hub:

The **Driving License Hub** project is designed with a clear set of objectives to apply easily for driving license process. The primary goal is to provide dealerships with a streamlined platform to efficiently register at the comfort and security of home environment getting the license process simpler and more sophisticated for users.

Key objectives include creating a user-friendly experience for users, offering real-time driving test information availability, ensuring secure user authentication for data protection, and enabling seamless communication between users and RTO officer.

The system focuses on maintaining accurate information, enhancing data accuracy and integrity, and adhering to legal requirements related to data privacy and security.

With modern technology and a future-ready approach, the project aims to create a reliable, transparent, and efficient platform that benefits all stakeholders in the applying for license process.

1.4 Functionalities provided by Driving License Hub are as follows:

The “**Driving License Hub** ” project provides a range of functionalities aimed at simplifying and enhancing getting the driving license process for users. Some of the key functionalities offered by the project include:

1. To manage vehicle details by the RTO. To maintain a vehicle's insurance information with an insurance provider
2. User Registration and Authentication: Users can create accounts and securely log in to the platform. Secure authentication mechanisms help protect user data and ensure that only authorized individuals can access the system.
3. Direct Messaging: The platform facilitates communication between users and RTO officer through direct messaging, enabling them to be updated regarding license process.
4. To send and receive notifications between system users regarding insurance renewal, expiration, emission tests, and past fines.
5. Administrative Dashboard: To give vehicle owners a site where they can update their information
6. Data Integrity: The system ensures accurate and consistent vehicle information across the platform, reducing errors and misinformation.
7. Legal Compliance: The project adheres to relevant legal requirements and data protection regulations, ensuring user privacy and security.
8. User Support: The platform provides user support to address any technical issues, inquiries, or assistance needed during the buying or selling process.

2. REQUIREMENTS

Functional Requirements

FR 1. User Registration and Authentication:

- Users can register by providing necessary details.
- User authentication is required to access the system.
- Forgot password functionality allows users to reset their passwords.

FR 2. Test Application:

- Administrators can approve or accept test application.
- After clearing the test license can be issued to the users.

FR 3. User Profiles:

- Users can view and update their profiles.
- User profiles store personal information, contact details, License details.

FR 4. Error Handling and Reporting:

- The system handles errors gracefully and provides appropriate error messages.
- Admins can access logs and error reports for troubleshooting.

Non-Functional Requirements:

NFR 1. Security:

- User passwords are securely stored using encryption techniques.
- Access controls ensure that users can only access authorized features.

NFR 2. Performance:

- The system should handle a large number of simultaneous users without significant slowdowns.
- Image loading and retrieval should be efficient for a smooth user experience.

NFR 3. Scalability:

- The system should be designed to accommodate future growth and increased user activity.

NFR 4. Usability:

- The user interface should be intuitive and user-friendly for both users and administrators.
- Clear and concise error messages should guide users through any issues.

NFR 5. Reliability:

- The system should be available and operational 24/7 with minimal downtime.

NFR 6. Data Integrity:

- Data integrity and consistency are maintained through proper validation and database design.

NFR 7. Data Privacy: User data, especially personal and sensitive information, should be stored securely.

Other Requirements:**Hardware and Network Interfaces:**

Back-end Server Configuration:

- Intel(R) Core(TM) i5-10210U CPU @ 1.60GHz 1.60 GHz
- 128 MB RAM

Front-end Client Configuration:

- Intel Pentium-III @ 650 MHz Processor
- 128 MB SDRAM
- 10 GB Hard Disk Drive
- 104 Keys Keyboard
- PS2 Mouse with pad

Software Interfaces:

Software configuration for back-end Services:

- Java EE
- Spring Boot, JPA
- MySQL
- STS 3.9.18

Software configuration for front-end Services:

- ReactJS
- HTML, CSS, JS
- Bootstrap
- VS Code

3. DATABASE DESIGN

Database Design: -

The following table structures depict the database design

Table 1: User Data

```
mysql> desc users;
```

| Field | Type | Null | Key | Default | Extra |
|------------------|--------------|------|-----|---------|----------------|
| id | bigint | NO | PRI | NULL | auto_increment |
| address | varchar(255) | YES | | NULL | |
| dob | date | YES | | NULL | |
| email | varchar(255) | YES | | NULL | |
| name | varchar(35) | YES | UNI | NULL | |
| phone | varchar(255) | YES | | NULL | |
| profile_pic_path | varchar(255) | YES | | NULL | |
| result_id | int | YES | UNI | NULL | |
| password | varchar(255) | YES | | NULL | |

9 rows in set (0.05 sec)

Table 2: Role Data

```
mysql> desc roles;
```

| Field | Type | Null | Key | Default | Extra |
|-----------|-------------------------------------|------|-----|---------|----------------|
| id | bigint | NO | PRI | NULL | auto_increment |
| role_name | enum('ADMIN', 'RTOOFFICER', 'USER') | YES | UNI | NULL | |

2 rows in set (0.03 sec)

Table 3: Test Data

```
mysql> desc test;
```

| Field | Type | Null | Key | Default | Extra |
|------------|------------------------|------|-----|---------|----------------|
| test_id | int | NO | PRI | NULL | auto_increment |
| test_score | int | YES | | NULL | |
| test_date | date | YES | | NULL | |
| type | enum('ROAD','WRITTEN') | YES | | NULL | |
| user_id | bigint | YES | MUL | NULL | |

5 rows in set (0.03 sec)

Table 4: RTOOfficer Data

```
mysql> desc officer;
```

| Field | Type | Null | Key | Default | Extra |
|-----------------|-------------|------|-----|---------|----------------|
| officer_id | int | NO | PRI | NULL | auto_increment |
| office_location | varchar(50) | YES | | NULL | |
| officer_name | varchar(50) | YES | | NULL | |
| position | varchar(40) | YES | | NULL | |
| test_id | int | YES | MUL | NULL | |

5 rows in set (0.00 sec)

