Surfing School Management System

Project report
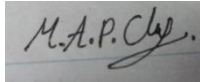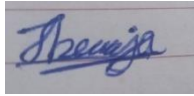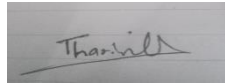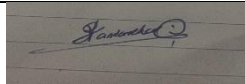

Sri Lanka Institute of Information Technology

IT2080 Information Technology Project

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Declaration

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Abstract

This project is a web-based application designed for the operation management system of a surfing school. Traditionally, the system has been based on manual and paper-based jobs, which allow for

intricate and time-consuming management. Using the newly developed Surfing School Management System, users can manage and operate all functions in a neat and user-friendly manner.

In this context, the system is divided into several core functions: User and Sales Management, Lesson Management, Equipment Management, Event and Activity Management, Payment,Supplier Management, and generating relevant reports to support these functions. Each function has been designed to ease the management in the running of the school.

It ensures the security management of the database records since it reduces human errors with its automated calculations and dealing with a number of sensitive details. The system is web-based, allowing users to use the system at any time from any place. It is very convenient and flexible.

The system was developed using the MERN Stack in which React.js acts as the Front-end library running on Node.js. MongoDB provided the efficient management for handling all day-to-day activities of the surfing school.

Acknowledgement

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Chapter 01-Introduction

The Surf School Manager is an all-inclusive Web-based place developed for computerizing the management of surfing schools. It creates a place where both instructors and students will have an easy time managing and organizing lessons. Instructors can add, edit, update, or delete packages of lessons, while students will view the list of available lessons, book lesson packages, and manage their schedules. The system will also include event management, tracking of equipment, notifications, and user profiles. It was developed on the MERN stack: MongoDB for database purposes, and Express, React, and Node.js as the base technologies. Therefore, the system is all about responsiveness, a very user-friendly interface that people find very easy to navigate. It also integrates all kinds of secure payment options and real-time notifications to enhance user experience. [1]

1.1 Background

One of the exceptional ideas is the Surf-Deck Surf School Management, which is to increase the effectiveness of the surfing schools in the picturesque Sri Lankan town of ArugamBay. The company was founded in the year 2024 with the primary mission of offering a comprehensive web based administrative solution particularly for surfing schools since this place is among the most popular surfing spots. The purpose of using Surf-Deck Surf School Management is to provide other surfing schools in the nearby area with the necessary tools to improve and advance their businesses. This case, the organization's goal is to assist the Surf-Deck surfing school to offer the best surfing training and experiences to their clients by offering them comprehensive management solutions. Course Management: Overall planning of the courses offered most especially their timing and the instructor most of the time to allocate to the courses. Student Enrollment: The use of registration and sign-up forms that use links to confirmation emails. Payment Processing: It also has forms of payment integrations for different forms of payment for convenience and effectiveness. Instructor Management: Database containing records of trainers who are willing to train people, their certifications and their past performances. We are dedicated to improving the management of other Surf-Deck Surfing area in order to ensure that surfing at ArugamBay is feasible for everyone. When applying the discovered approach, the company's aim is to change the way most of the surfing schools operate and at the same time increase the organization, efficiency and learning effectiveness.

1.2 Problem & Motivation

When we were gathering requirements, we identified several issues and problems currently existing in the management of suppliers. These inefficiencies affect many related aspects of the surfing school. The main tasks carried out manually include supplier communication, inventory management, and order tracking.

The key problems identified are:

•	Communication Issues: Difficulty in communication between suppliers and the surfing school staff, leading to delays, misunderstandings, and missed orders.

•	Inventory Management: Manual tracking of inventory and supplies causes errors, leading to either surplus or shortage of necessary equipment.

•   Order Processing: Orders from suppliers are often delayed or incorrect due to manual processing and lack of a streamlined system.

•   Supplier Information: Keeping supplier information updated manually is cumbersome and often leads to outdated records.

•   Maintenance Coordination: Difficulty in coordinating with suppliers for the maintenance and repair of equipment.

•   Reporting and Analysis: Lack of good ways to generate and analyze reports on supplier performance, hindering informed decision-making.

•   Notification System: Inadequate notification system for updates on orders, deliveries, and maintenance schedules.

Motivation:

To enhance the efficiency and effectiveness of supplier management in our surfing school, we need to leverage technology. Creating an online system for supplier management will help us to:

•   Save Time and Reduce Errors: Automate communication, order processing, and inventory management to save time and reduce errors.

•   Improve Supplier Relationships: Enhance communication with suppliers, ensuring timely updates and smoother operations.

•   Efficient Inventory Control: Maintain accurate and real-time inventory records, reducing shortages and surpluses.

1.3 Literature review

Overview

This review explores the existing literature on management systems for educational and recreational institutions, focusing on how they can improve the operations of a surfing school.

Key Findings

1. **Educational Management Systems (EMS):** These systems help schools and universities manage administrative tasks, track student progress, and facilitate communication. o Benefits include more efficient operations, reduced paperwork, and better tracking of student performance.

2. **Sports and Recreation Management Systems:**

These systems are used by sports schools and recreational centers to handle scheduling, bookings, payments, and progress tracking.

They help improve scheduling, manage resources better, and increase customer satisfaction.

3. **Implementation Challenges:** Challenges include the high cost of setting up the system, resistance to change from staff, and the need for ongoing maintenance. o Training staff and providing support are crucial for successful adoption.

4. **Technological Advancements:** Cloud-based solutions allow for scalability and remote access, making them ideal for surfing schools that may operate in multiple locations. Mobile apps make it convenient for students to book lessons, make payments, and track their progress Integration with communication tools like email and SMS ensures timely updates and reminders.

5. **Case Studies and Success Stories:** Studies show that schools and recreational centers using these systems see significant improvements in efficiency and user satisfaction. Examples include more accurate scheduling, better financial management, and improved communication.

1.4 Aims and objectives

1.4.1Aims

• Simplify Operations:

To handle student registrations, teacher assignments, class scheduling, and event planning, all of the surfing school's operations will be centralized and made simpler.

• Improve User Experience:

To ensure accessibility and convenience of use, an intuitive and user-friendly interface for administrators, teachers, and students is provided.

• Enhance Communication:

By integrating messaging and notification technologies, this project aims to enable smooth communication between the school, its students, and instructors.

• Boost Efficiency:

To automate repetitive processes, lower the risk of human mistake, and give instructors and administrative staff more time.

• Encourage Growth:

To offer scalable solutions that can keep up with the surfing school's expansion in terms of students, courses, and activities

1.4.2 Objectives

• **Organizing Events:**

Easily create, organize, and classify events. Permit a flexible schedule for events, including ones that are recurrent. Ensure that participant and event details are accurately documented.

• **Coordinated Event Administration:**

Provide an all-inclusive scheduling platform for workshops, classes, and other events. Use automated notifications to make it simple to schedule, reschedule, and cancel activities.

• **Processing of Payments:**

To make fee payments simple, incorporate safe online payment gateways. Automate the creation of receipts and payment confirmations. Establish a simple procedure for managing cancellations and reimbursements.

• **Management of User Accounts**:

Permit users to set up and maintain their profiles and accounts. Assure data privacy and safe login/logout procedures. Permit users to see forthcoming events and their event history.

• **Notifications and Interactions**:

Set up automated reminders and notifications for forthcoming occasions. Give teachers and students a direct communication channel. Make sure attendees are informed as soon as there are updates or modifications to the event.

- **Analytics and Reporting**: Provide thorough reports on financial performance, registration data, and attendance. Provide information on client preferences, peak registration periods, and well-liked events. Make better business decisions and event offerings by leveraging data.

- **Accessibility and Integration:** Make that the system works on a variety of platforms, such as tablets, smartphones, and desktop computers. For ease and wider reach, integrate with social media sites and external calendars. To ensure a flawless user experience across all devices, keep your design responsive.

- **Customer Service and Input:** Make contact details and support resources easily accessible. Give clients the option to leave evaluations and comments about their experiences. Utilize client feedback to drive on-going development

1.5 The structure of the report

Chapter 1 – Requirements and Analysis

Discusses the requirements and the scope of the system through the use of

diagrams. The functions performed by each user and the steps followed under each

part can be understood by studying the charts. [1]

Chapter 2 – Design

Depicts the design details of the system [2]. Gives a brief idea about the

processing in the system under each function through sequence diagrams and state

chart diagrams.

Snapshots of interfaces are included to familiarize the user interface reader.

Chapter 3 – Implementation

Discuss the choice of technology used for the project and the reasons for

selecting them. It also states the advantages of using the technologies chosen for

both the development team and the users.

Chapter 4 – Testing

Includes test cases for the main functionalities to ensure that the system works properly. [3]

Chapter 5 – Conclusion

States the conclusion drawn by the development team at the close of the project.

Discusses both positive and negative points in the developed system and the benefits

of the system to the client.

Chapter 2. Requirements

2.1 Stakeholder Analysis

A number of parties are involved in the surfing school management system and are invested in the project's success. The surfing school owners, who manage the school, are the primary stakeholders. They are interested in implementing the system to enhance operational efficiency and improve profitability. The system will help them manage registrations, monitor the school's performance, and streamline daily operations. Additionally, it will allow the owners to generate reports and gain insights into how the school is performing.

Another important party involved in the surfing school management system project is the staff. These include instructors, receptionists, and administrative personnel, all of whom will frequently interact with the system. Instructors will use the system to schedule classes, manage student attendance, and communicate with students. Their feedback on the system's functionality and usability will provide valuable insights for the development team to make the necessary improvements and adjustments.

A significant stakeholder group in the surfing school management system is the students. These individuals enroll in the school to take lessons and benefit from its services. The system will provide a more personalized and seamless experience by allowing students to easily register for classes, check schedules, receive notifications about upcoming lessons or events, and make online payments.

Suppliers are also key stakeholders in the surfing school management system project. These are the suppliers that provide essential equipment such as surfboards, wetsuits, and other accessories to the school. The system can assist in managing inventory, tracking orders, and ensuring that the school has the supplies it needs. This capability can strengthen the relationship between the suppliers and the school, ensuring timely deliveries and efficient stock management.

2.2 Requirements analysis

Student Management:

- The system should allow users to register as students and update their personal details.
- The system should track student attendance for lessons and generate attendance reports.
- The system should provide the ability to view, edit, and delete student records.
- Students should be able to view their lesson history and progression.
- The system should enable instructors to provide feedback and performance assessments for students.

Lesson Management:

- Instructors should be able to create, update, and schedule lessons using the system.
- The system should allow students to book and cancel lessons online.
- The system should provide lesson reminders and notifications to both students and instructors.

- The system should track lesson capacity and notify instructors when a class is full.
- Instructors should be able to assign lesson types (e.g., beginner, intermediate, advanced) and adjust lesson plans accordingly.

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Event Planning:

- The system should allow the creation, scheduling, and promotion of events (e.g., competitions, community gatherings).

- Students and members should be able to register for events through the system.

- Event notifications and updates should be sent to registered participants.

- The system should track event participation and attendance.

- The system should provide the option to link payments to event registrations.

Equipment Maintenance:

- The system should track the inventory of surfing equipment (e.g., surfboards, wetsuits) and monitor their condition.

- The system should allow staff to log maintenance requests and update the status of equipment repairs.

- Notifications should be sent to staff when equipment needs to be repaired or replaced.

- The system should generate reports on equipment usage and maintenance history.

Supplier Management:

- The system should store supplier information, including contact details and product offerings.

- The system should track orders placed with suppliers and maintain order histories.

- The system should enable staff to generate and track purchase orders.

- Suppliers should be able to view order status and communicate with the surfing school through the system.

- The system should track supplier payments and maintain payment records.

Staff Handling:

- The system should allow administrators to manage staff profiles, including contact details and roles.

- The system should track staff attendance and working hours.

- Instructors should be able to view their lesson schedules and update availability.

- Staff performance and feedback should be tracked through the system.

Payment Management:

- The system should allow students to make payments for lessons, memberships, and events online.
- The system should support multiple payment methods, such as credit cards, debit cards, and bank transfers.
- The system should securely process transactions and maintain transaction records.
- Students should be able to view their payment history and outstanding balances.
- The system should send payment reminders and generate invoices for students.

Sales & rental management

- The system should allow the school to sell surfing-related products (e.g., surfboards, wetsuits, accessories) online and in-store**.**
- The system should enable users to view product details, add items to the shopping cart, and complete purchases online.
- Multiple payment methods, such as credit cards, debit cards, and bank transfers, should be supported by the system.
- The system should enable users to rent surfing equipment (e.g., surfboards, wetsuits) for a specific duration.

2.3 Requirements modeling

Requirement Modeling for Surfing School Management System

1.Student Management

1.1. The system will enable instructors and admin to manage student profiles, including registration and personal details.

