



**TRAVEL
MANAGEMENT /
REIMBURSEMENT**



**A
PROJECT/ INDUSTRIAL
INTERNSHIP REPORT**

Submitted by
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12002040701133

In partial fulfilment for the award of degree of
BACHELOR OF ENGINEERING

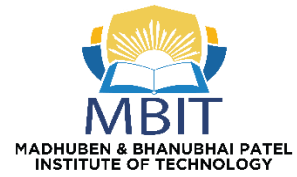
in

**Department of Computer Engineering
Madhuben & Bhanubhai Patel Institute of Technology,
New V. V. Nagar**

CVM University,

Anand

April, 2024



**Madhuben & Bhanubhai Patel Institute of
Technology**

New Vallabh Vidhyanagar, Anand

CERTIFICATE

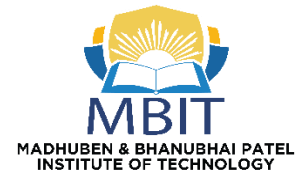
This is to certify that the report submitted along with the project/industrial internship entitled **Travel Managment / Reimbursement** has been carried out by **Rajveersinh B. Mahida** under my guidance in partial fulfilment for the degree of Bachelor of Engineering in **Computer Engineering**, 8th Semester of CVM University, Anand during the academic year 2023-24.

Prof. Shraddha Korvadiya

Internal Guide

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Madhuben & Bhanubhai Patel Institute of Technology

New Vallabh Vidhyanagar, Anand

DECLARATION

We hereby declare that the report submitted along with the project/industrial internship entitled **Travel Managment / Reimbursement with ReactJS** submitted in partial fulfilment for the degree of Bachelor of Engineering in Computer Engineering to CVM University, Anand, is a bonafide record of original project work carried out by me / us at Tech Elecon Pvt. Ltd. under the supervision of **Dy. General Manager** and that no part of this report has been directly copied from any students' reports or taken from any other source, without providing due reference.

Name of the Student

Rajveersinh B. Mahida

Sign of the Student

ACKNOWLEDGEMENT

I extend my heartfelt gratitude to **Mr. Satyam Raval, Deputy General Manager**, for his unwavering guidance and patient clarification of my queries at the company. This project owes its current form to the invaluable assistance, direction, and encouragement of numerous individuals, whom I wish to sincerely thank. My deepest appreciation goes to our mentor at Tech Elecon Pvt Ltd, whose guidance proved instrumental in all project-related endeavors.

I'm especially thankful to **Prof. Shraddha Korvadiya** and **Dr. Shitalben Gondaliya** for their support and encouragement. They've been like cheerleaders, pushing me forward when I needed it most. And a huge thanks to the company folks who let me use all the important resources I needed during my internship.

So, a big thank you to everyone at Tech Elecon Pvt. Ltd. for all your support while I worked on this project.

Your Sincerely,

Rajveersinh B. Mahida

ABSTRACT

The project is a Travel Management and Reimbursement system implemented in React. The system revolves around a centralized database named "whole_company" that stores information about employees, project managers, HR, and HODs, each identified by a unique ID. Upon accessing the site, employees are redirected to the home page, where they can either register or log in.

The registration process involves entering personal details, and validation against the "whole_company" database ensures uniqueness of key information. Once registered, the data is stored in the "travel_management" database.

The login page verifies credentials against the "travel_management" database. Upon successful login, the navbar dynamically adjusts based on the employee's role, displaying relevant options such as adding a trip, checking trip status, or approval options for higher roles.

Adding a trip involves filling a form with details like project name, dates, and duration. The trip request goes through a hierarchy of approval, starting with the project manager, then HR, and finally HOD. After HOD approval, the finance management books the ticket.

Post completion of the trip, employees can request reimbursement, which follows a similar approval process involving project manager, HR, and HOD. Upon HOD approval, the finance management processes the reimbursement, adding the amount to the employee's salary.

In summary, the project streamlines travel management and reimbursement processes within the company, ensuring secure registration, role-based access, and a structured approval flow for trip requests and reimbursements.

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CHAPTER 1

COMPANY OVERVIEW



Address: Anand - Sojitra Road, Vallabh Vidhyanagar

1.1 OVERVIEW OF THE COMPANY

Tech Elecon Pvt. Ltd is the IT division of the Elecon group of companies and has more than 25 years of experience in the fields of hardware, software, and networking solutions. Situated in the heart of Vitthal Udyognagar Industrial Estate and in the proximity of the educational town of Vallabh Vidyanagar. Tech Elecon is all set to reach new heights in the field of IT solutions.

Tech Elecon is ready with all sorts of solutions and deliver any application that is web based and further our solutions are designed to adapt your business rather than your business adapting the software. Their solutions are 100% fruitful and empower you to take control of client's business online and in real time!

Tech Elecon have more than 100 employees with specialized skills in software development, custom software development, and e-commerce software development using custom software programming including .NET, C#.NET, PHP, and Open Source and Oracle.