Table 5: Test Data

```
mysql> desc test_resut;
```

| Field | Type | Null | Key | Default | Extra |
|------------|--------|------|-----|---------|----------------|
| result_id | int | NO | PRI | NULL | auto_increment |
| result | bit(1) | YES | | NULL | |
| officer_id | int | YES | MUL | NULL | |
| test_id | int | YES | UNI | NULL | |
| user_id | bigint | YES | UNI | NULL | |

5 rows in set (0.03 sec)

Table 6: License

```
mysql> desc license;
```

| Field | Type | Null | Key | Default | Extra |
|-----------------|-------------|------|-----|---------|----------------|
| license_id | int | NO | PRI | NULL | auto_increment |
| issue_date | date | YES | | NULL | |
| license_number | varchar(20) | YES | | NULL | |
| expiration_date | date | YES | | NULL | |
| license_class | varchar(20) | YES | | NULL | |
| user_id | bigint | YES | MUL | NULL | |

6 rows in set (0.03 sec)

Table 7: User Role

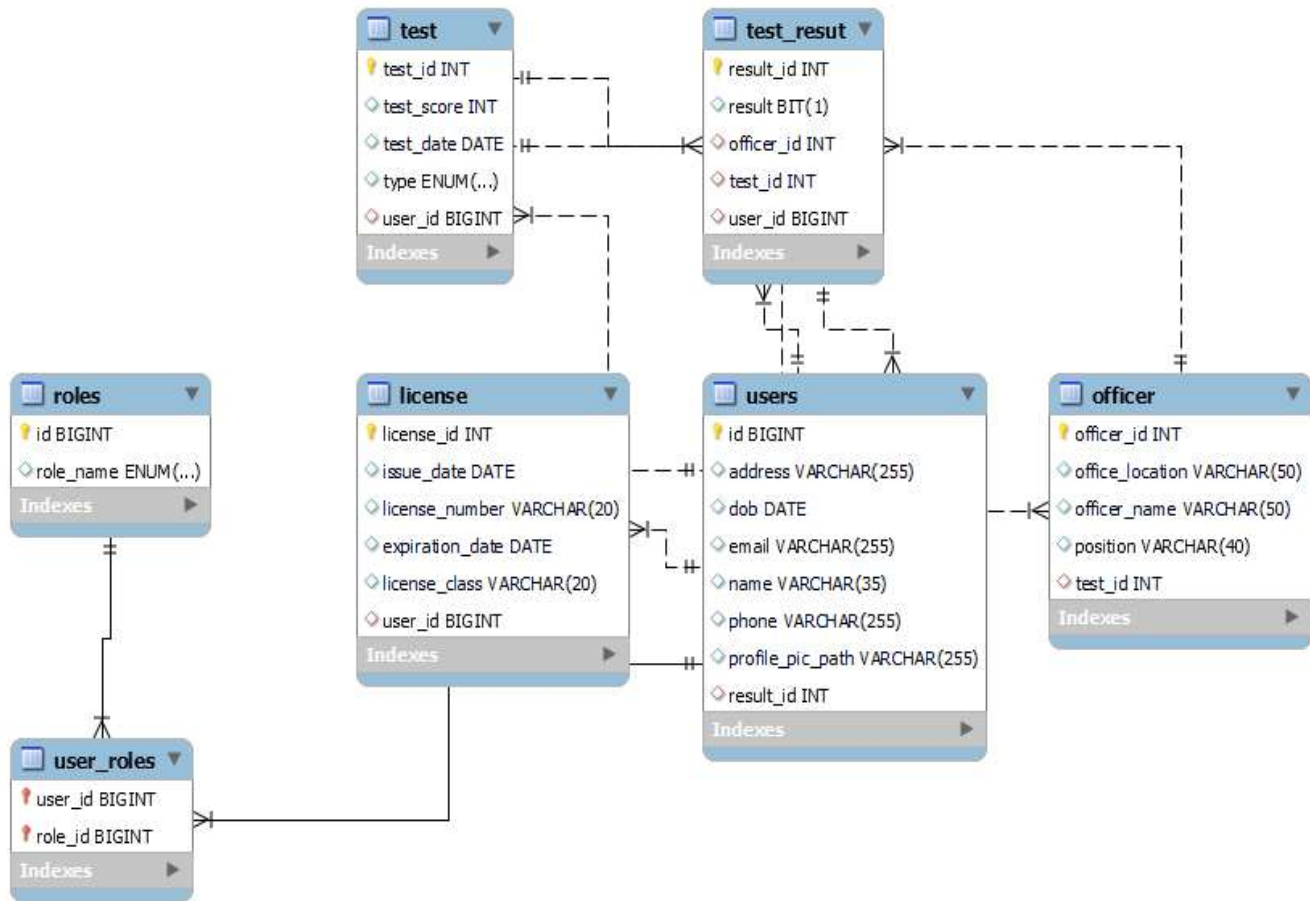
```
mysql> desc user_roles;
```

| Field | Type | Null | Key | Default | Extra |
|-----------|--|------|-----|---------|-------|
| user_id | bigint | NO | PRI | NULL | |
| role_id | bigint | NO | PRI | NULL | |
| role_name | enum('ROLE_ADMIN', 'ROLE_RTOOFFICER', 'ROLE_USER') | YES | | NULL | |

3 rows in set (0.00 sec)