1.2. Attendance tracking for each student during lessons will be available through the system.

1.3. The system will allow instructors to provide feedback and performance assessments for each student.

1.4. Students will have access to view their lesson history and progression through the system.

2.Lesson Management

2.1. Instructors will be able to create, update, and schedule lessons using the system.

2.2. Students should be able to book, modify, and cancel lessons through the system.

2.3. The system will send notifications and reminders for scheduled lessons to both instructors and students.

2.4. The system will track class capacity and manage waiting lists when classes are full.

3.Event Planning

3.1. The system will allow the creation and management of events such as competitions and workshops.

3.2. Students will be able to register for events and receive notifications and updates.

3.3. The system will track event attendance and participant lists.

3.4. Admin will be able to generate reports on event participation and feedback.

4.Payment Management

4.1. Users will be able to make payments for lessons, memberships, and events online through the system.

4.2. The system will support various payment methods, including credit cards, debit cards, and bank transfers.

4.3. Transaction records and invoices will be securely processed and stored by the system.

4.4. Students will be able to view their payment history and outstanding balances through the system.

5.Payment Management

5.1. Users will be able to make payments for lessons, memberships, and events online through the system.

5.2. The system will support various payment methods, including credit cards, debit cards, and bank transfers.

5.3. Transaction records and invoices will be securely processed and stored by the system.

5.4. Students will be able to view their payment history and outstanding balances through the system.

6.Equipment Maintenance

6.1. Staff will be able to log equipment maintenance requests and updates through the system.

6.2. The system will track inventory of surfing equipment and monitor its condition.

6.3. Notifications will be sent when equipment requires maintenance or replacement.

6.4. Reports on equipment usage and maintenance history will be generated by the system.

7.Supplier Management

7.1. Admin will be able to manage supplier information and contact details through the system.

7.2. The system will maintain order history and performance metrics for suppliers.

7.3. Staff will be able to generate purchase orders and manage inventory received from suppliers.

7.4. The system will allow suppliers to check order status and communicate with the surfing school.

8.Staff Handling

8.1. Admin will be able to add and manage staff profiles, including contact information and roles.

8.2. The system will track staff attendance and working hours.

8.3. Instructors will be able to update their lesson schedules and availability through the system.

8.4. Performance feedback for staff members can be logged and reviewed within the system.

Chapter 3. Design and Development

3.1 Diagrams of components

3.1.1 Onion Diagram
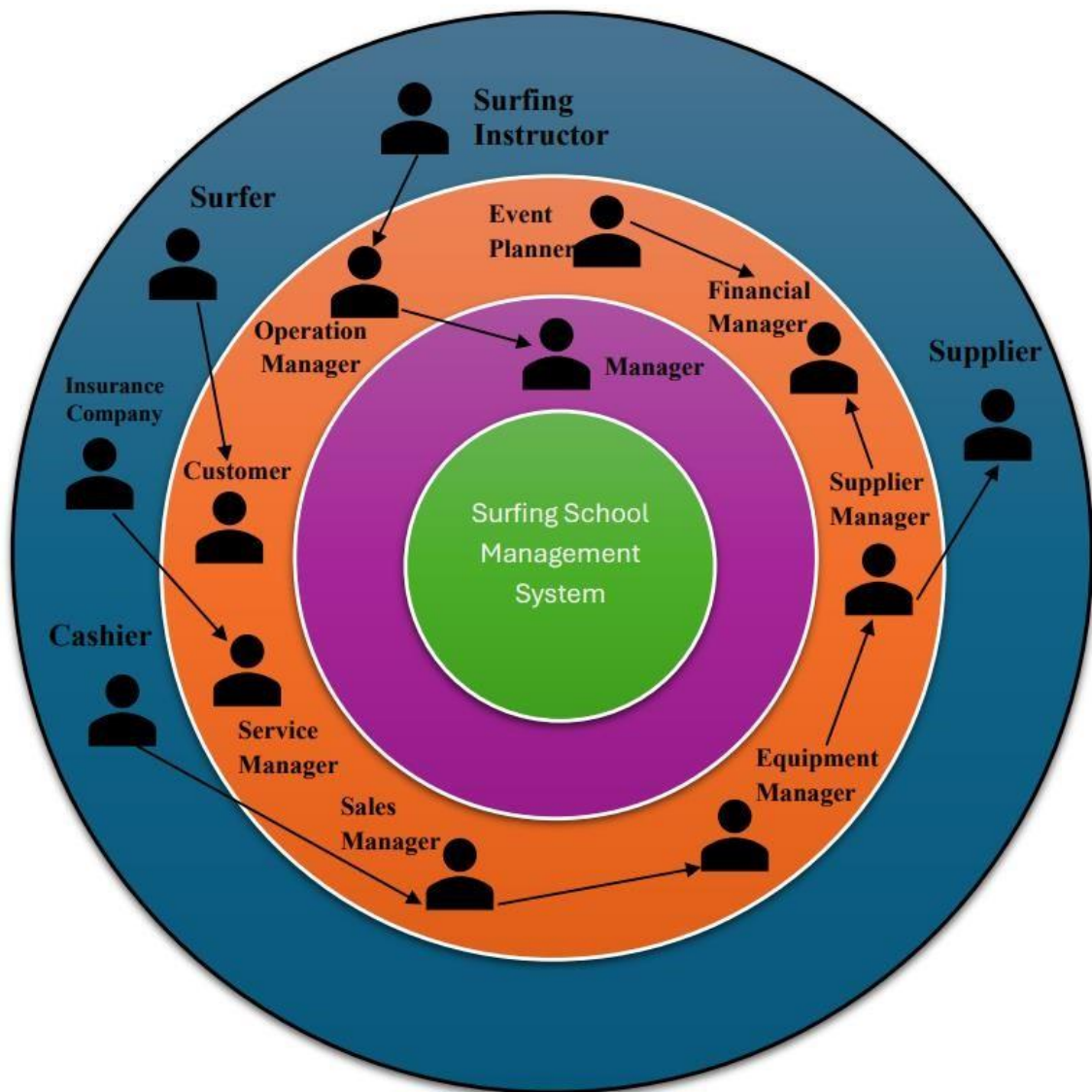
figure 3.0 1 Onion diagram

3.1.2.Use Case Diagram

3.1.2.1 Lesson management(IT22127778)
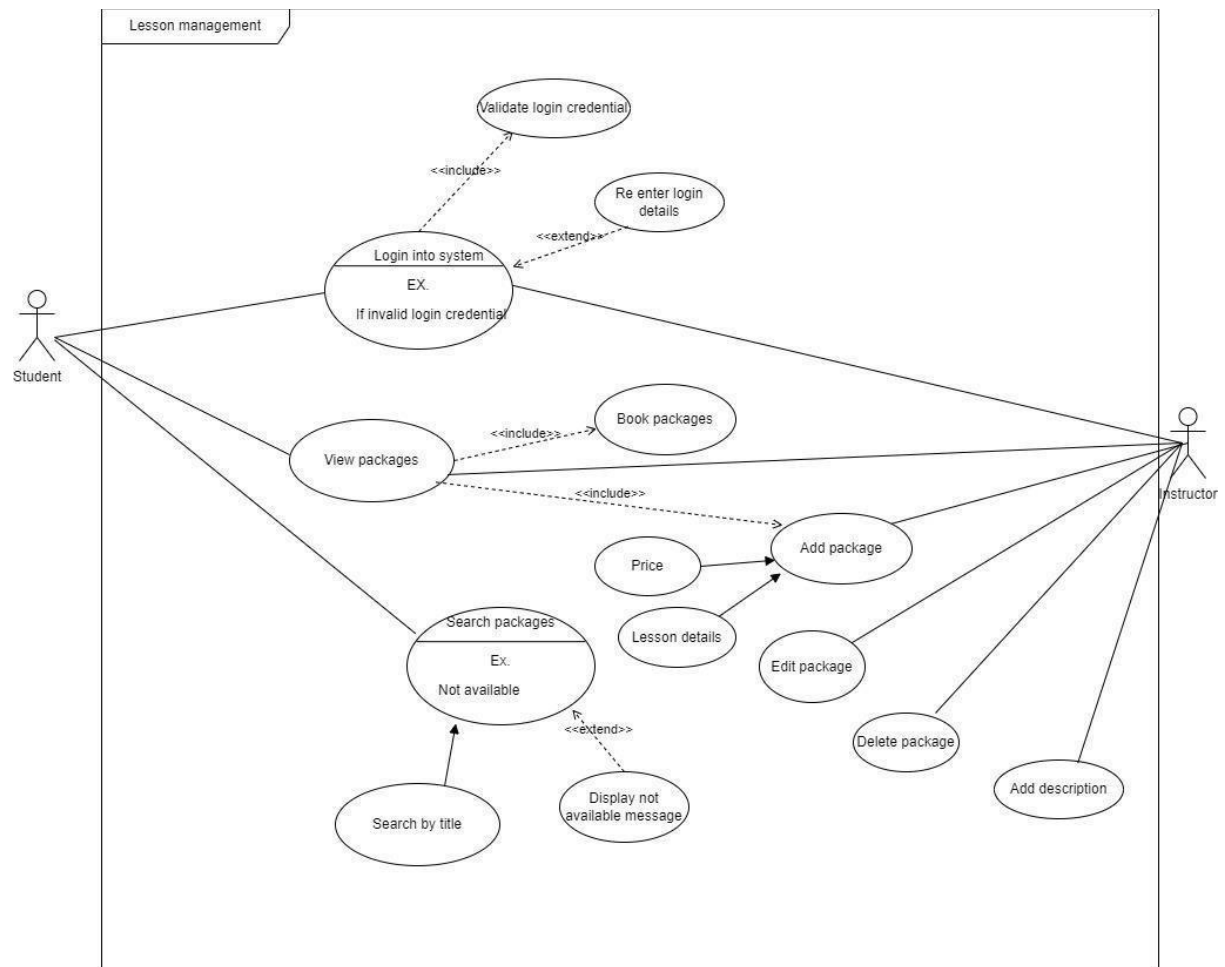
Figure 3 0.1 Lesson use case diagram

3.1.2.2 Event planning(IT22243980)

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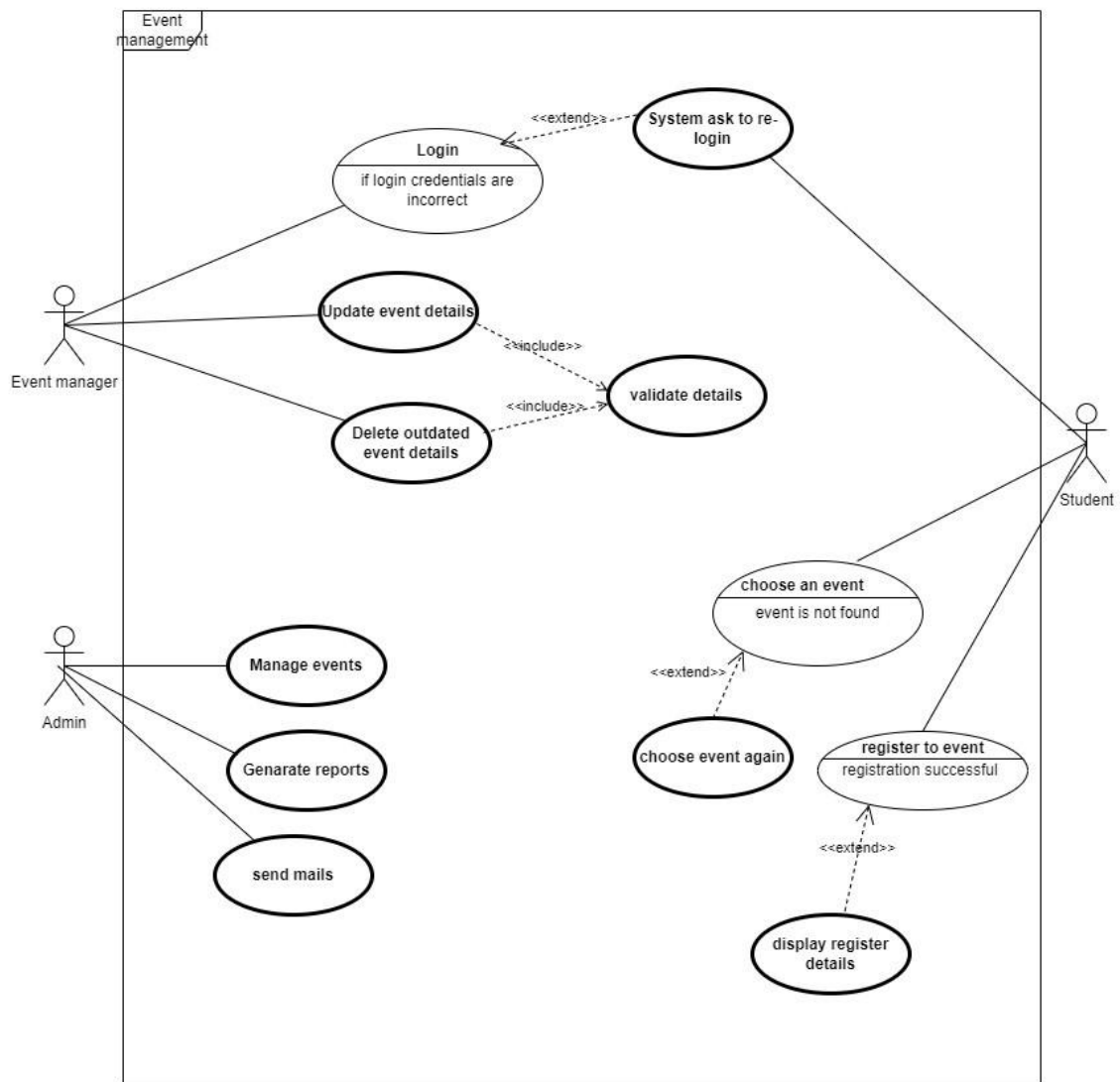
Figure 3 0.2 Event use case diagram

3.1.2.3 Payment(IT22165848)

12
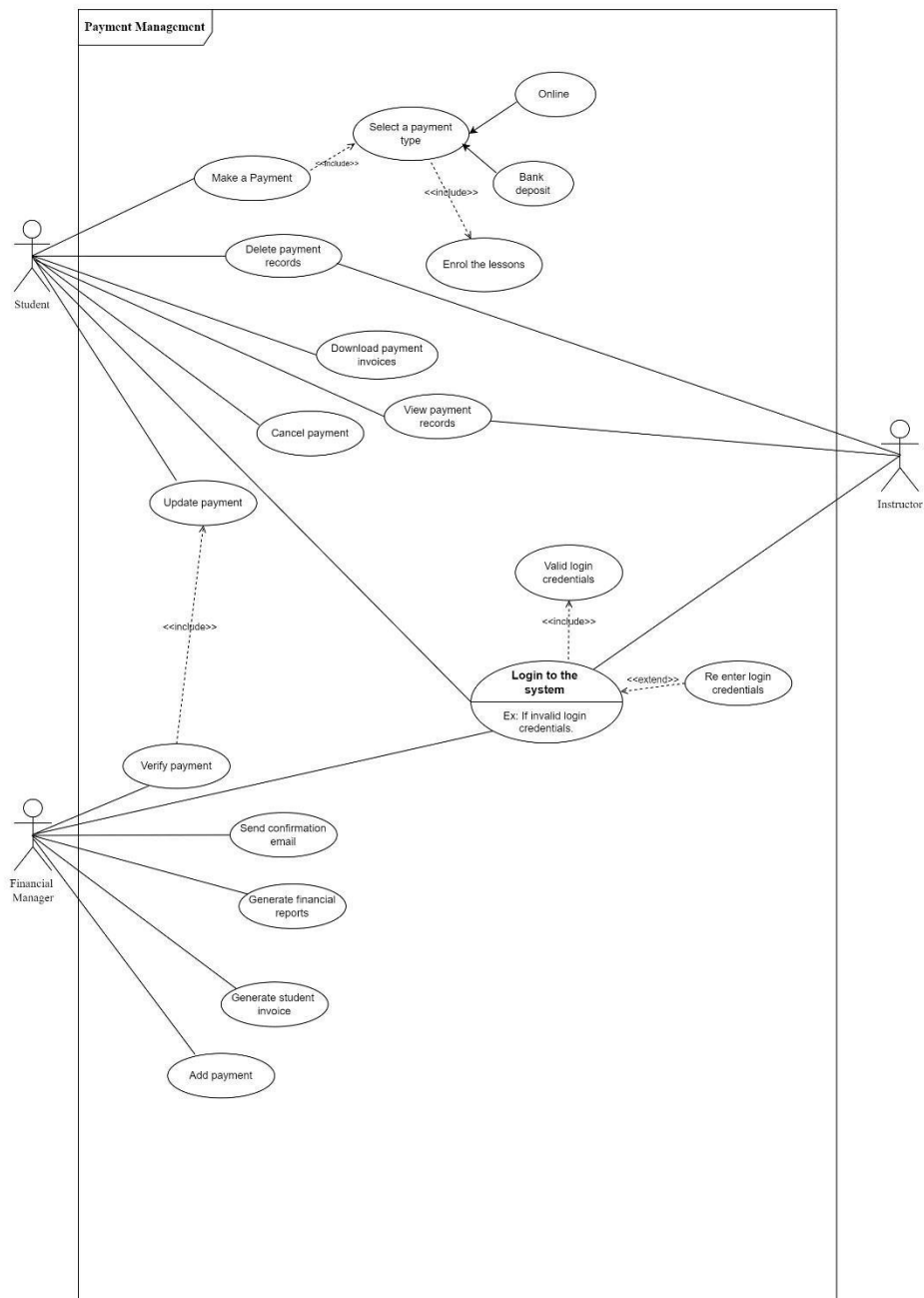
Figure 3 0.3 Payment use case diagram

3.1.2.4 Equipment Maintenance(IT22083814)
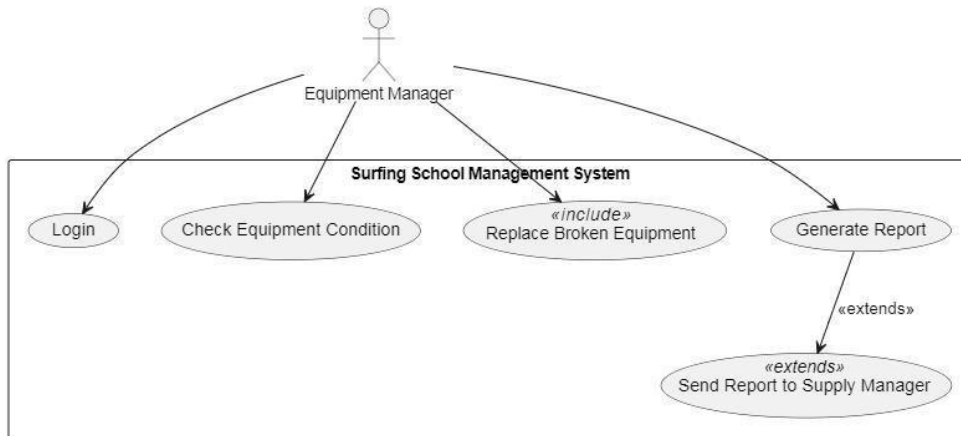
Figure 3 0.4 Equipment use case diagram