Tech Elecon delivers quality products and services with a focus on integrating the same with existing technologies, providing the required automation to our customers to help them achieve their business objectives. Mr. Nilesh Naik, the company's general manager, is at the helm of the Techelecon organization.

Mr. Satyam Raval, as Senior Manager, and after that, Manager and Associate Manager Positions are listed. At the bottom, there are trainees at entry level,

who follow up to engineer, senior engineer, also executive and senior executive engineer.

1.2 DIFFERENT SERVICES OF THE COMPANY

Tech Elecon has extensive experience in providing IT services and has successfully adapted to technological advancements, making it the leading IT infrastructure management service provider in the region. Our cutting-edge delivery model covers all stages of the solution lifecycle, including planning, deploying, managing, maintaining, auditing, upgrading, and improving.

Tech Elecon recognize that each client has unique needs and expectations when it comes to infrastructure and service providers. Our clients have the flexibility to choose from a wide range of IT infrastructure management and performance services based on their specific requirements. They can opt for on-site services or hybrid solutions that include on-site troubleshooting and support services.

Tech Elecon Provide Following Service for Business:

- Hardware maintenance and repairing
- Service desk management
- Desktop management
- Network management
- Messaging administration
- Back-up management

Other Services:

- Software Development Services
- Software Licensing
- Microsoft Product Implementation
- Linux Servers / Desktop Implementation

1.3 CAPACITY OF COMPANY

Currently our company holds over more than 100 employees. But as the company is growing rapidly, capacity is going higher and higher.

CHAPTER 2

DIFFERENT DEPARTMENT OF COMPANY

2.1 DIFFERENT DEPARTMENT

2.1.1 ERP: The ERP (Enterprise Resource Planning) department is responsible for implementing, maintaining, and upgrading the ERP system in an organization. The ERP system integrates various business processes such as accounting, human resources, procurement, inventory, and customer relationship management into a single system to increase efficiency and streamline operations. The ERP department works closely with other departments to ensure the system meets the organization's needs and provides support and training to end-users.

2.1.2 Software: This department is responsible for maintaining the company's IT infrastructure and supporting employees. They develop web applications using technologies such as .Net and ReactJS and provide technical assistance to clients and employees to resolve any issues they may encounter. Their focus is to ensure smooth functioning of the IT systems and provide reliable technical support to the organization.

2.1.3 Networking and Hardware: The hardware department is responsible for the physical components of a computer system, including design, construction, maintenance, troubleshooting, and repair, while the network department is responsible for the setup, configuration, and maintenance of computer networks, including hardware and software components, protocols, addressing, security, monitoring, and troubleshooting.

2.2 SEQUENCE OF OPERATION FOR MANUFACTURING OF END PRODUCT

Main end product of our company is mostly the software. Software is a very different thing other than industry's End products. Its process is very different. The main flow of software development is as per below:

2.2.1 Client requirement understanding: First step to build something is to know what to build. Especially in the case of software it is very important to understand the client requirement completely as if the requirement changes, then it will create huge problems in later part of the development. Often a requirement document is created which is called a client requirement document to make things clearer.

2.2.2 Planning: Second step to build something is to know how to build. In software development, we need to decide the entire flow of the process like which technology stack will be used? Which type of architecture will be used? Etc.

2.2.3 Development: After sufficient planning comes the development part. In this part actual software is built. Or at least part of the software is built in methods like agile delivery methods.

2.2.4 Review and QA: Internal review and QA is done to ensure the quality of the final product as in software in this case. It also helps to identify the bugs before releasing the software.

2.2.5 Release or Deployment: In this phase the software is delivered to the client either the direct code or hosted service.

2.2.6 Maintenance: This part comes in picture after the final delivery of the software. This phase includes tasks such as making sure the service is always running, bug fixes etc.

2.3 DIFFERENT STAGES OF PRODUCTION

At our company we mostly use an agile development process in which the software is delivered in different parts or phases which are called the sprints. Each sprint contains the upgraded version of the software, and it is kept upgrading unless we reach the final product. AGILE CYCLE.

CHAPTER 3

INTRODUCTION OF PROJECT

3.1 OBJECTIVE OF INTERNSHIP

Seeking a challenging and rewarding Winter Internship opportunity to apply and enhance my academic knowledge in ReactJS Developing within a dynamic and innovative organization. Eager to contribute my specific skills and experiences to a collaborative team, learn from industry professionals, and gain practical insights into real-world applications. Aspiring to leverage this internship to further develop my skills, explore new areas of interest, and make meaningful contributions to the success of the organization.

3.2 OBJECTIVE OF PROJECT

The objective of this project is to conduct a thorough analysis and assessment of the Travel Management and Reimbursement System implemented in React. The project aims to comprehensively evaluate the design, functionality, and overall effectiveness of the system in streamlining the processes of travel request management and reimbursement within the organization.

The report intends to offer a detailed overview of various aspects of the system, including its features, user interface, and performance metrics. The primary goal is to provide valuable insights and recommendations that can enhance the system's impact on organizational efficiency and employee satisfaction.