4. APPENDIX A

Entity Relationship Diagram: -



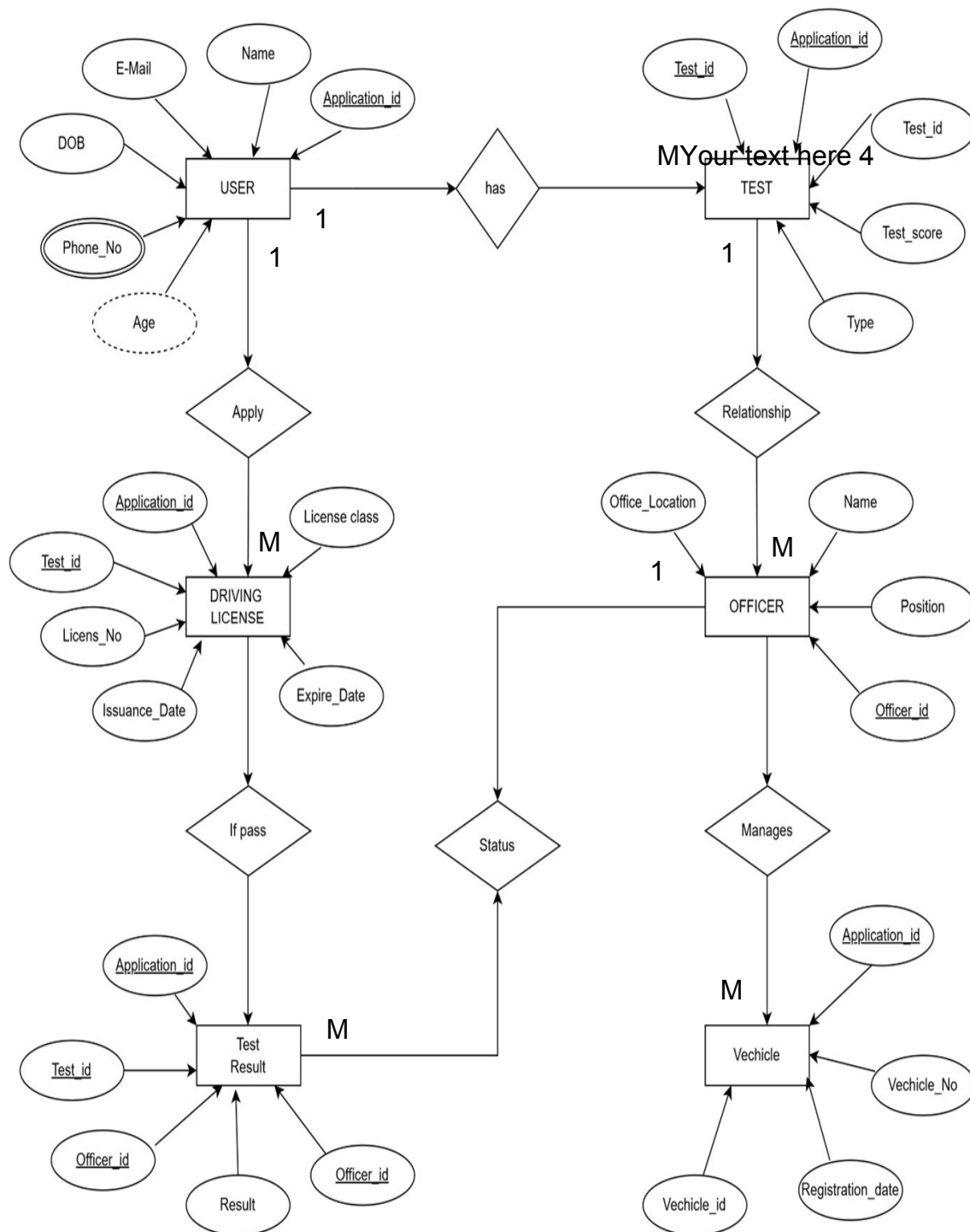
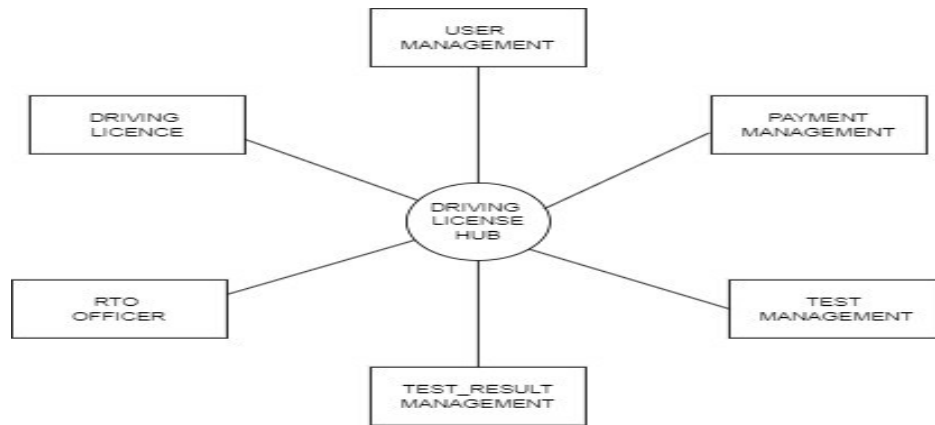
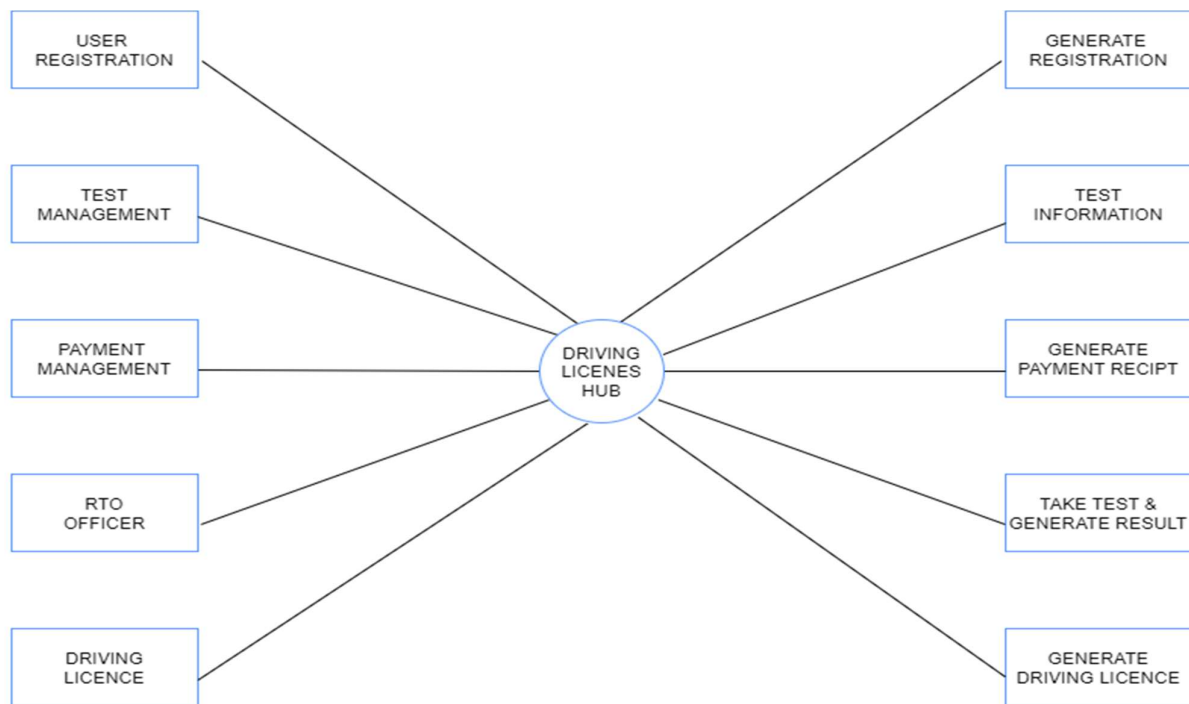