3.1.2.5 Supplier Management(IT22168740)
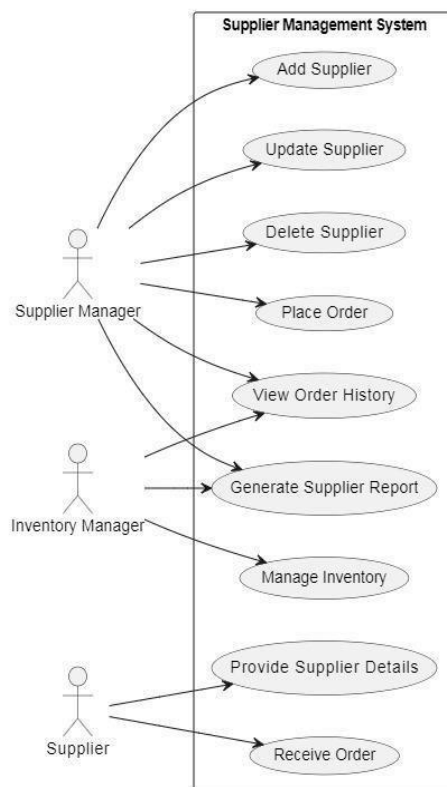
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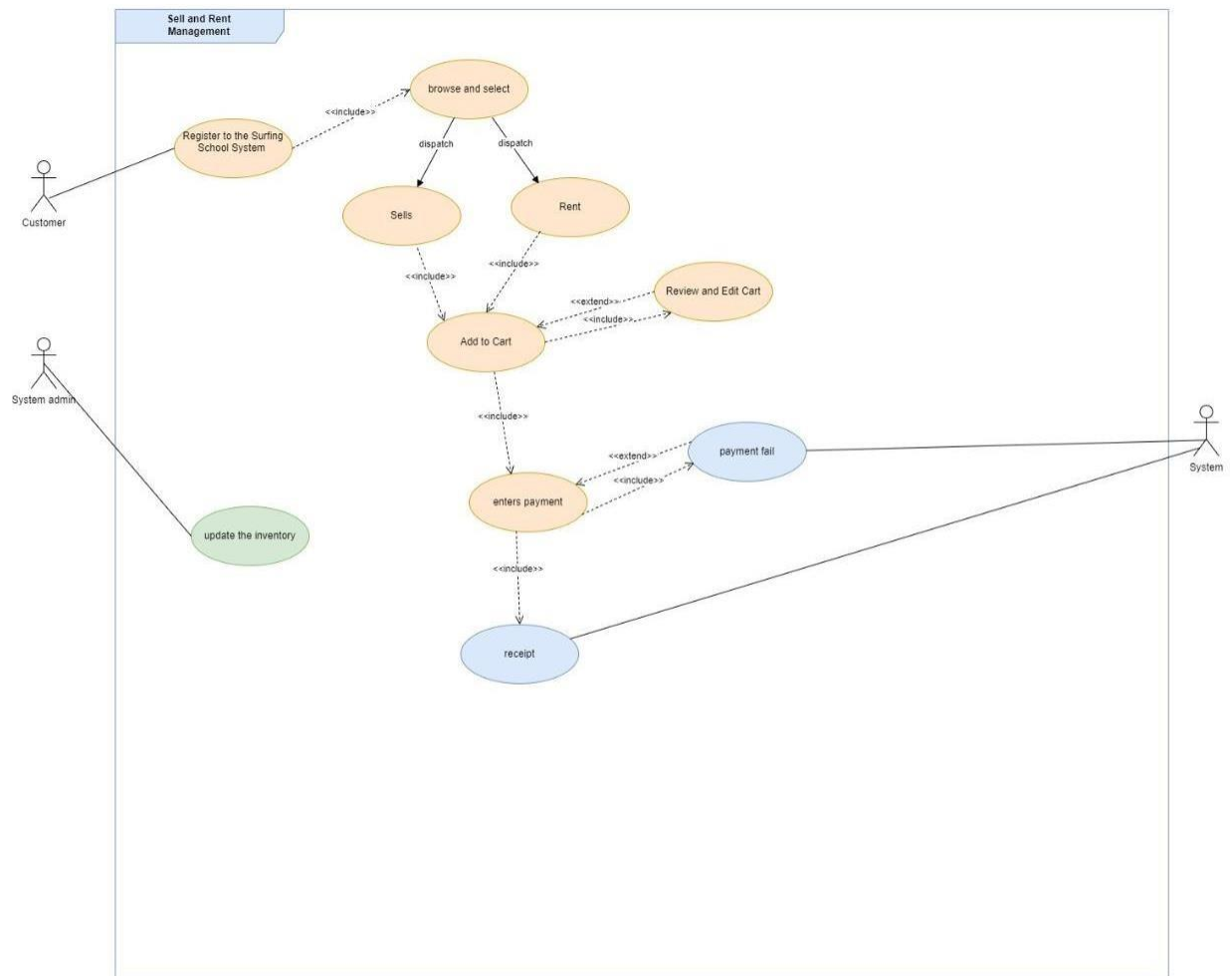
Figure 3 0.6 Sales use case diagram