Furthermore, the report will identify and highlight potential areas for improvement, ensuring that the Travel Management and Reimbursement System aligns seamlessly with the operational needs of the organization. The ultimate objective is to contribute positively to the overall workflow, creating a robust and user-friendly solution that meets the specific requirements of the company's travel management and reimbursement processes.

3.3 SCOPE OF THE SYSTEM

The scope of the Travel Management and Reimbursement System project encompasses various components and functionalities aimed at optimizing travel-related processes within the organization. The key elements within the scope include:

3.3.1 User Registration and Authentication: Secure and user-friendly registration and login functionalities. Validation against the central "whole_company" database to ensure unique employee information.

3.3.2 Role-Based Access Control: Dynamic adjustment of the user interface based on the employee's role. Role-specific options and information display in the navbar after login.

3.3.3 Trip Management: Submission and management of employee trips through a detailed form. Hierarchical approval workflow involving project manager, HR, HOD, and finance management. Automatic ticket booking by the finance management upon trip approval.

3.3.4 Reimbursement Process: Reimbursement request initiation after completing a trip. Approval workflow through project manager, HR, HOD, and finance management. Addition of approved reimbursement amount to the employee's salary.

3.3.5 Database Integration: Utilization of two databases ("whole_company" and "travel_management") for storing and retrieving employee information. Ensuring data consistency and integrity across the databases.

3.3.6 User Interface: Intuitive and user-friendly interface for seamless navigation. Clear and transparent presentation of trip status and reimbursement processes.

3.3.7 Automated Redirection: Automatic redirection upon successful login to a personalized home page. Dynamic adjustment of the navbar based on the employee's role.

3.3.8 Data Validation: Rigorous validation of user input during registration and form submissions. Prevention of duplicate entries and unauthorized access.

3.3.9 Performance Metrics: Tracking and reporting on system performance metrics, such as response times and user interactions.

3.3.10 Integration with Finance Management: Seamless integration with finance management for automated ticket booking and reimbursement processing.

3.3.11 Insights and Recommendations: Comprehensive analysis and evaluation to provide insights and recommendations for system optimization. Identification of potential areas for improvement to align with organizational operational needs.

The project's scope is designed to deliver a holistic solution that streamlines travel management and reimbursement processes, ensuring efficiency, transparency, and user satisfaction within the organization.

3.4 PURPOSE OF THE SYSTEM

The purpose of the Travel Management and Reimbursement System project is to establish a robust and efficient solution for managing the end-to-end processes associated with employee travel and reimbursement within the organization. The key purposes of the project include:

3.4.1 Streamlining Travel Processes: Simplify and streamline the procedures related to employee travel, starting from trip request initiation to approval and ticket booking.

3.4.2 Enhancing User Experience: Provide a user-friendly interface for employees to register, log in, and seamlessly navigate through the system. Optimize the user experience during the trip request submission, approval, and reimbursement processes.

3.4.3 Role-Based Access and Customization: Implement role-based access control to ensure that each employee has access to functionalities and information relevant to their role within the organization. Customize the user interface dynamically based on the employee's role for a personalized experience.

3.4.4 Efficient Approval Workflows: Establish a structured hierarchical approval workflow involving project managers, HR, HOD, and finance management to ensure systematic and timely processing of trip requests and reimbursements.

3.4.5 Data Consistency and Integrity: Utilize a dual-database system to maintain data consistency and integrity, ensuring that employee information is accurate and up-to-date across the organization.

3.4.6 Automated Processes: Implement automated processes for tasks such as ticket booking and reimbursement processing to reduce manual intervention and enhance efficiency.

3.4.7 Performance Monitoring: Track and monitor system performance metrics to identify areas for improvement and ensure optimal responsiveness.

3.4.8 Financial Accountability: Provide a transparent and traceable process for financial transactions related to travel, ensuring accountability and accurate recording of reimbursements.

3.4.9 Organizational Efficiency: Contribute to the overall efficiency of the organization by reducing the administrative burden associated with manual tracking of travel requests and reimbursements.

3.4.10 Insights and Recommendations: Generate insights through comprehensive analysis and evaluation of the system, offering

recommendations for further optimization and alignment with organizational needs.

3.4.11 Employee Satisfaction: Improve employee satisfaction by providing a seamless and organized system for managing travel-related processes, leading to a positive overall experience within the workplace.

The purpose of the Travel Management and Reimbursement System is to introduce an integrated, user-friendly, and efficient solution that addresses the complexities of managing employee travel and reimbursement, ultimately contributing to enhanced organizational productivity and employee satisfaction.

CHAPTER 4

SYSTEM ANALYSIS

4.1 SYSTEM ANALYSIS

System Analysis for the Travel Management and Reimbursement System involves a comprehensive examination of the current system's design, functionality, and overall effectiveness. This analysis aims to identify strengths, weaknesses, opportunities, and potential areas for improvement. Here are key components of the system analysis:

4.1.1 Requirements Analysis: Identify and document the functional and non-functional requirements of the Travel Management and Reimbursement System. Gather input from stakeholders, including employees, managers, and administrators, to ensure comprehensive coverage of user needs.