Fig : ER-Diagram

Data Flow Diagram: -**Level 0:****Fig : DFD-0****Level 1:****DFD-Level 1**

UML Diagram: -

Use Case Diagram: -

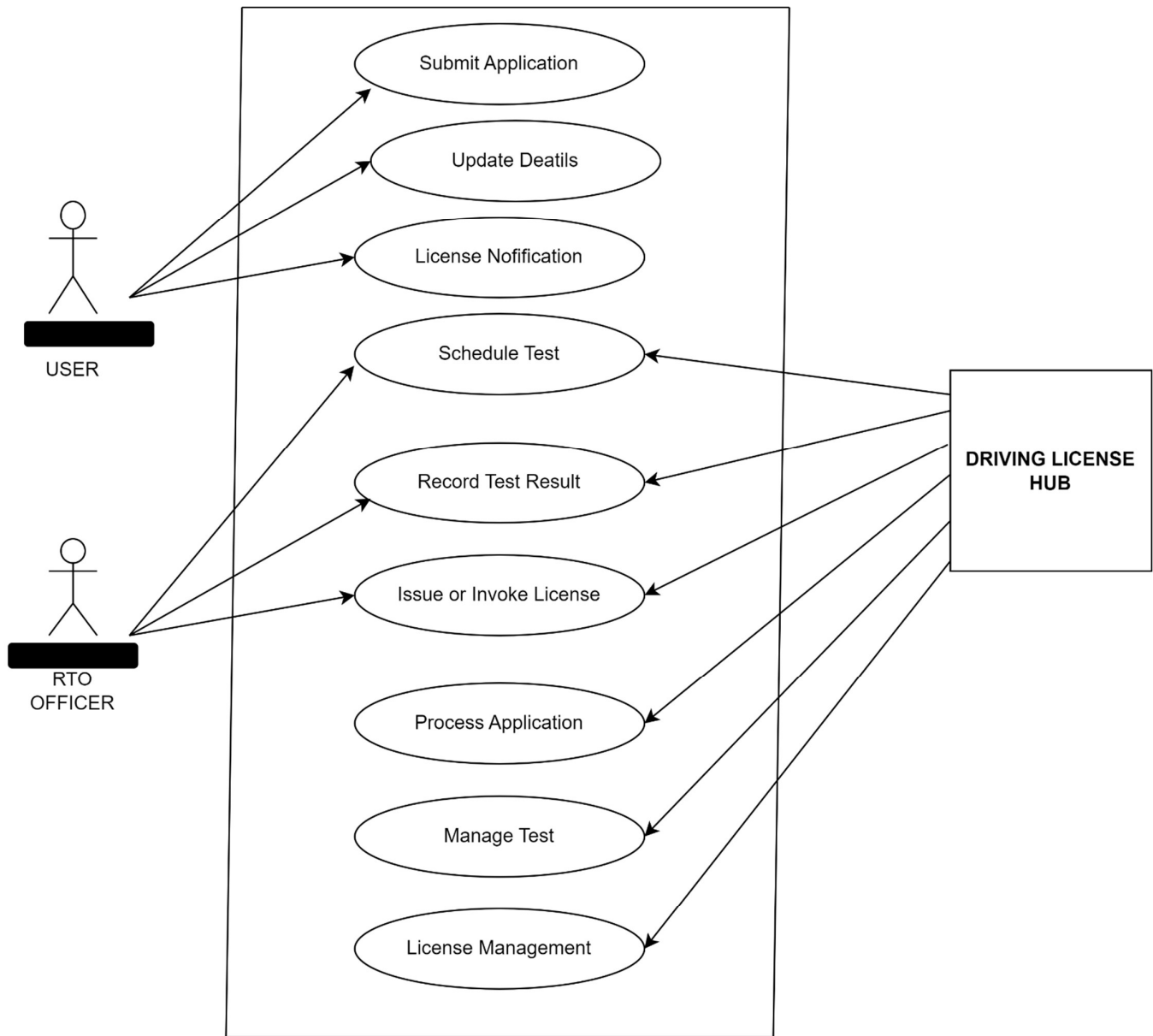


Fig: UseCase Diagram

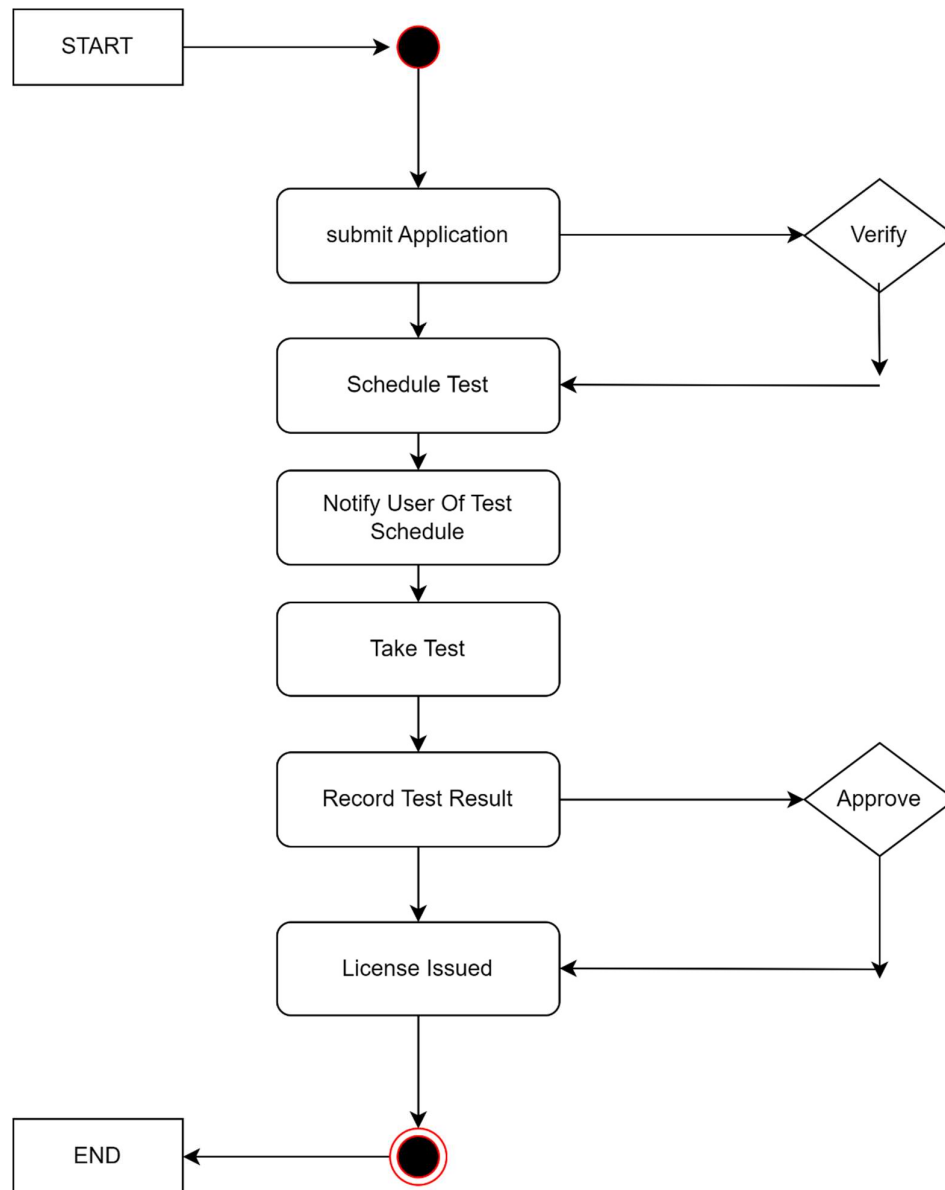
Activity Diagram: -