3.1.2.7 Staff Handling(IT22235688)
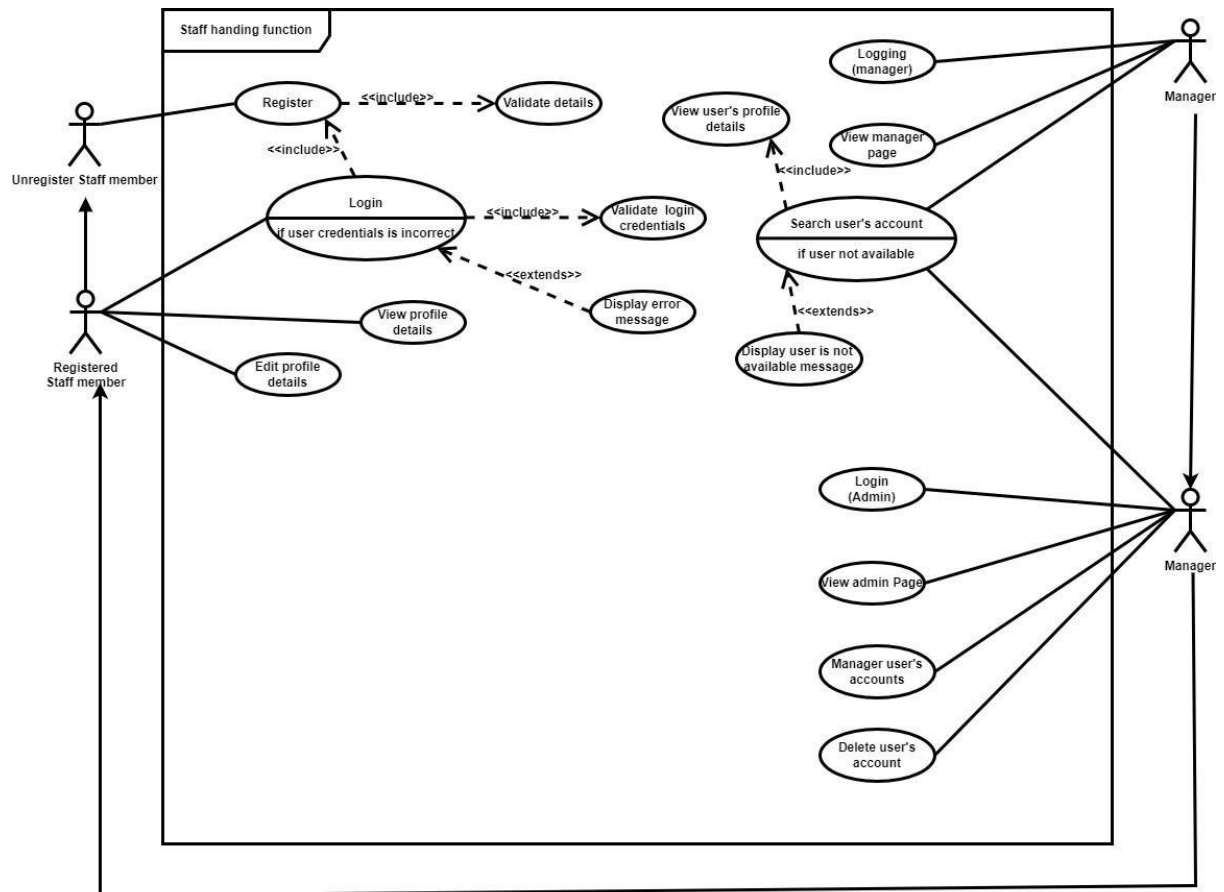
Figure 3 0.7 Staff use case diagram

3.1.2.8. Customer(IT22281500)
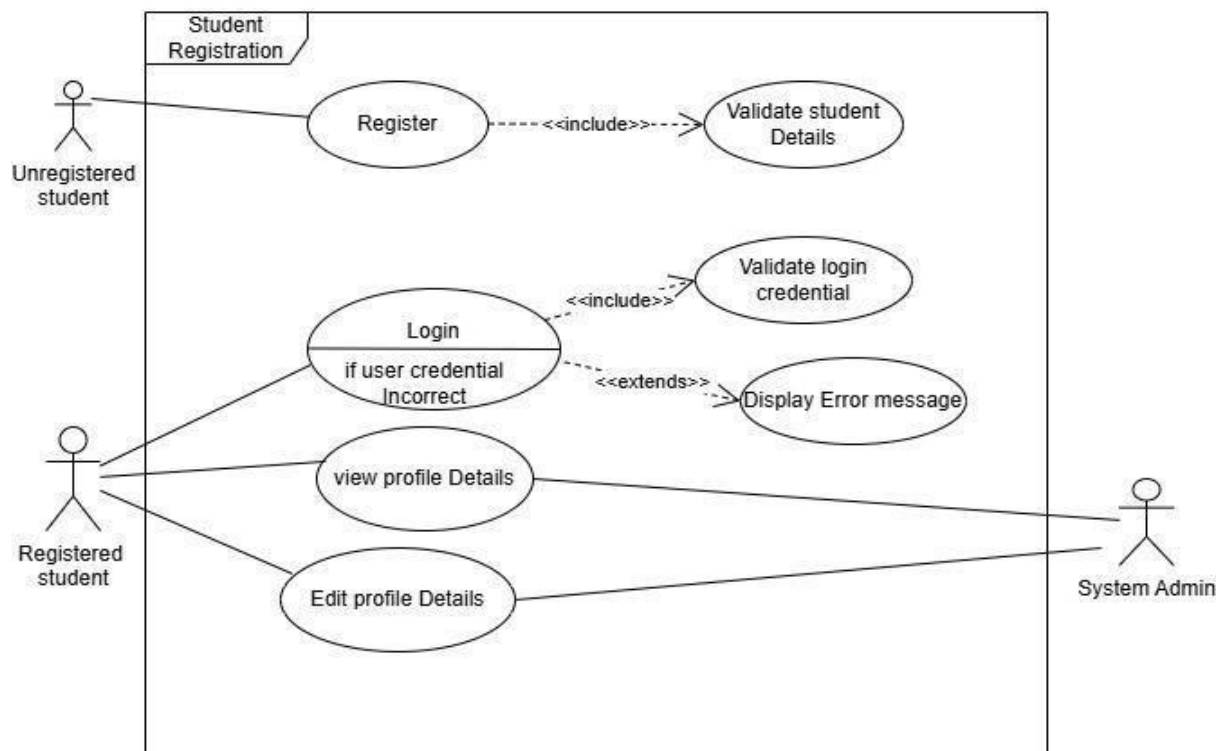
Figure 3 0.8 Customer use case diagram

3.1.3.Activity Diagram

3.1.3.1 Lesson management(IT22127778)

17
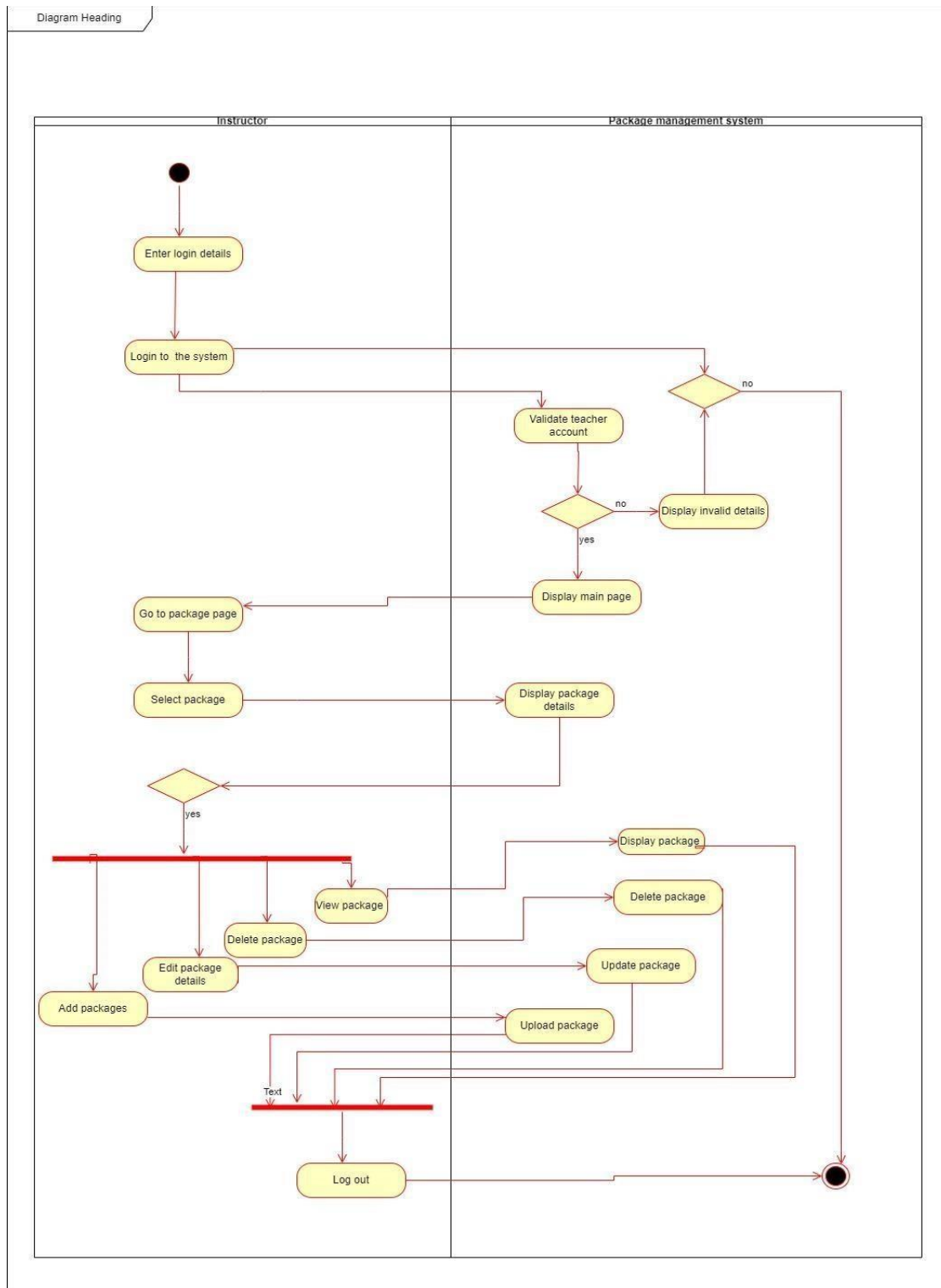
Figure 3.1 1 Lesson Activity diagram

3.1.3.2 Event planning(IT22243980)
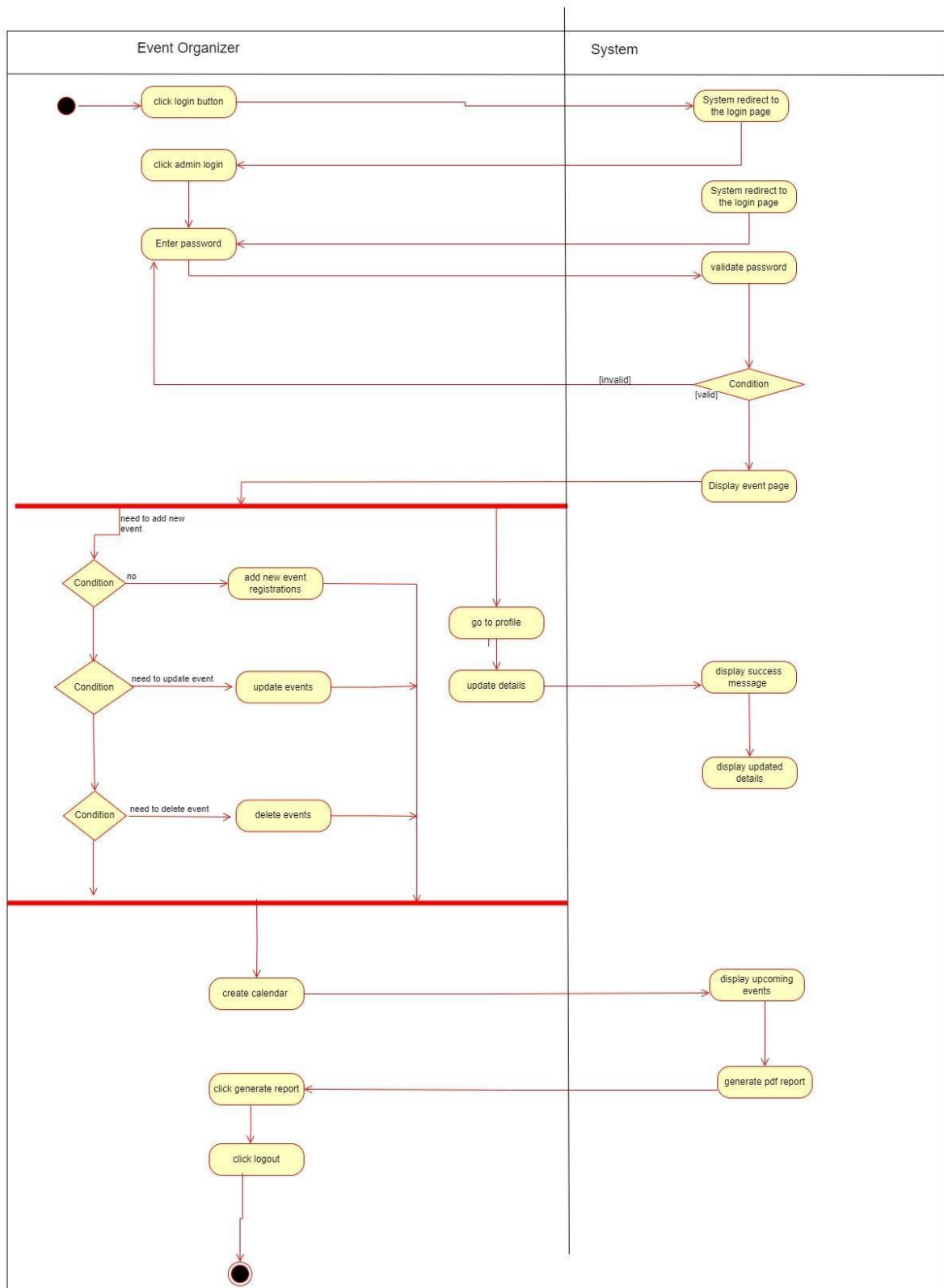
Figure 3.1 2 Event Activity diagram

3.1.3.3Payment(IT22165848)
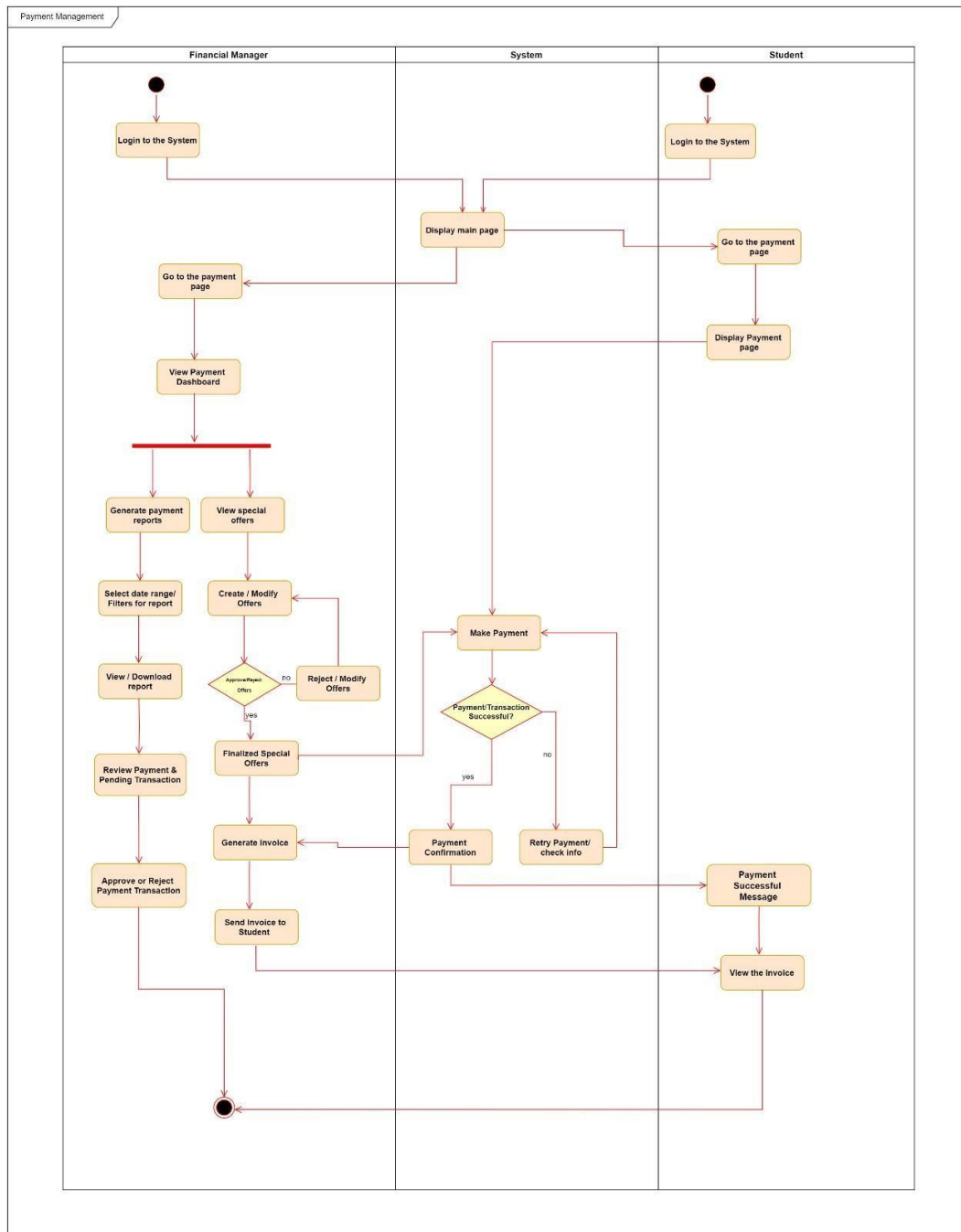
Figure 3.1 3 Payment Activity diagram

3.1.3.4 Equipment Maintenance(IT22083814)
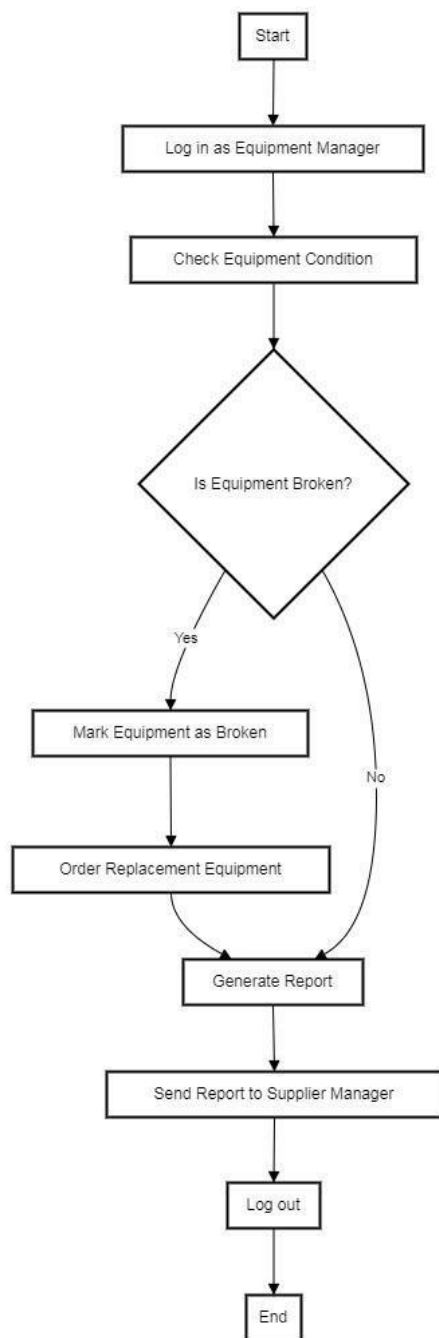
Figure 3.1 4 Equipment Activity diagram

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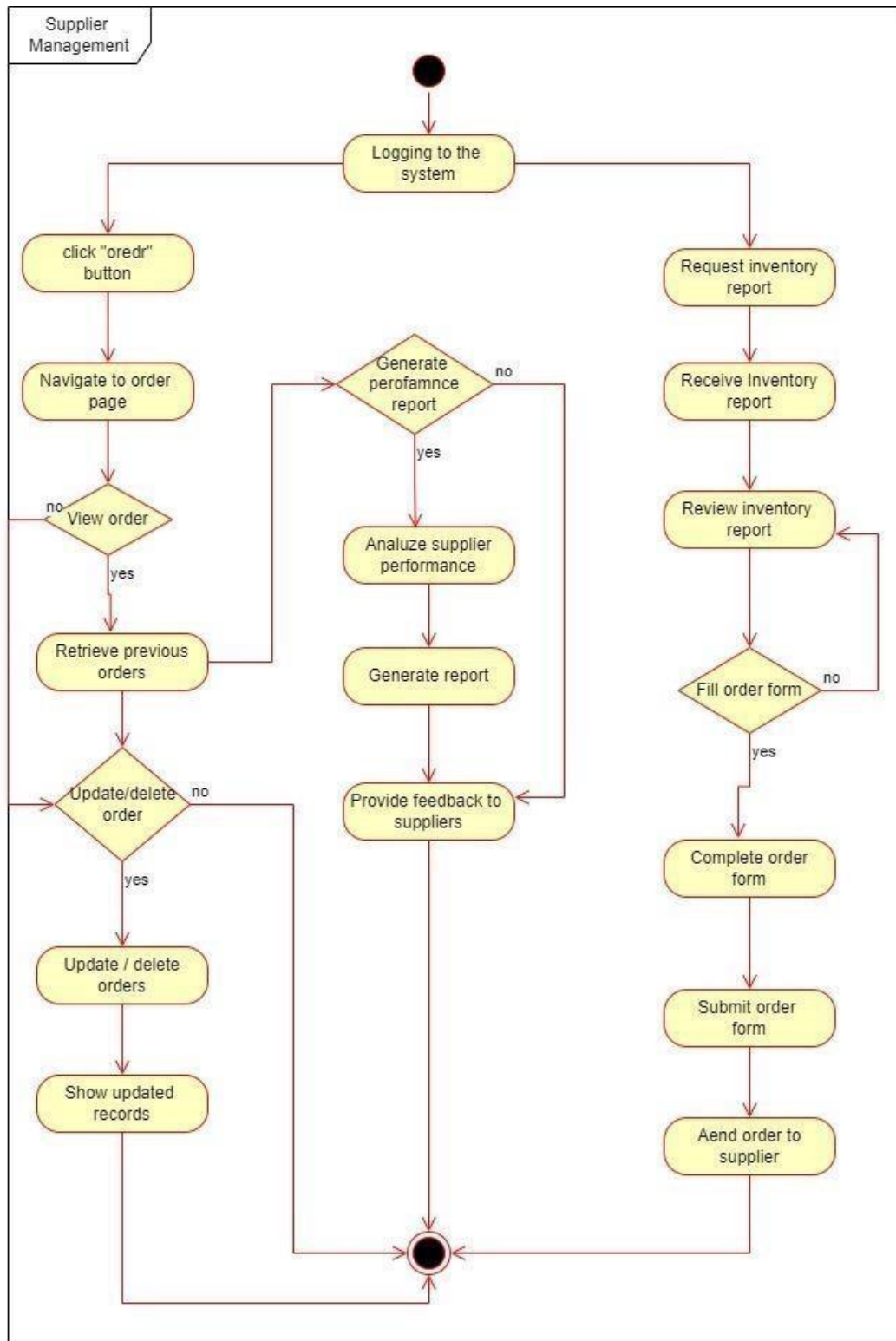
Figure 3.1 5 Supplier Activity diagram