4.1.2 Current System Evaluation: Evaluate the existing system, if any, to understand its strengths and weaknesses. Identify any pain points, inefficiencies, or bottlenecks in the current travel management and reimbursement processes.

4.1.3 Data Flow Analysis: Map the flow of data within the system, from user registration to trip approval, reimbursement processing, and financial transactions. Analyze how data is stored, retrieved, and shared between the "whole_company" and "travel_management" databases.

4.1.4 User Interface Evaluation: Assess the user interface design for intuitiveness, accessibility, and user experience. Consider feedback from users regarding the clarity of navigation and ease of use during registration, trip submission, and reimbursement processes.

4.1.5 Role-Based Access Control: Examine the implementation of role-based access control to ensure that each user has appropriate access permissions based on their role within the organization. Verify the dynamic adjustment of the user interface based on the user's role.

4.1.6 Approval Workflow Analysis: Analyze the hierarchical approval workflow for trip requests and reimbursements to ensure that it aligns with organizational policies. Identify any delays or inefficiencies in the approval process and propose improvements.

4.1.7 Database Integration and Data Consistency: Evaluate the integration between the "whole_company" and "travel_management" databases to ensure data consistency and integrity. Identify any synchronization issues and propose solutions for maintaining accurate employee information.

4.1.8 Automated Processes: Assess the automation of processes, such as ticket booking and reimbursement, to identify areas for improvement and optimization. Consider the level of accuracy and reliability in the execution of automated tasks.

4.1.9 Performance Metrics Monitoring: Review the monitoring of system performance metrics, including response times and user interactions. Identify any performance bottlenecks and propose enhancements to optimize system responsiveness.

4.1.10 Security Analysis: Evaluate the security measures in place, including data encryption, user authentication, and access controls. Identify potential vulnerabilities and recommend security enhancements.

4.1.11 Documentation Review: Review system documentation, including user manuals, technical documentation, and any relevant process documentation. Ensure that documentation is up-to-date and comprehensive for both users and administrators.

The system analysis provides a foundation for identifying areas of improvement and optimization in the Travel Management and Reimbursement System, contributing to the overall effectiveness and efficiency of the system within the organization.

CHAPTER 5

SYSTEM DESIGN

5.1 SYSTEM DESIGN

System design for the Travel Management and Reimbursement System involves outlining the architecture, components, and interactions within the system. Here's a high-level overview of the system design:

5.1.1 Architectural Design: The system will follow a client-server architecture, with the React-based frontend serving as the client and a backend server handling requests, interacting with the "whole_company" and "travel_management" databases.

5.1.2 Frontend Design: The frontend, developed using React, will include different components for user registration, login, trip submission, reimbursement requests, and role-specific dashboards. The user interface will be designed to provide a seamless and intuitive experience, with dynamic content based on the user's role.

5.1.3 Backend Design: The backend server will be developed using a suitable server-side technology (e.g., Node.js, Django) to handle requests from the frontend. It will manage user authentication, process trip requests, handle reimbursement workflows, and interact with the databases.

5.1.4 Database Design: Two databases will be utilized:

- "whole_company" database for storing global employee information.
- "travel_management" database for storing user-specific data related to trips, approvals, and reimbursements.

Database tables will be designed to maintain data integrity and relationships, ensuring efficient data retrieval.

5.1.5 Role-Based Access Control (RBAC): RBAC will be implemented to control access based on user roles (employee, project manager, HR, HOD). Access permissions will determine the features and information available to each user upon login.

5.1.6 User Authentication and Authorization: Secure user authentication mechanisms (e.g., JWT tokens) will be implemented during login. Authorization checks will be performed based on user roles to ensure that users can only access information relevant to their responsibilities.

5.1.7 Trip and Reimbursement Workflows: Detailed workflows will be designed for trip requests and reimbursements, involving project manager, HR,

HOD, and finance management approvals. Workflow states and transitions will be clearly defined, ensuring a structured and transparent process.

5.1.8 Automated Processes: Automation scripts will be integrated for processes like ticket booking and reimbursement calculations, reducing manual efforts and minimizing errors.

5.1.9 Performance Optimization: The system will be optimized for performance by implementing caching mechanisms, minimizing database queries, and utilizing asynchronous processing where applicable.

5.1.10 Security Measures: Strong encryption methods will be employed for sensitive data during transmission and storage. Regular security audits and vulnerability assessments will be conducted to ensure system robustness.

5.1.11 Logging and Monitoring: Implement logging mechanisms to record system activities for auditing and debugging purposes. Set up monitoring tools to track performance metrics and detect anomalies.

5.1.12 Documentation: Comprehensive documentation will be provided for system architecture, database schema, API endpoints, and user manuals to aid in system maintenance and future development.

The system design ensures that the Travel Management and Reimbursement System is well-structured, secure, and capable of efficiently handling the organization's travel-related processes.