Fig : Activity Diagram

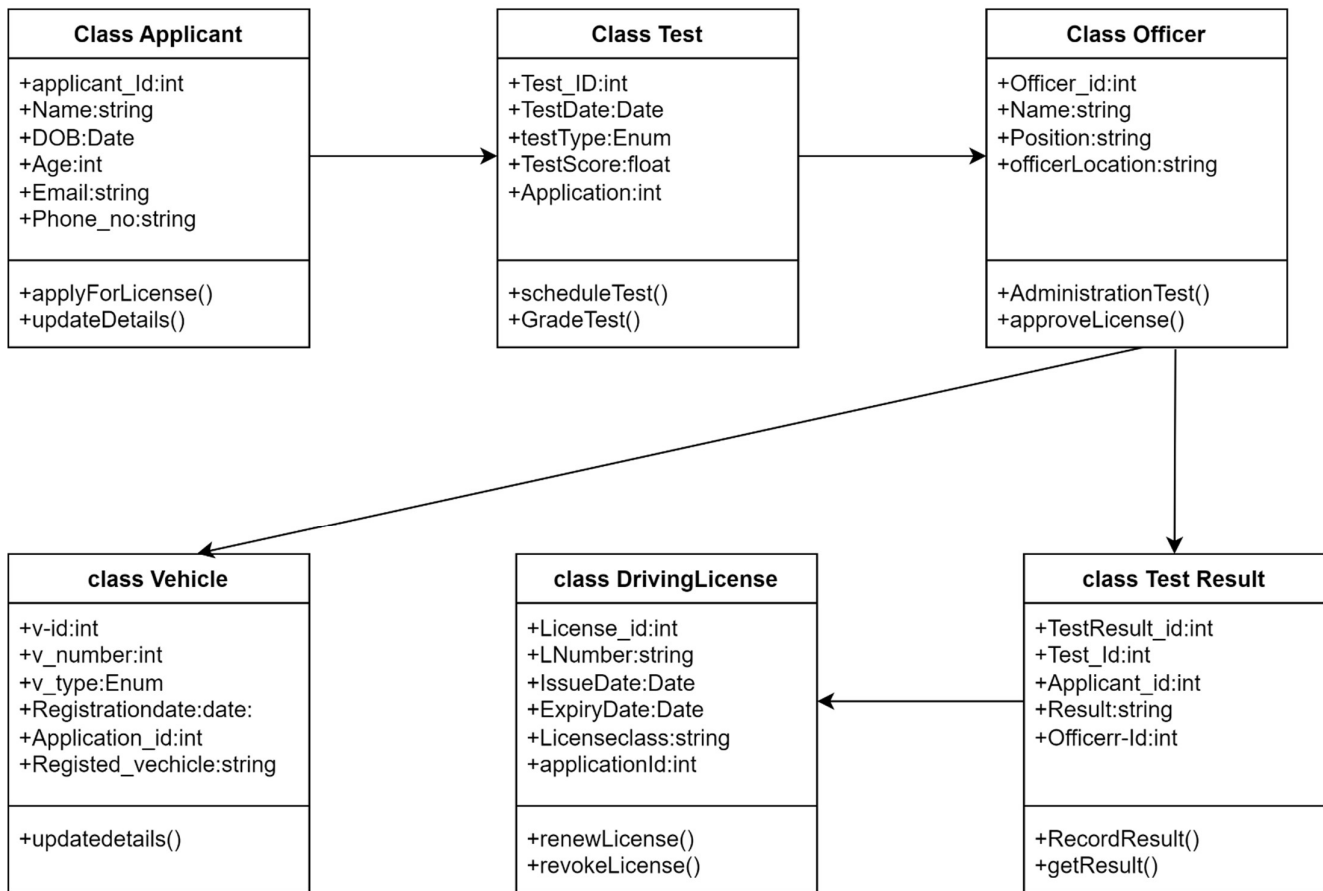
Class Diagram: -

Fig : Class Diagram

Sequence Diagram: -