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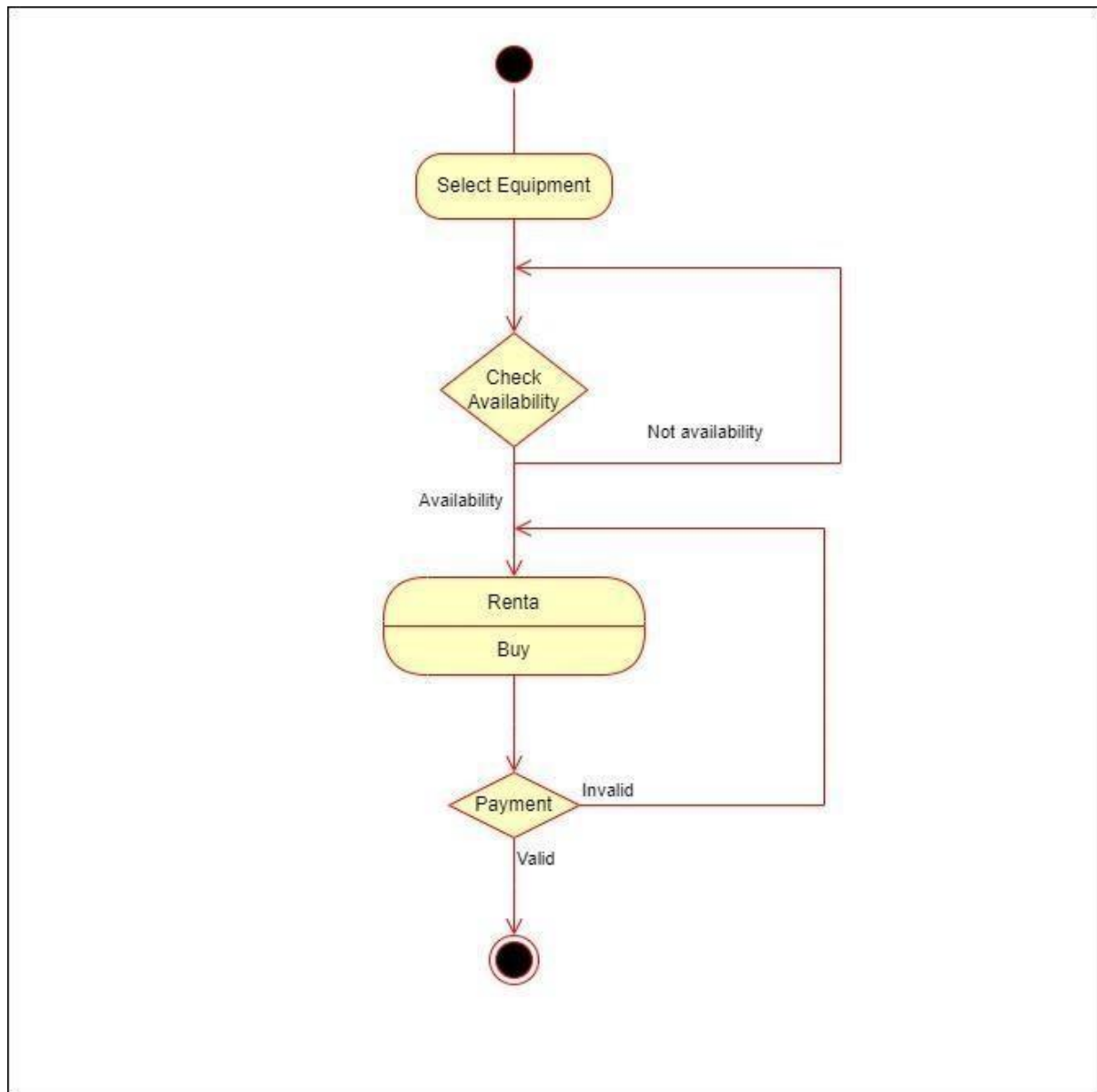
Figure 3.1 6 Sales Activity diagram