CHAPTER 6

UML DIAGRAMS

6.1.1 Dataflow Diagram

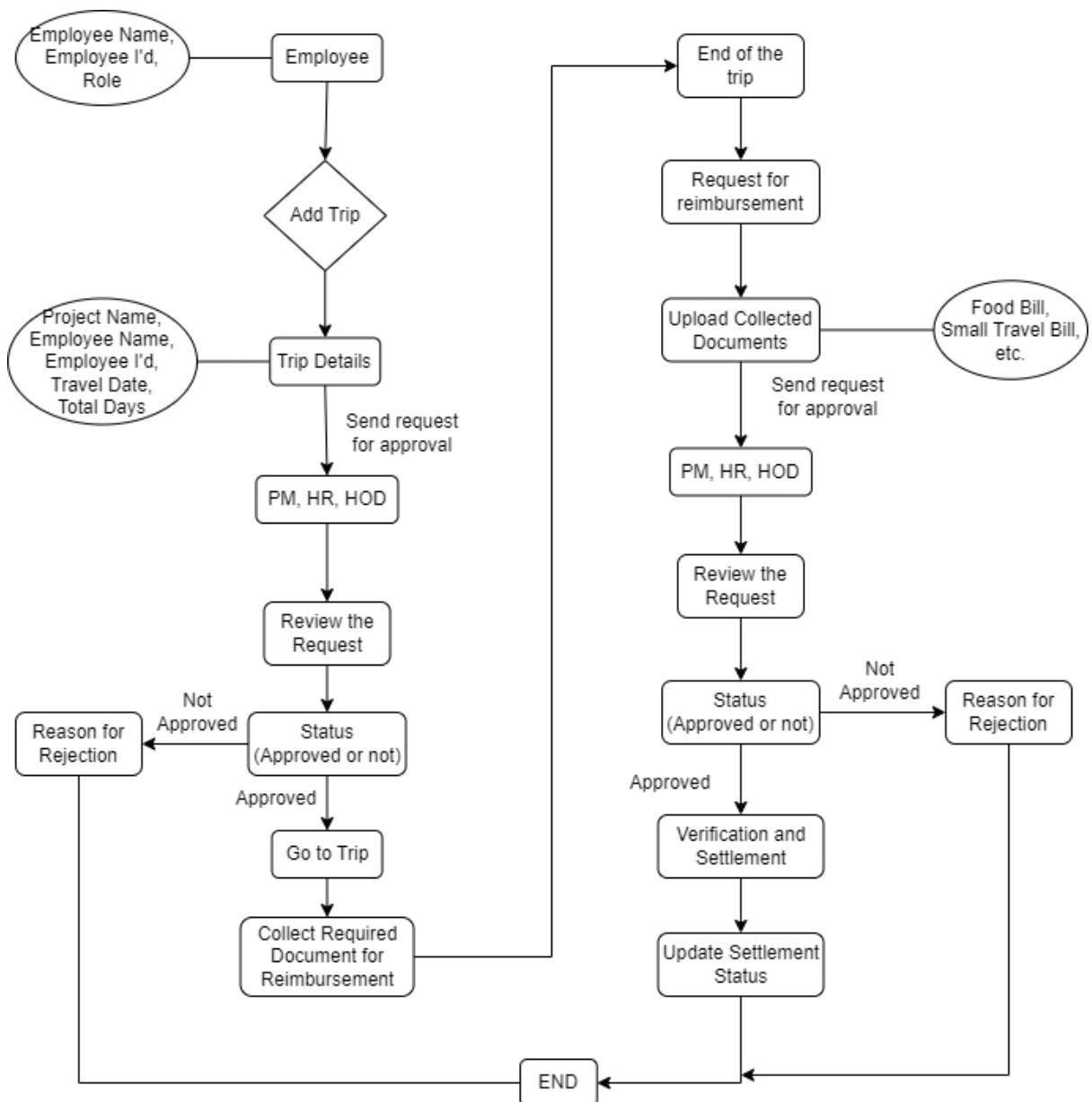


Fig 6.1.1 Work Flow

6.1.2 ER-Diagram

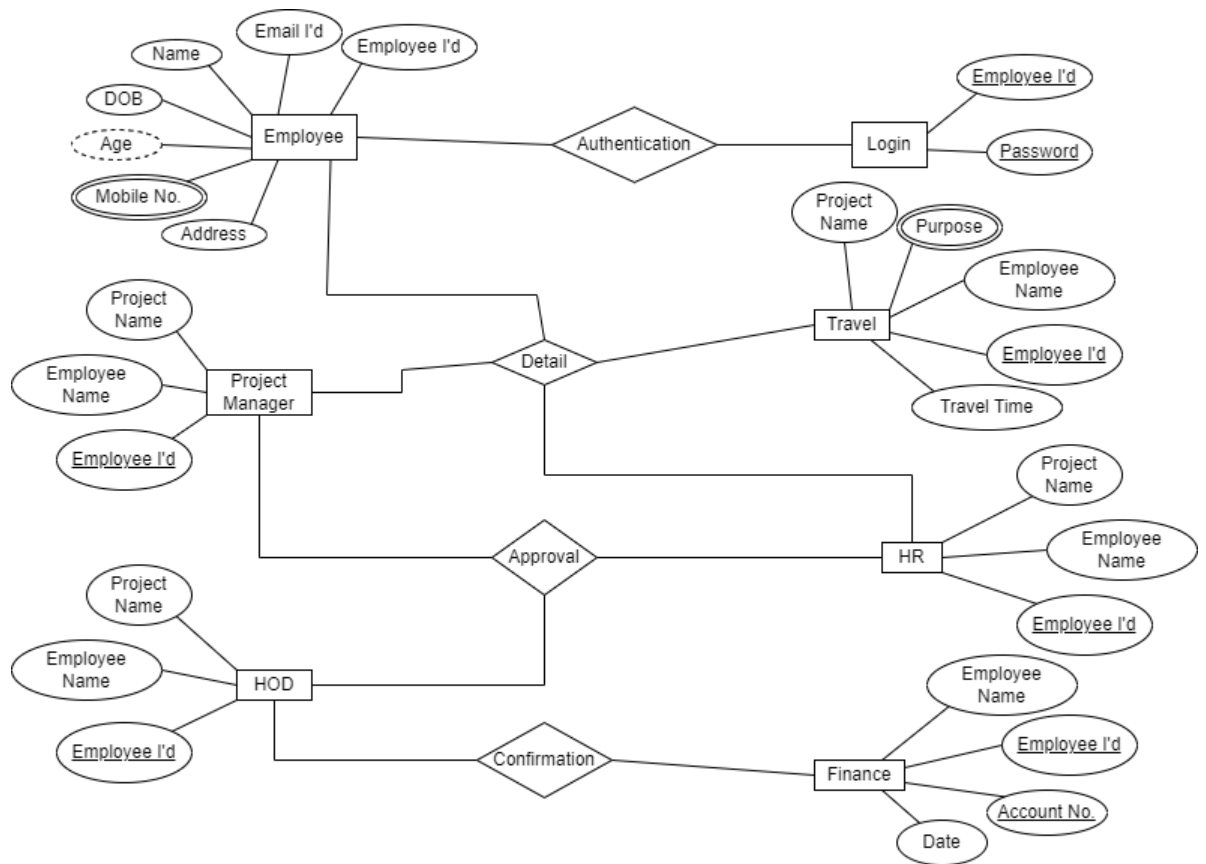


Fig 6.1.2 ER-Diagram

6.1.3 Class Diagram

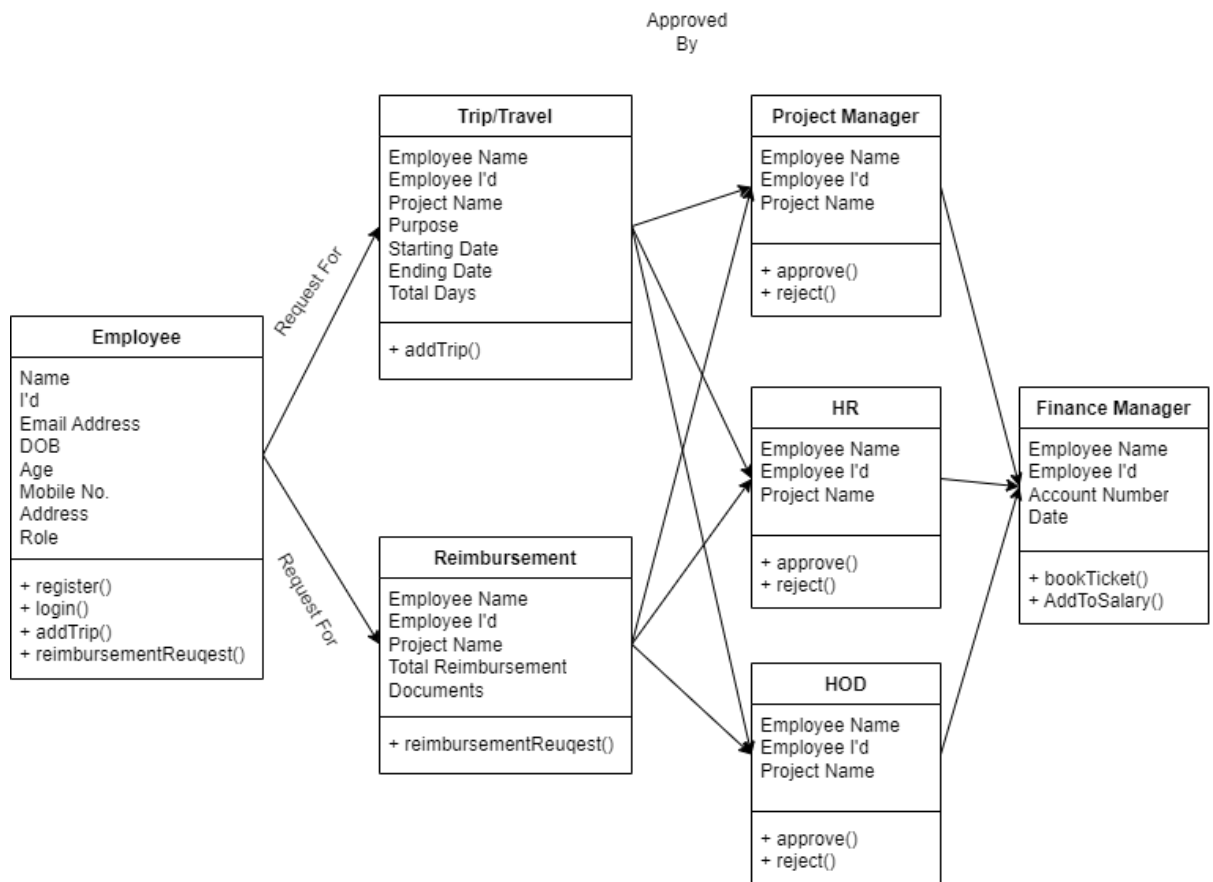


Fig 6.1.3 Class Diagram

CHAPTER 7

UI DESIGN

7.1 UI DESIGN

7.1.1 Home Page

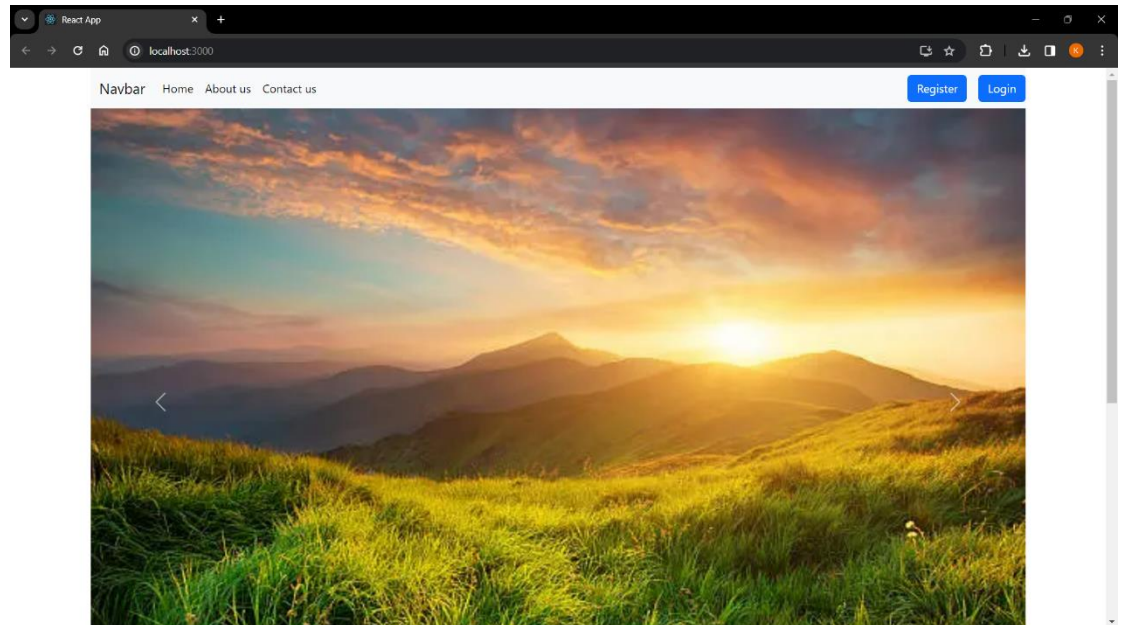


Fig 7.1.1 Home Page

7.1.2 About Us Page

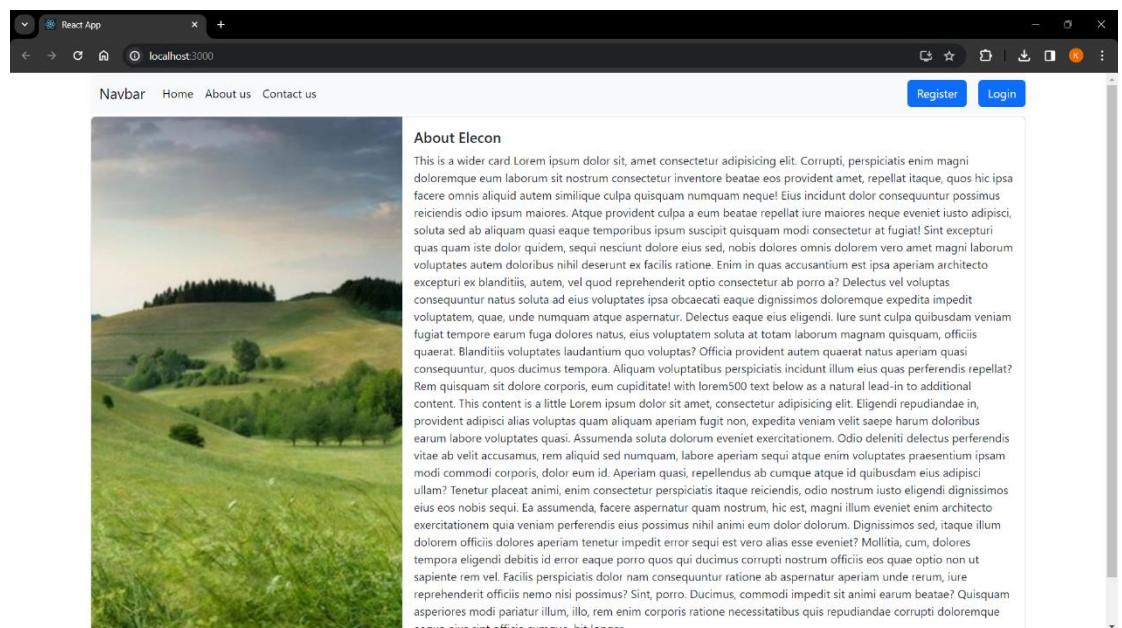