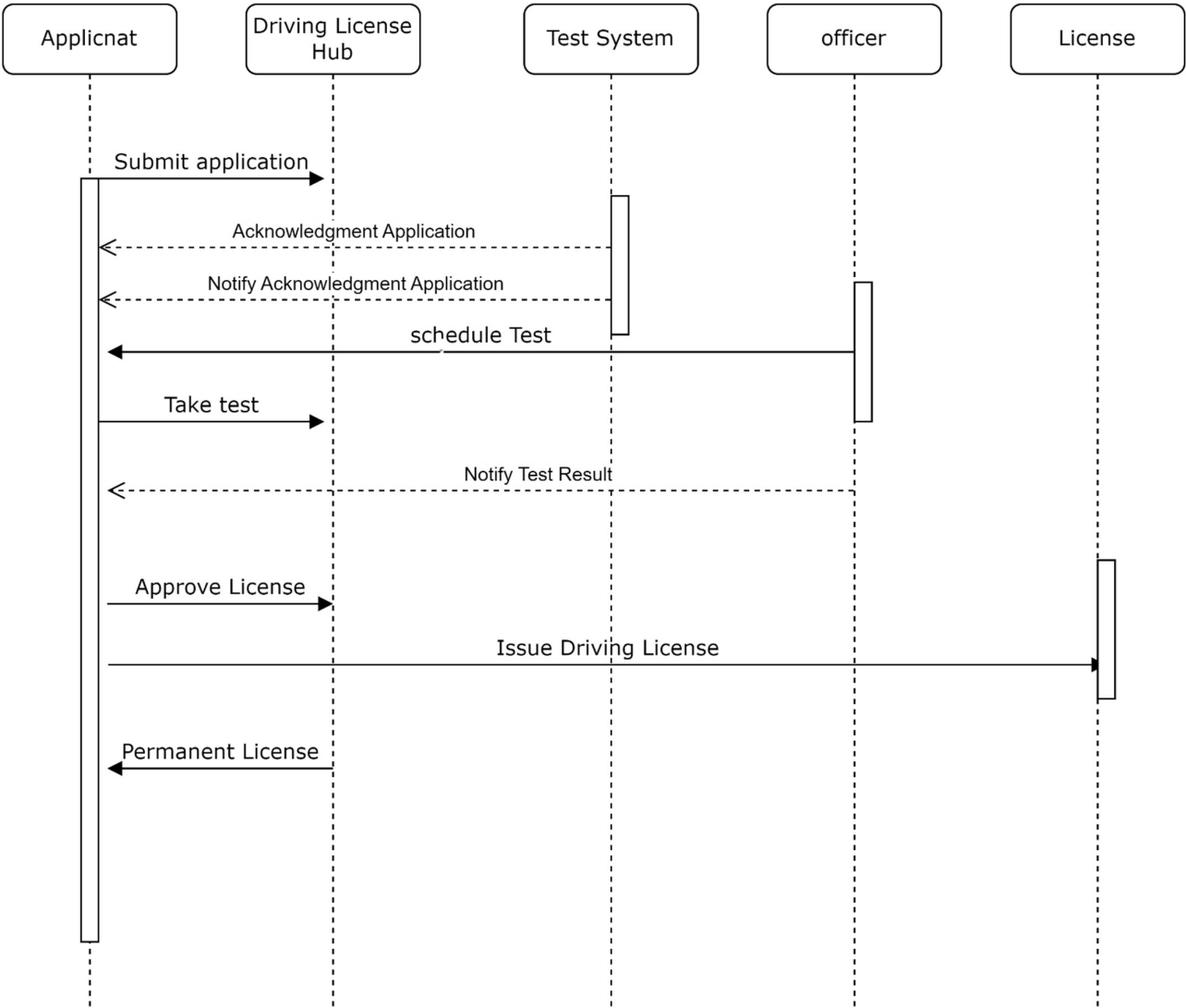
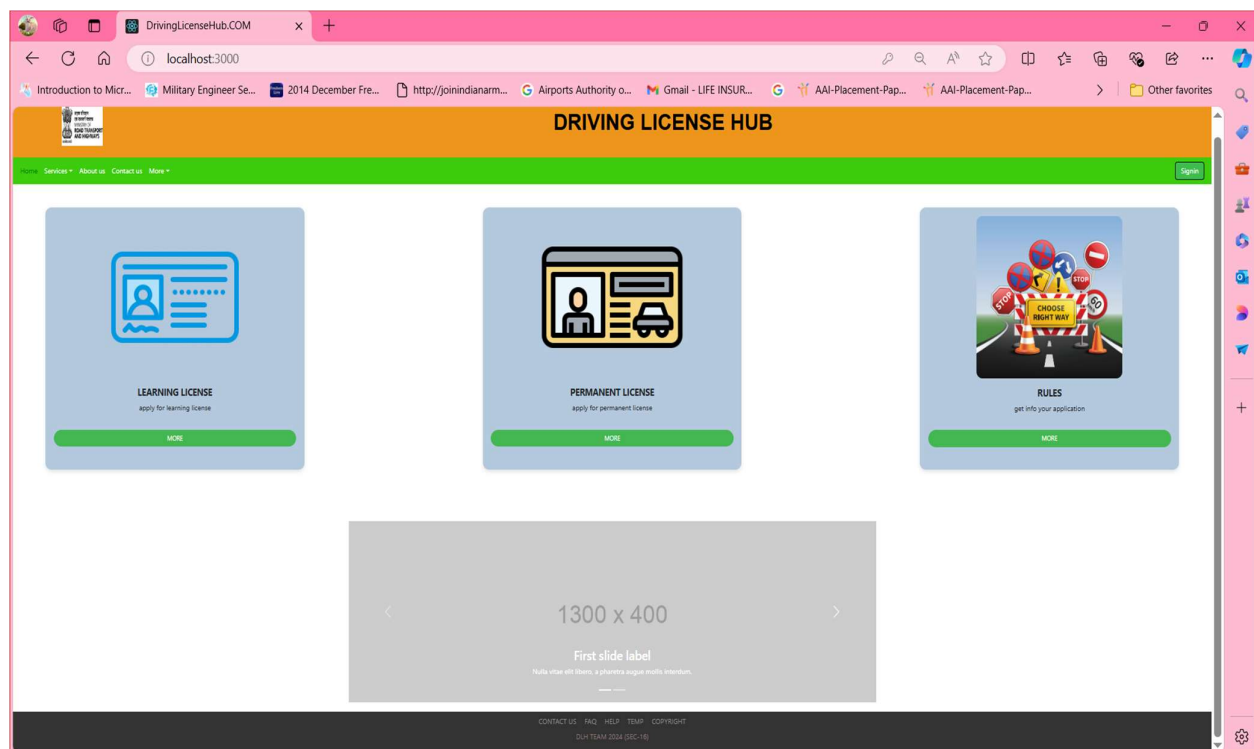
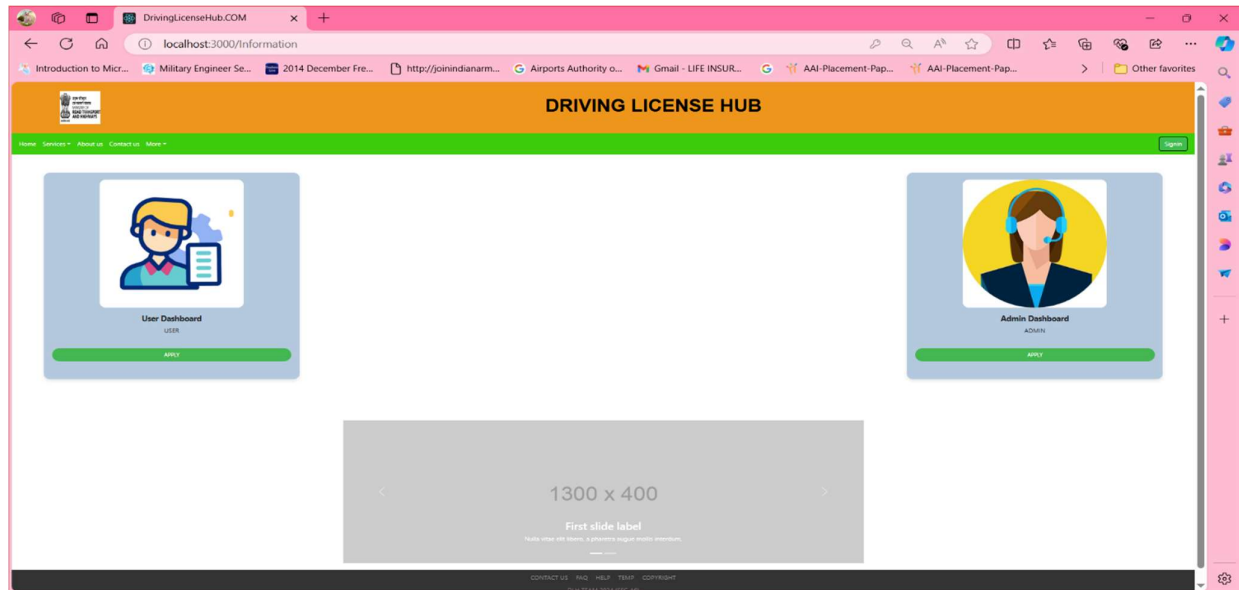