3.1.3.7. Staff Handling(IT22235688)
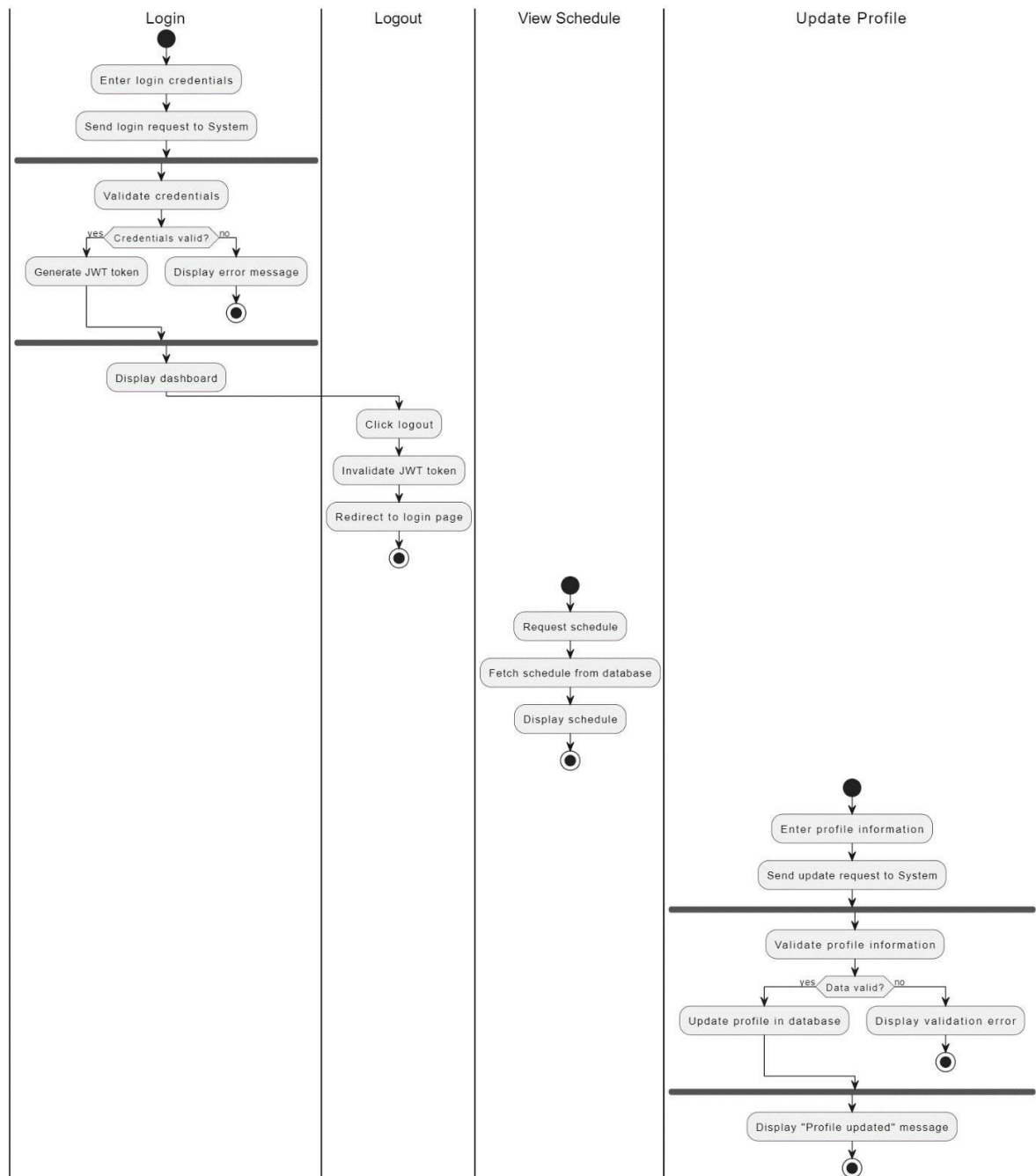
Figure 3.1 7 Staff Activity Diagram

3.1.3.8. Customer(IT22281500)
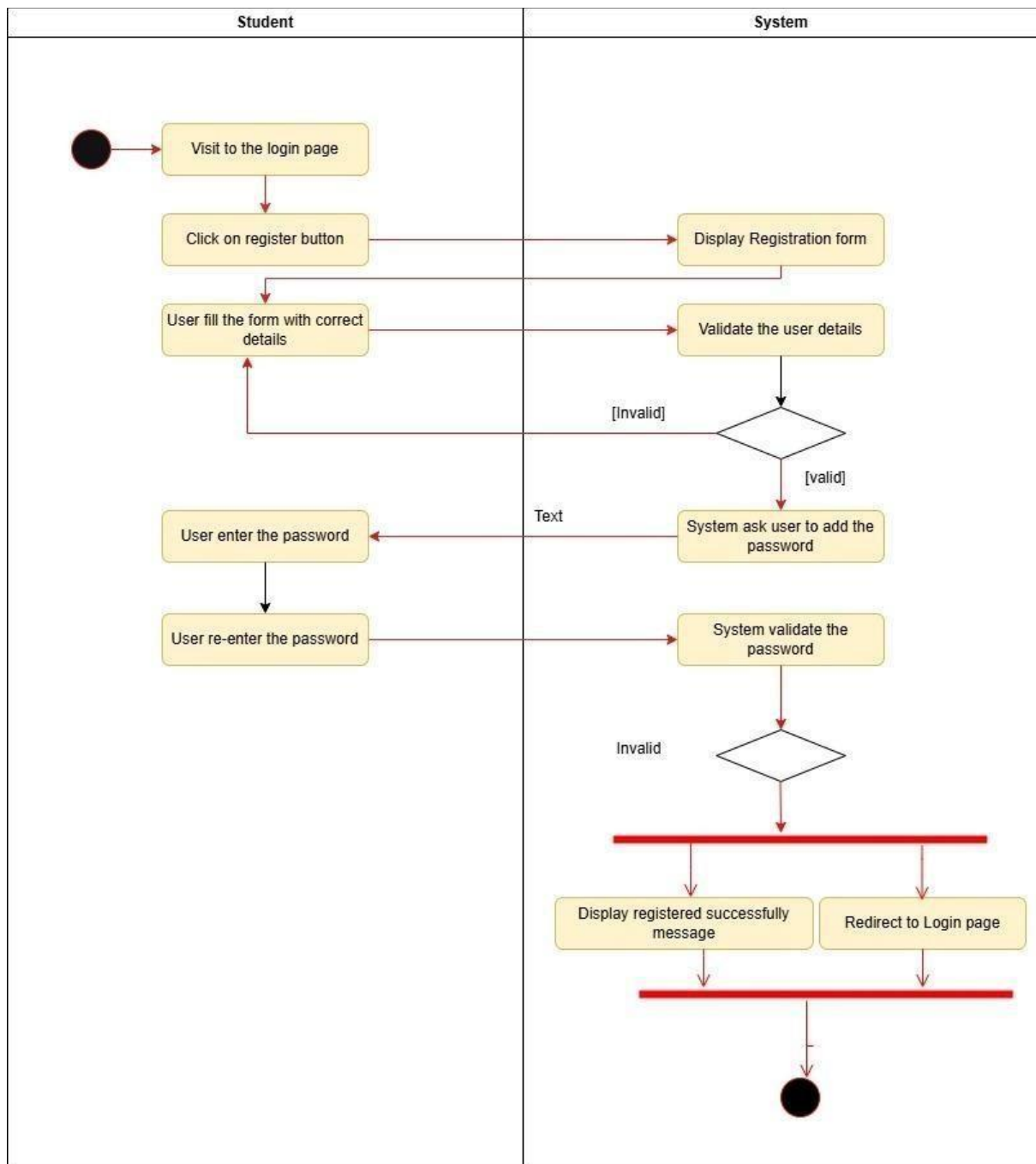
Figure 3.1 8 Customer Activity diagram

3.1.4.Sequence Diagram

3.1.4.1 Lesson management(IT22127778)
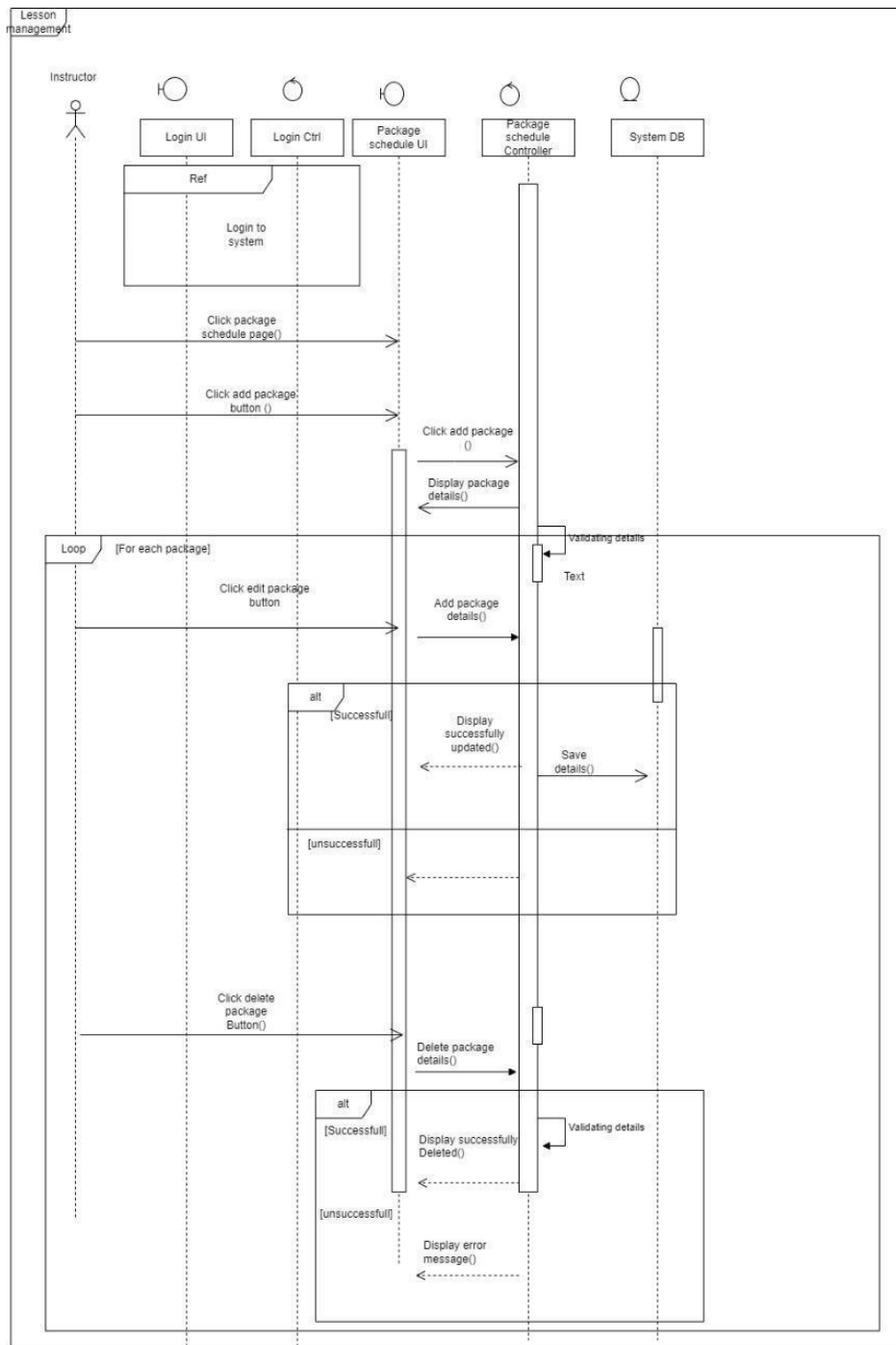
Figure 3.2 1 Lesson sequence diagram

3.1.4.2 Event planning(IT22243980)
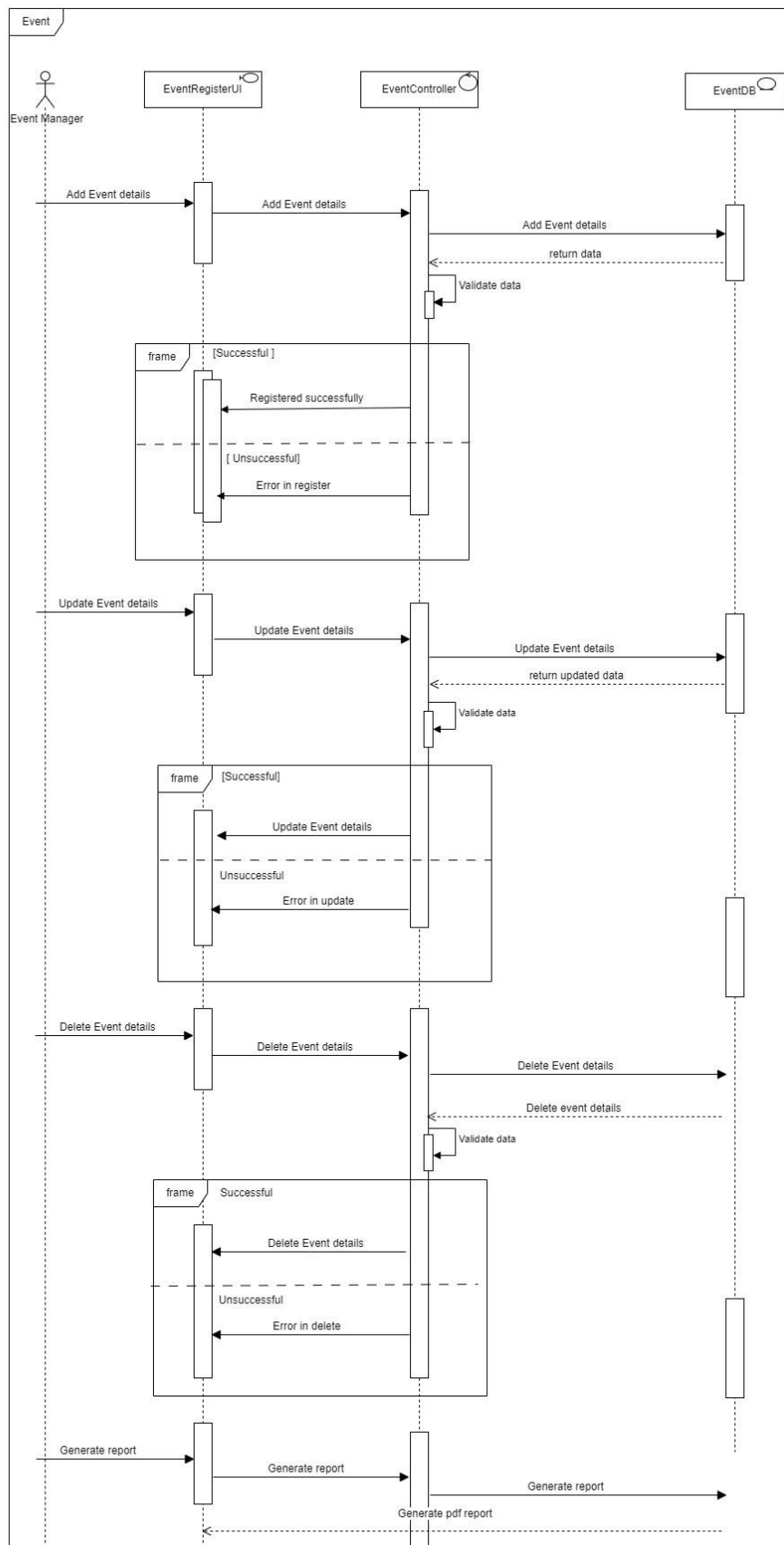
Figure 3.2 2 Event sequence diagram

3.1.4.3 Payment(IT22165848)
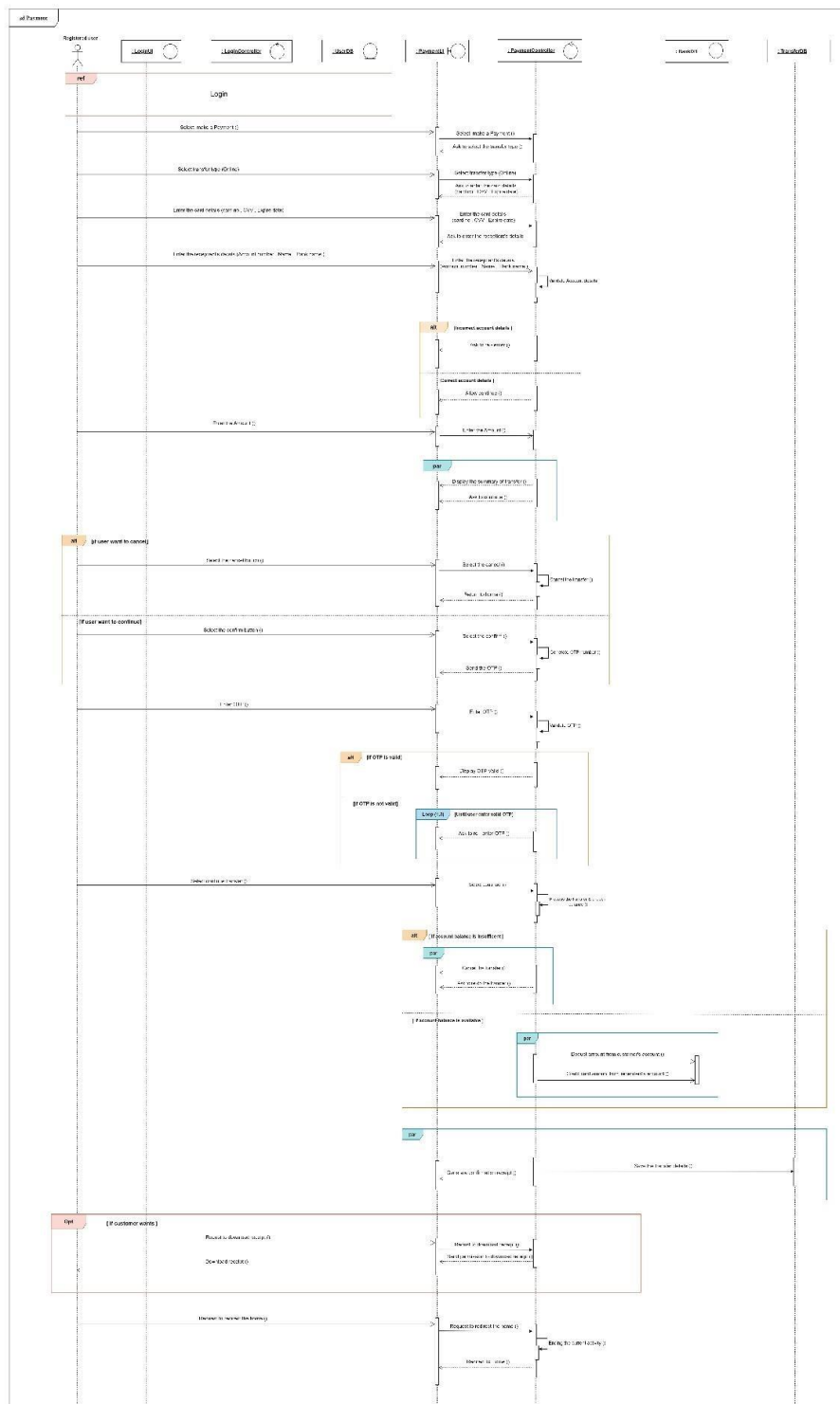
Figure 3.2 3 Payment sequence diagram

3.1.4.4 Equipment Maintenance(IT22083814)
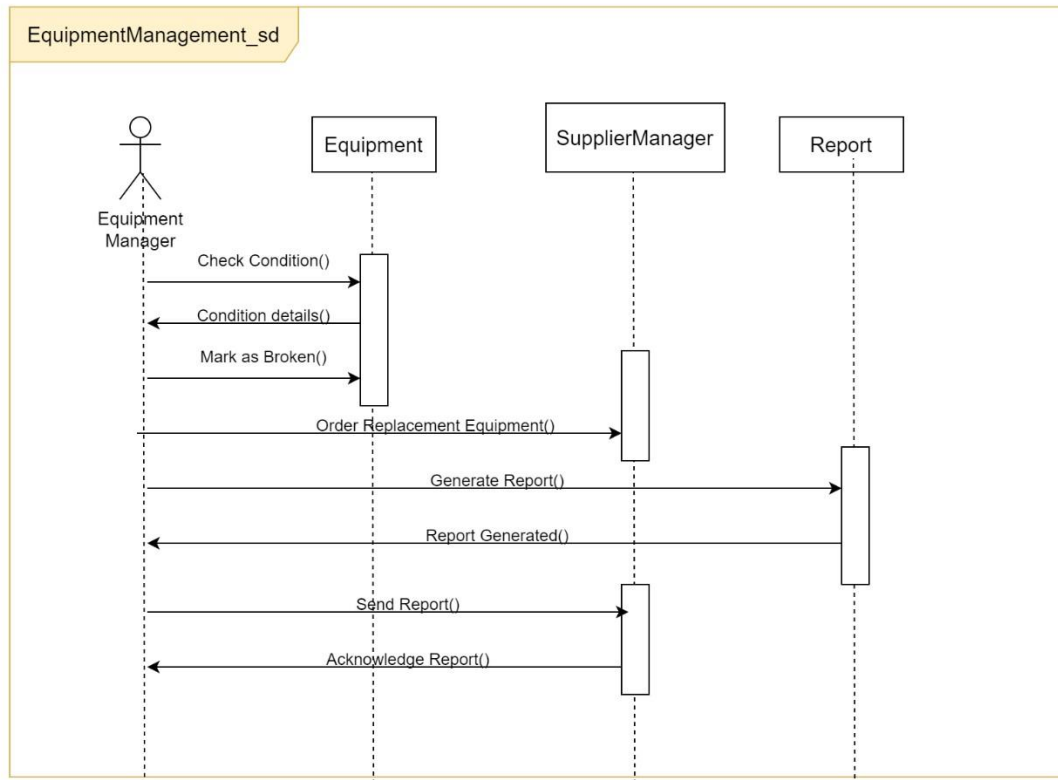
Figure 3.2 4 Equipment sequence diagram

3.1.4.5 Supplier Management(IT22168740)
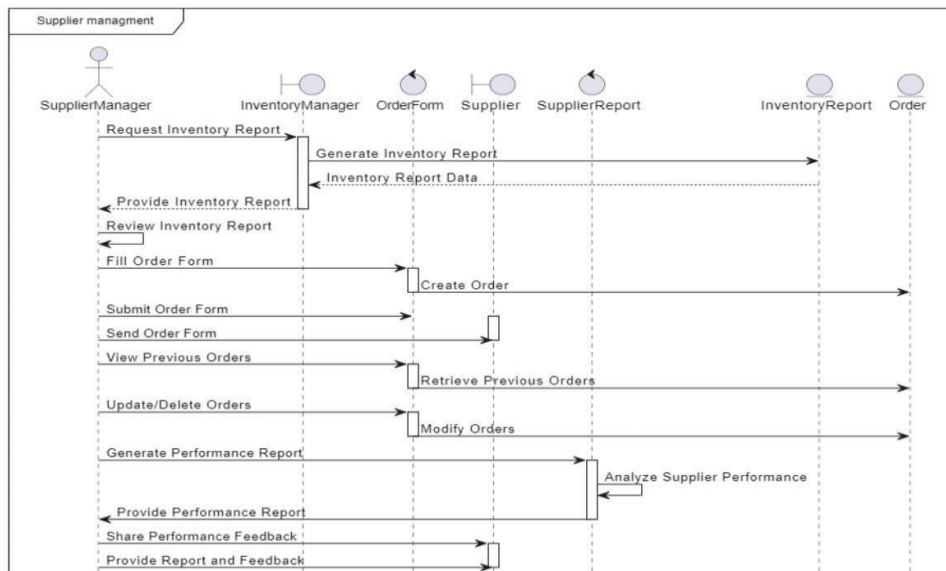
Figure 3.2 5 Supplier sequence diagram

3.1.4.6. Sales & Rental(IT22256300)
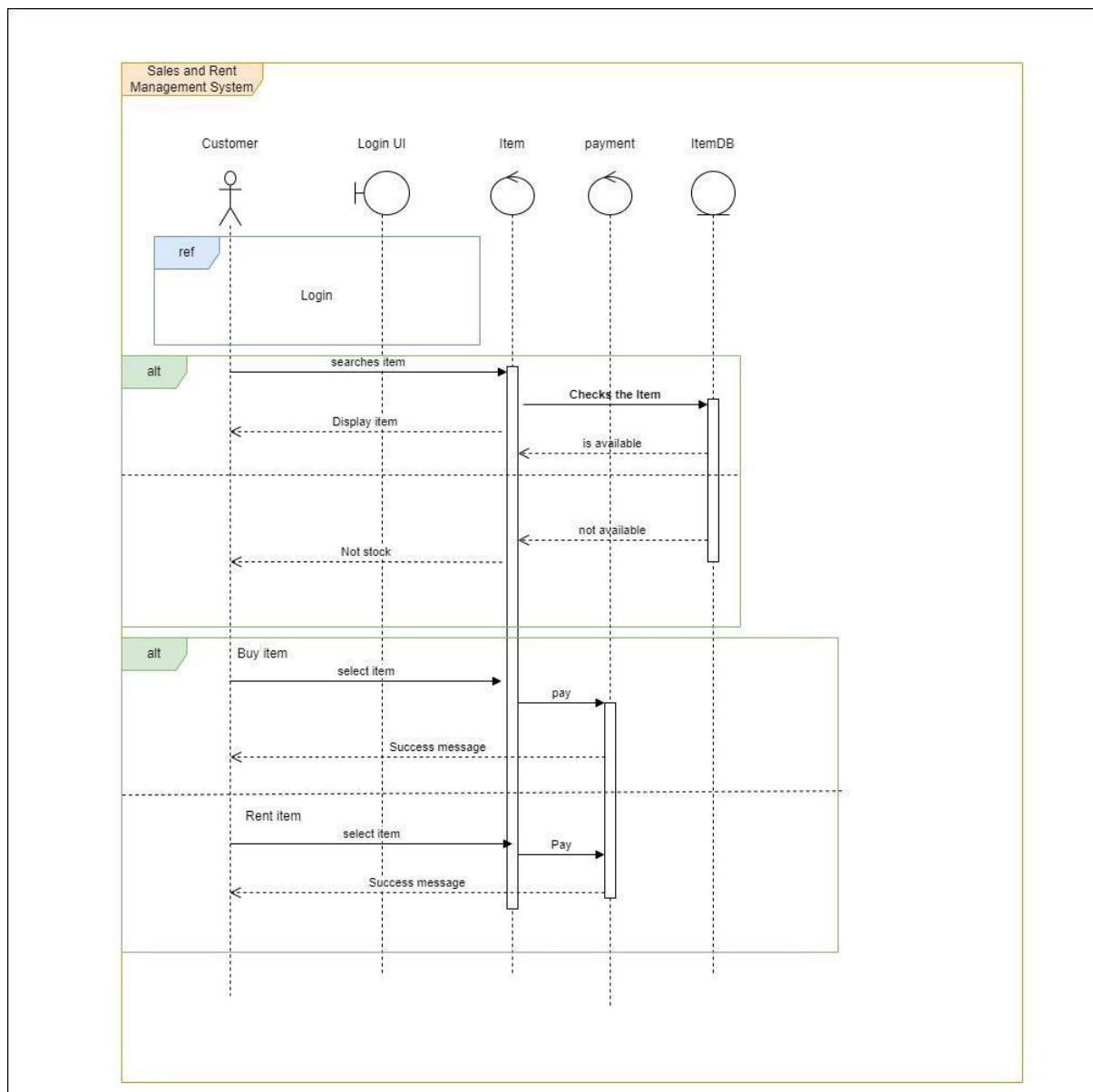
Figure 3.2 6 Sales sequence diagram

3.1.4.7. Staff Handling(IT22235688)
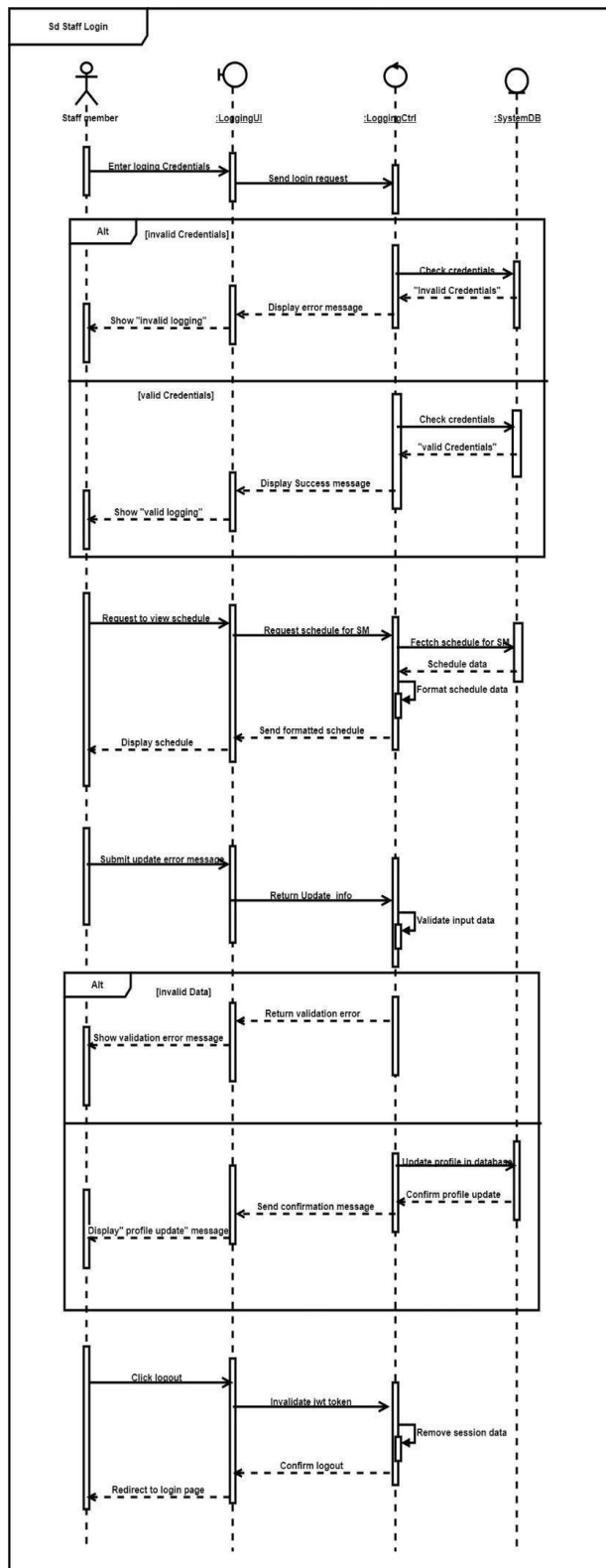
Figure 3.2 7 Staff sequence diagram

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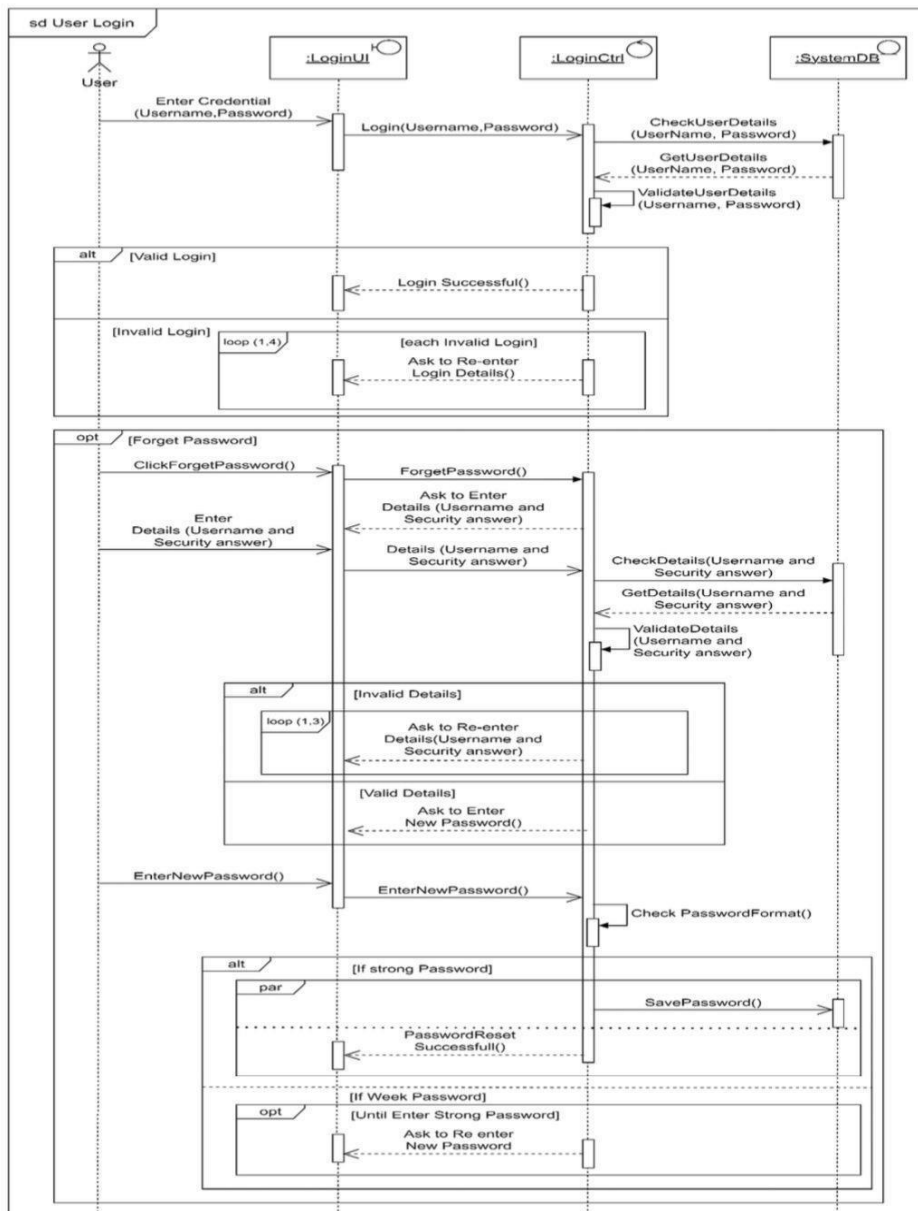
Figure 3.2 8 Customer sequence diagram

3.1.5.ER Diagram
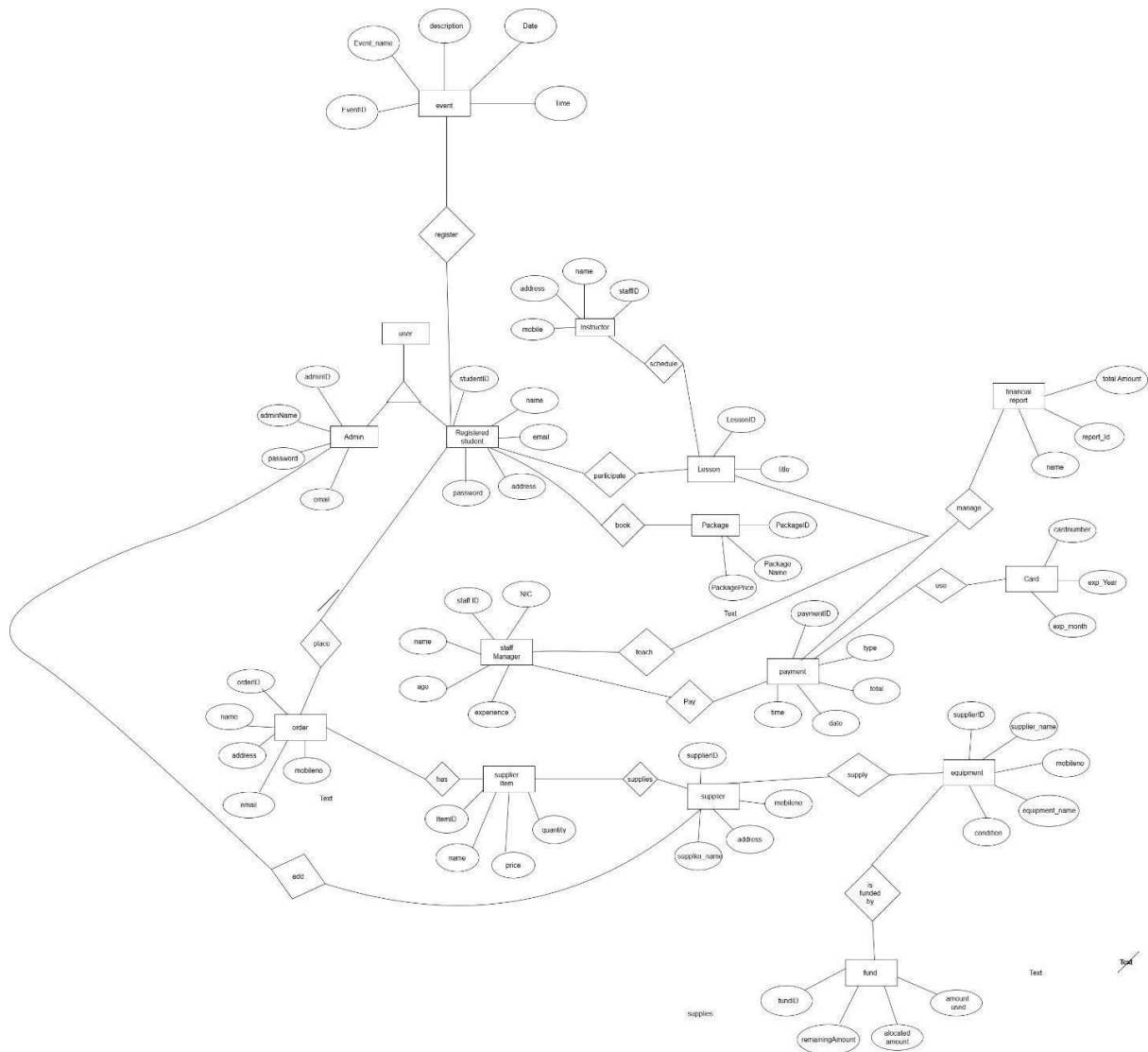
Figure 3.3 1 ER diagram

3.2 .Process

. Booking Management

- **Online Booking**: Customers book lessons/events via a user-friendly interface.

- **Availability Calendar**: Real-time display of instructor/equipment availability.

- **Booking Confirmation**: Automatic notifications sent upon booking.

- **Modifications**: Customers can modify/cancel bookings.

2. Lesson Management

- **Scheduling**: Organize lessons and assign instructors.

- **Progress Tracking**: Monitor student performance and attendance.

- **Resource Allocation**: Assign equipment for lessons.

3. Event Management

- **Event Planning**: Organize events and manage registration.

- **Promotion**: Market events via email

- **Post-Event Reporting**: Analyse attendance and feedback.

4. Payment Management

- **Secure Payments**: Online payments integrated with gateways.

- **Invoicing**: Generate invoices and track payment records.

- **Recurring Payments**: Manage subscriptions and automated reminders.

5. Supplier Management

- **Vendor Database**: Track suppliers and manage purchase orders.

- **Inventory**: Monitor supplier stock and performance.

- **Contracts**: Manage agreements and supplier communication.

6. Equipment Management

- **Inventory**: Track and manage equipment usage and availability.

- **Maintenance**: Schedule regular checks and replacements.

7. Customer Management

- **Database**: Store customer details, preferences, and booking history.

- **Support**: Offer customer service and handle inquiries.

- **Loyalty Programs**: Implement rewards for returning customers.

8. Staff Management

- **Scheduling**: Manage staff schedules and performance.

- **Training**: Provide training and monitor staff development.

- **Access Control**: Assign system access based on roles.

9. Sales Management

- **Sales Tracking**: Monitor transactions and analyse trends.

- **Promotions**: Apply discounts and special offers.

- **Reporting**: Generate sales reports for decision-making.

3.3 .workflows

Figure 3.3 2 Workflow diagram

- **User Registration and Login**:
  Users create an account by entering their personal information, including a username and password. The system verifies these credentials to ensure secure access to user accounts.

- **Package Selection and Booking**:
  Users can browse various lesson packages (e.g., beginner, advanced) and select one that suits their needs. Once selected, they add the package to their booking cart.

- **Payment Process**:
  After selecting a package, users proceed to payment, where they enter their payment details. Upon successful transaction, a confirmation of the booking is sent to the user.

- **Lesson Scheduling**:
  Users can choose an available time slot for their lesson from a calendar or schedule. This step ensures that they can attend at a convenient time.

- **Instructor Assignment**:
  The system automatically assigns an instructor based on the lesson type and instructor availability. This ensures that users receive tailored instruction based on their chosen package.

- **Equipment Allocation**:
  The necessary surfing equipment, such as surfboards and wetsuits, is reserved for the user based on their booking. This ensures all participants have the gear they need for their lessons.

- **Lesson Completed**:
  Users attend the scheduled lesson, engaging in their surfing experience with their assigned instructor.

  Event registrations

  Users select event and register to events by filling a form.

- **Feedback**:
  After the lesson, users are prompted to provide feedback on their experience, which helps the school assess the quality of instruction and equipment.

- **Staff Management (Admin)**:
  Administrators manage staff schedules and assignments, ensuring that instructors are appropriately allocated to lessons. This step is vital for smooth operation and optimal resource management.

- **Reporting and Notifications**:
  The system generates reports on various aspects, such as attendance and payments, and sends automated notifications to users regarding upcoming lessons, reminders, and updates.

3.4. Databases

Student (St_ID , Name , Email , Address , Password)

Instructor (In_ID , Name , Address , Mobile , Staff_ID)

Lesson (Lesson_ID , Title , Staff_ID , Payment_ID)

Schedule_Lesson (Lesson_ID , Location , Time , Date)

Package (Pack_ID , Pack_Name , Pack_Price , Payment_ID)

Supplier (Supplier_ID , Name, Contact , Address)

Supplier_Item (Item_ID , Name , Price , Quantity , Supplier_ID, Payment_ID)

Equipment (Eq_ID , Name , Purchase Date , Quantity , Condition, Supplier_ID , Payment_ID)

Maintanance (M_ID , Eq_ID , Task Description , Required_Date, Status)

Fund (F_ID , Eq_ID , Amount Allocated , Amount Use , Remaining Amount)

Payment (Payment ID , Amount , Date , Payment_Method , Status , St_ID , Staff ID)

Staff (Staff ID , NIC , Age , Name , Salary)

Event (Eve_ID , Name , Date , Time , Description , Payment _ID , St_ID)

Order (Order_ID , Name , Address , Email , Phone No , Payment ID)

figure 3.4 1 Databases

3.5.development aspects
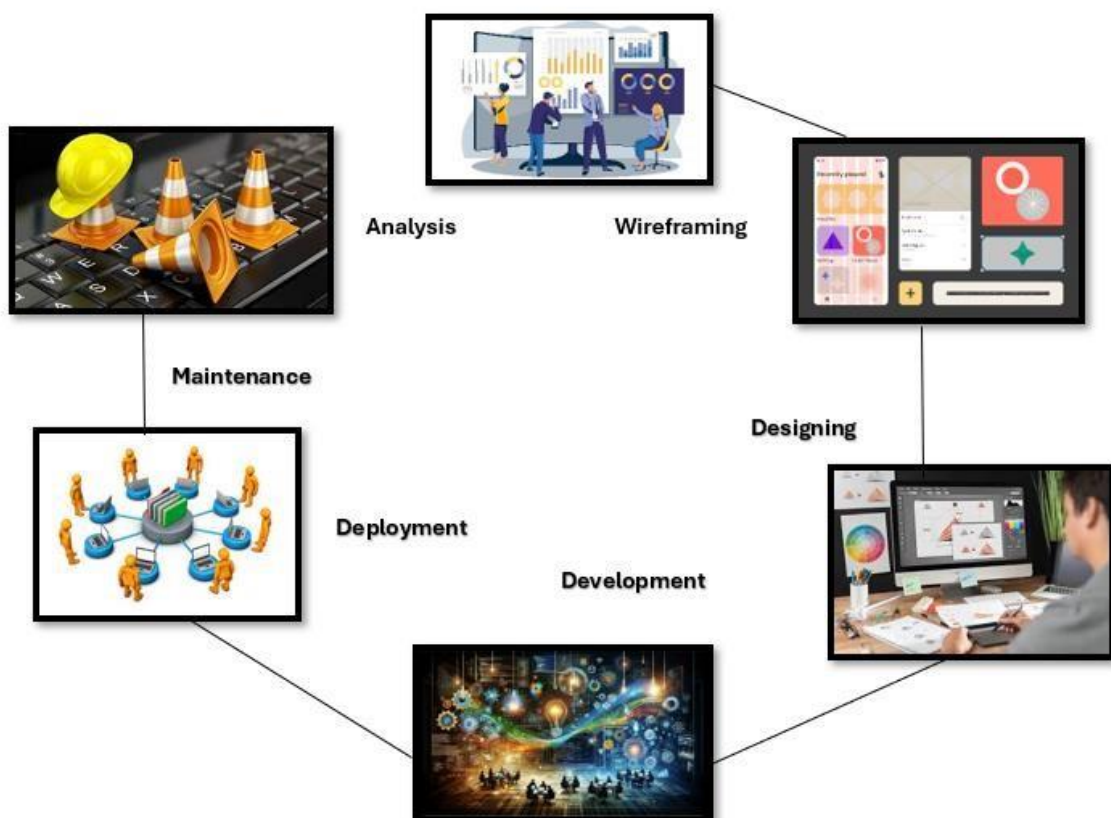
[5]

Figure 3.5 1 Development aspects

Chapter 4. Testing

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Schedule lessons

Test case ID: L001	Test case designed by, ID No: IT22127778 Name: Chavindee M.A.P
Test Priority (High/Medium/Low)	High

Test Description: Lesson management function is created to schedule lessons in the system.
After add details instructor can be view ,update & delete lessons

Test Steps:

    1.Login to dashboard .
    2.Navigate to lesson management section by giving correct credential to instructor login.
    3.click on add lesson button & fill lesson form .
    4.After filling form click on Schedule button .