Fig : Sequence Diagram

5. APPENDIX B

HOME PAGE: -



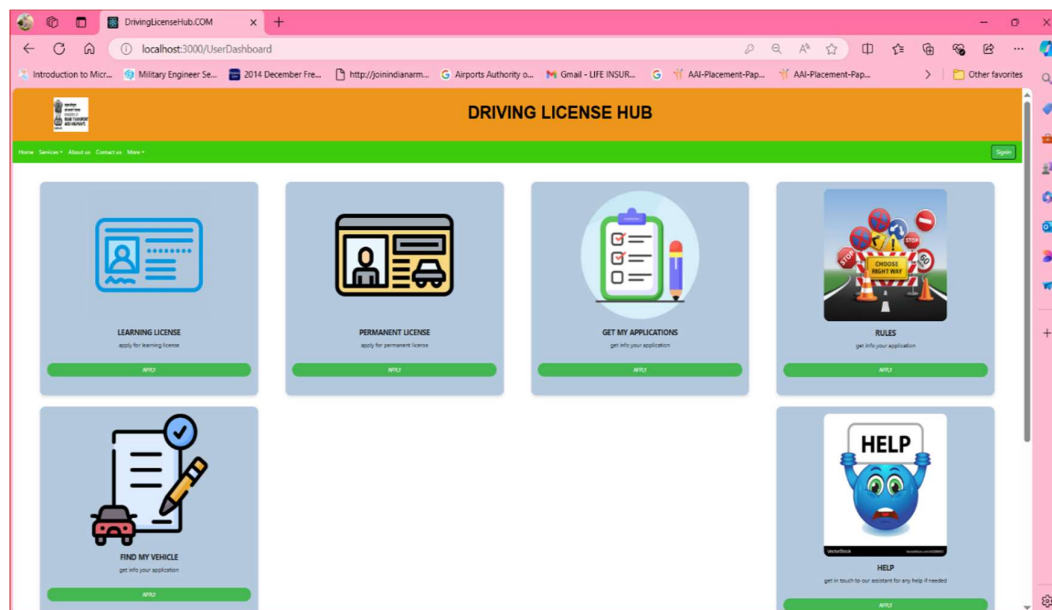
Login Page: -

The screenshot shows a web browser window with the address bar displaying 'localhost:3000/SignIn'. The page has an orange header with the text 'DRIVING LICENSE HUB' and a green navigation bar with links for 'Home', 'Services', 'About us', 'Contact us', and 'More'. A 'SignIn' button is located in the top right corner. The main content area features a light blue box titled 'SignIn Here' containing a login form. The form includes fields for 'Username' and 'Password', a 'Remember me' checkbox, and a 'Submit' button. A link for 'Don't have an account? Sign Up' is positioned below the form. The footer is a dark gray bar with links for 'CONTACT US', 'FAQ', 'HELP', 'TEMP', and 'COPYRIGHT', along with the text 'DLH TEAM 2024 (SEC-18)'.

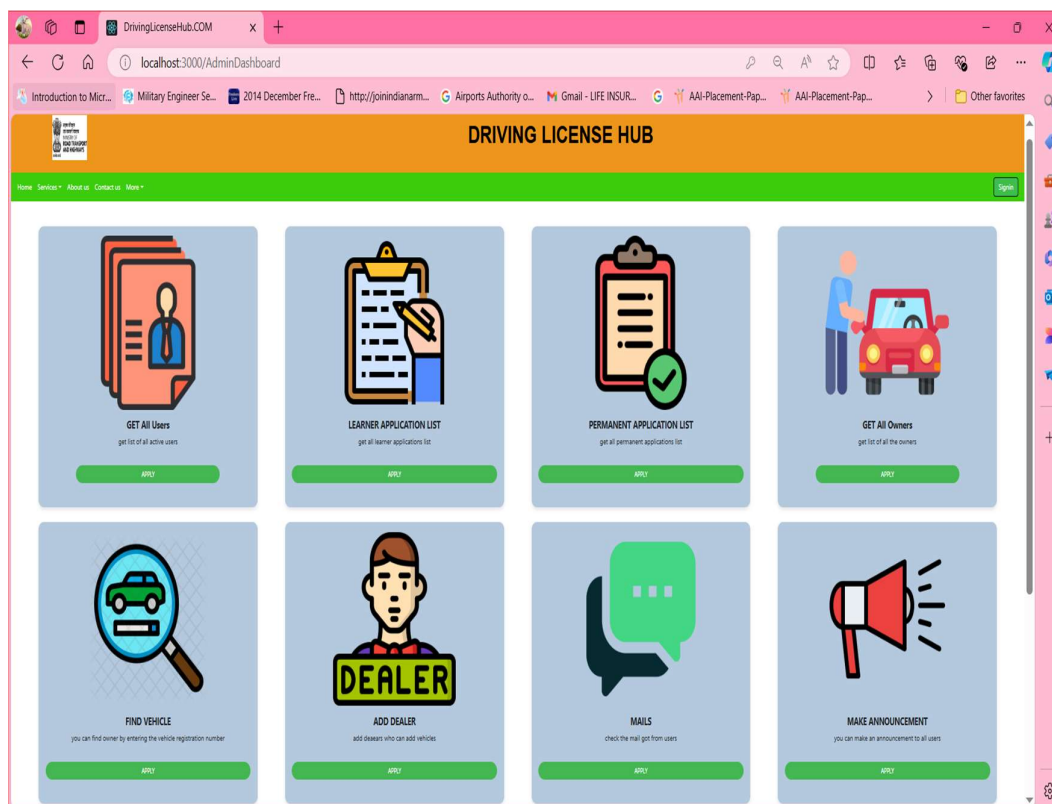
Registration Page: -

The screenshot shows a web browser window with the address bar displaying 'localhost:3000/Signup'. The page layout is consistent with the login page, featuring an orange header with 'DRIVING LICENSE HUB' and a green navigation bar. A 'Signup' button is in the top right corner. The main content area contains a light blue box titled 'Register Yourself' with a registration form. The form includes fields for 'E-mail', 'Aadhaar Card', 'First Name', 'Last Name', 'Password', and 'Confirm Password'. There is also a checkbox for 'I have read the agreement' and a 'Register' button at the bottom. The footer is identical to the login page.

User Dashboard:-



Admin Page: -



6. REFERENCE

1. <http://www.javatpoint.com/java-tutorial>
2. <http://www.w3.org>
3. <http://www.wikipedia.org>
4. <https://www.tutorialspoint.com/java>

CONCLUSION

Driving license hubs represent a promising solution to current licensing challenges. By focusing on technology, user experience, and community engagement, we can pave the way for a more efficient and accessible future in driving license services.

FUTURE SCOPE:

Future scope the future of driving license hubs may include AI-driven services, mobile applications, and virtual consultations. These innovations can further enhance accessibility and convenience for users in the licensing process