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
L001	• Lesson name • Date • Time • Location • Description	Details of newly Schedule lesson shown in dashboard side Lesson list table & User side lessons page .	Shown schedule lessons as a notice in user side under lessons page . Details of newly schedule lessons shown in lesson list table including lesson ID	Pass	Lesson scheduling part work as expected
L002	• Invalid date	Instructors are not allow to select past dates .	When instructor select past date this day is not display in the form	pass	Scheduling date is work as expected

Table 4 1 Schedule lessons test case

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Generate lesson details report

Test case ID: L002	Test case designed by,
	ID No: IT22127778
	Name: Chavindee M.A.P

Test Priority (High/Medium/Low)	High

Test Description: Lesson details report generation part is created to view full schedule at one time

Test Steps:

1.Login to dashboard .
2.Navigate to lesson management section by giving correct credential to instructor login.
3.Lesson list button
4.After click on generate report button

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
L002		Get full lesson detail report	Shown full set of schedule lessons as a table. Details of newly schedule lessons shown in lesson report with the generated time ,date & instructor signature as a proof	Pass	Lesson report generation part is working as expected

Table 4 2 Generate lesson report test case

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Event management

Test case ID: EM001	Test case designed by, ID No: IT22243980 Name: Wickramarachchi T.T.
Test Priority (High/Medium/Low)	High

Test Description: Register for an event

Test Steps: 1.Go to event dashboard and click the event want to register.

2.Fill the registration form with valid details and submit.

3.click send mail button and send details to user by a mail

4 admin dashboard and view registered details and update and delete

5.genarate a report of daily registered students

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
	Event name, Student name, date ,age, gender, Gmail	Details of register event should be visible on both student and admin side.	Details of new events are visible on both student and admin side Event List interface	pass	Add New registered Event function is working properly
	Download report successfully	Display an error message, as 'Date should be a future date. Please select date again'	. 'Please select a future date (you are currently using past date)' message is displayed	Pass	Valid details should be entered to successfully add new event.

| | Update event with valid details | Display alert as 'Details updated successfully' | Display alert as 'Details updated successfully' | Pass | Update Event function is working properly |
| | Generate a pdf report | Download report successfully | Download report successfully | pass | Pdf report is generate properly |

Table 4 3 Register event test case

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Payment Management

Test case ID: PM001	**Test case designed by,** **ID No:** IT22165848 **Name:** Hettiarachchi A T
Test Priority (High/Medium/Low)	High

Test Description: Verify that users can successfully make payments and download their payment summaries.

Test Steps:

1. The user navigates to the payment page.

2. User selects a payment method and enters valid payment details.

3. User submits the payment.

4. User clicks "Download Payment Summary."

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
PM001 - 01	User logs in and navigates to the payment page.	Payment pages should be loaded with user payment options.	Payment page loaded correctly.	Pass	Page loaded with correct design and options available.
PM001 - 02	User selects credit card as payment method and enters valid card details.	Payment should be successfully processed.	Payment successfully processed.	Pass	Verified with valid card details; worked as expected.
PM001 - 03	User clicks on "Download Payment Summary".	PDF of payment summary should download.	PDF downloaded successfully.	Pass	File downloaded in proper format and contained accurate details.

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Payment Management

Test case ID: PM002	**Test case designed by,** **ID No:** IT22165848 **Name:** Hettiarachchi A T
Test Priority (High/Medium/Low)	High

Test Description: Verify that financial manager can view payment reports, edit payment statuses, and delete payment details.

Test Steps:

1. Financial manager navigates to the "Payment Reports" section.

2. The Financial Manager reviews payment charts and user payment details.

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3. Financial Manager edits a user's payment status.

4. The Financial Manager deletes completed user payment detail.

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments

PM002 - 01	Financial manager logs in and navigates to payment report section.	The payment report page should be loaded with charts and user payment details.	Payment report page loaded with charts and Total amount of payments.	Pass	All charts, payment data and total amount calculation were displayed correctly.
PM002 - 02	Financial Manager edits payment status for a user.	Payment status should be updated and reflected in the report.	Payment status updated successfully.	Pass	Status reflected in both user details and report.
PM002 - 03	The financial manager deletes a completed payment detail.	Payment details should be removed from the list.	Payment detail deleted successfully.	Pass	Details are no longer visible, data integrity maintained.

Table 4 4 Payment management test case

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Equipment Management – Add Maintenance Request

Test case ID: EQM001	Test case designed by, **ID No:** IT22083814 **Name:** Chandrasena H.P
Test Priority	High

Test Description: Add new equipment maintenance request

Test Steps:

1. Go to the "Add Maintenance Request" interface.

2. Fill in the form with relevant details (equipment name, required date, task, quantity, fund).

3. Click the "Submit" button.

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
EQM_001	Equipment name, date, task, quantity, available fund	Details of the maintenance request should be displayed in the equipment management table.	Maintenance request details visible in table	Pass	Add request function works fine

EQM_002	Invalid date format	An error message should be displayed saying "Invalid date format."	Error message appears	Pass	Date format validation works
EQM_003	Missing equipment name	An error message should be displayed saying "Equipment name required."	Error message appears	Pass	Field validation works
EQM_004	Invalid quantity input	An error message should be displayed saying "Invalid quantity number."	Error message appears	Pass	Quantity input validation works
EQM_005	Insufficient available funds	An error message should be displayed saying "Insufficient funds available."	Error message appears	Pass	Fund validation works

Table 4 5 Equipment management test case

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Supply Management – Add Supplier Information

Test case ID:

SUP001

Test case designed by,

ID No: IT22168740

Name: Hewanayake H M L M

Test Priority | High

Test Description: Add new supply details

Test Steps:

1. Go to the "Add New Supplier" interface.

2. Fill in the form with relevant details (supplier name, contact number, address, supply items).

3. Click the "Submit" button.

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
SUP_001	Supplier name, contact number, address, supply items	Supplier details should be displayed in the supply management table.	Supplier details visible in the table	Pass	Add supplier function works fine
SUP_002	Invalid contact number format	An error message should be displayed saying "Invalid contact number format."	Error message appears	Pass	Contact number validation works

SUP_003	Missing supplier name		Error message appears	Pass	Field validation works
		An error message should be displayed saying "Supplier name required."			
SUP_004	Missing address		Error message appears	Pass	Address validation works
		An error message should be displayed saying "Address required."			
SUP_005	Missing supply items		Error message appears	Pass	Supply items validation works
		An error message should be displayed saying "Supply items required."			
SUP_006	Duplicate supplier entry		Error message appears	Pass	Duplicate entry validation works
		An error message should be displayed saying "Supplier entry already exists."			
SUP_007	Invalid supply item details		Error message appears	Pass	Supply item input validation works
		An error message should be displayed saying "Invalid supply item details."			

Table 4 6 Supplier management test case

Project Name: Surfing School Management System – SurfDeck					
Testing Function: Order surfboard					
Test case ID: S007			Test case designed by, ID No: IT22256300 Name: Ashan P.G.S		
Test Priority (High/Medium/Low)			High		
Test Description: Customer can select and order a surfboard					
Test Steps: 1. Navigate to "Surfing Board" page. 2. View available surfboards. 3. Select a surfboard. 4. Click "Order Now". 5. Fill out order form. 6. Submit the order. 7 Confirmation message is displayed.					
Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
S008	Customer clicks "Order Now" button	The system navigates to the "Place Your Order" form	As expected	Pass	Navigation works smoothly. No delays in loading the order form.
S009	Customer fills out name, email, address, phone, and payment info	The system processes the inputs and enables the "Submit Order" button.	As expected.	Pass	Form validation works correctly. All required fields are validated before submission.
S0010	Customer clicks "Submit Order" button	Order is successfully submitted, and confirmation is displayed	As expected	Pass	Order is submitted without issues. Confirmation message is clear and concise.

Table 4 7 Sales management test case

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Staff Manager

Test case ID: SM001	Test case designed by, ID No: IT22235688 Name: Perera K.T.K

Test Priority (High/Medium/Low)	High

Test Description: Add New Staff Member

Test Steps: 1. Go to "Add New Staff Member " Page.

2. Fill the form with relevant details.

3. Click "Submit" button.

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
SM001	Name Gmail Age Address Experience Password Nic Salary Designation	Details of the new staff member displayed in both admin and staff interfaces	Details of the new Staff member are visible in both admin and staff pages	Pass	Add new staff member function is working properly.
SM002	Invalid email	Should display an error message : "Invalid email format"	.Display an error message : " Invalid Email format "	Pass	Email format Should be valid .
SM003	Missing required Fields (e.g. Staff member name)	Should display an error message : "Field is required "	Display error message : " Field is required "	Pass	All required fields must be filled .

Table 4 8 Staff management test case

Project ID: ITP24J_B04_07	
Project Name: Surfing School Management System – SurfDeck	
Testing Function: Add New Student	
Test case ID: GM002	**Test case designed by,** **ID No: IT22281500** **Name: B.M.V.Sandareka**
Test Priority (High/Medium/Low)	High
Test Description: Add New Student to the System	
Test Steps: 1. Go to "Add New Student" interface. 2. Fill the form with relevant details (Name, Age, Contact, etc.). 3. Click "Add Student" button.	

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
	Student name, email, contact number, address	Details of the new student should be displayed in the student list.	Details of the new student are visible on both admin and user interfaces.	Pass	Add new student function is working properly.

Table 4 9 Customer test case

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Update New Student

Test case ID: GM003	Test case designed by,
	ID No: IT22281500
	Name: B.M.V.Sandareka

Test Priority (High/Medium/Low)	High

Test Description: Update Student Details to the System

Test Steps:

1. Go to "Update Student" interface.
2. Edit the student details.
3. Click "Update" button.

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
	Update Student name, email, contact number, address	updated Details of the student should be displayed in the student list.	Updated Details of the new student are visible on both admin and user interfaces.	Pass	Update student function is working properly.

Project ID: ITP24J_B04_07

Project Name: Surfing School Management System – SurfDeck

Testing Function: Login Function

Test case ID: GM004	Test case designed by, ID No: IT22281500 Name: B.M.V.Sandareka

Test Priority (High/Medium/Low)	High

Test Description: System should allow authorized users to access the system.

Test Steps:

1. Go to "Login" interface.
2. Enter valid credentials (username and password).
3. Click "Login" button.

Test ID	Test Inputs	Expected Outputs	Actual Output	Result (Pass/Fail)	Comments
	Valid email and password	User should be redirected to the Home page.	User is redirected to the Home Page	Pass	Login Function is working properly.
	Valid email Invalid Password	Should be displayed a message as 'Invalid Password'. .	. Display a message as 'Invalid Password'.	Pass	System denies unauthorized users.

Table 4 10 Login test case

Chapter 5. Evaluation & Conclusion

The implementation of the "SurfDeck" Surfing School Management System has proven to be an efficient and effective solution for streamlining various operations within the surfing school facility. This section provides a comprehensive evaluation of the system's functionality, its impact on the dayto-day operations of the school, and the overall benefits it has delivered to the organization.

"SurfDeck" addresses the diverse needs of the school by offering a wide range of features. These include payment management, equipment management, staff and workload management, event management, lesson and reservation scheduling, supplier management, and customer chain management. Each of these functions works together to ensure that the school's operations are smooth and well-coordinated.

The system also generates detailed reports, manages payments and reservations efficiently, tracks equipment rentals, and monitors staff workload. Through this functionality, "SurfDeck" fulfills its primary goal of automating and optimizing essential tasks that were previously handled manually.

The introduction of "SurfDeck" has significantly improved the efficiency and productivity of the school's operations. The system's reliable performance, user-friendly interface, and robust features have allowed the school to focus more on delivering high-quality surfing lessons and customer service, rather than getting bogged down in administrative tasks.

In particular, "SurfDeck" excels in managing critical operations such as billing, reporting, lesson booking, event organization, and equipment maintenance. This has freed up school staff to focus on delivering better services to customers, ultimately improving the overall experience for both staff and members.

To ensure the system continues to perform optimally, regular updates and maintenance are recommended. Promptly addressing any issues or bugs will ensure the system remains reliable. Additionally, gathering regular feedback from both staff and customers will provide valuable insights into areas for future improvement and enhancements.

In conclusion, the implementation of the "SurfDeck" Surfing School Management System has been a significant success. The school's operations are now more streamlined and efficient, with improved resource management, task automation, and customer satisfaction. "SurfDeck" has become an essential tool for managing all aspects of the surfing school, contributing to a more organized and enjoyable experience for both staff and members.

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Work Contribution

ID Number & Name	Task
IT22127778 Chavindee M.A.P	- Lesson management use case diagram - Lesson management Activity diagram - Lesson Management sequence diagram - Test cases for lesson management
IT22281500 B M V Sandareka	- Customer use case diagram Customer Activity diagram - Customer sequence diagram - Test cases for customer
IT22243980 Wickramarachchi T T	- Event planning use case diagram Event planning Activity diagram - Event planning sequence diagram - Test cases for event planning
IT22165848 Hettiarachchi A T	- Payment use case diagram Payment Activity diagram - Payment sequence diagram - Test cases for Payment management
IT22256300 Ashan P G S	- Sales use case diagram - Sales Activity diagram - Sales sequence diagram - Test cases for Sales management
IT22083814 Chandrasena H P	- Equipment use case diagram Equipment Activity diagram - Equipment sequence diagram

	• Test cases for Equipment management
IT22168740 Hewanayake H M L M	• Sales use case diagram Supplier • Activity diagram • Supplier sequence diagram • Test cases for Supplier management
IT22235688 Perera K.T.K	• Staff use case diagram Staff • Activity diagram • Staff sequence diagram • Test cases for Staff management