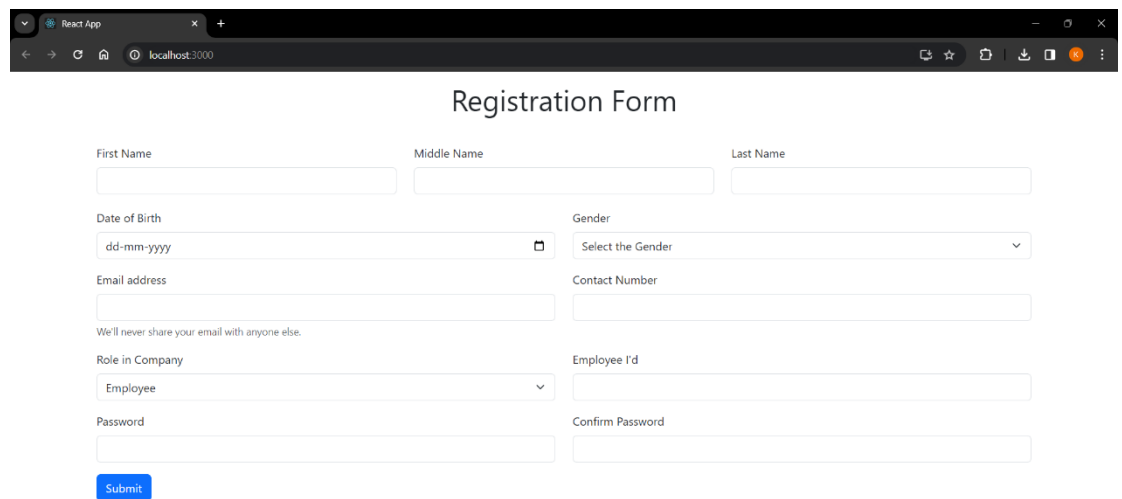


Fig 7.1.2 About Us Page

7.1.3 Register Page

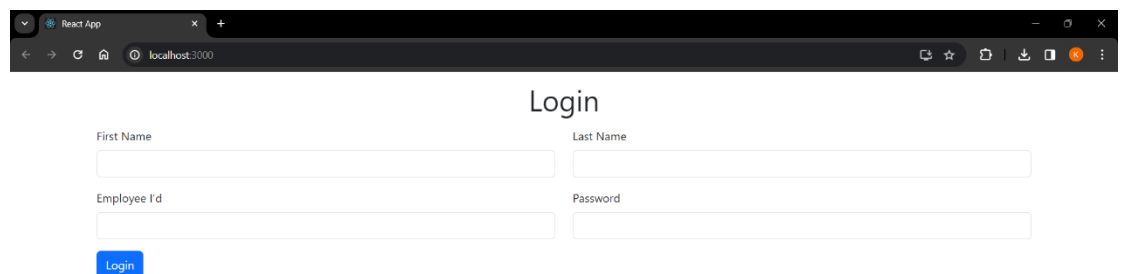


The screenshot shows a web browser window with the title 'React App' and the address bar displaying 'localhost:3000'. The page content is a registration form titled 'Registration Form'. The form includes the following fields and elements:

- First Name, Middle Name, and Last Name (text input fields).
- Date of Birth (text input field with a placeholder 'dd-mm-yyyy' and a calendar icon).
- Gender (dropdown menu with the text 'Select the Gender').
- Email address (text input field).
- Contact Number (text input field).
- A note: 'We'll never share your email with anyone else.'
- Role in Company (dropdown menu with the text 'Employee').
- Employee I'd (text input field).
- Password (text input field).
- Confirm Password (text input field).
- A blue 'Submit' button.

Fig 7.1.3 Register Page

7.1.4 Login Page



The screenshot shows a web browser window with the title 'React App' and the address bar displaying 'localhost:3000'. The page content is a login form titled 'Login'. The form includes the following fields and elements:

- First Name (text input field).
- Last Name (text input field).
- Employee I'd (text input field).
- Password (text input field).
- A blue 'Login' button.

Fig 7.1.4 Login Page

7.1.5 Home Page After Login

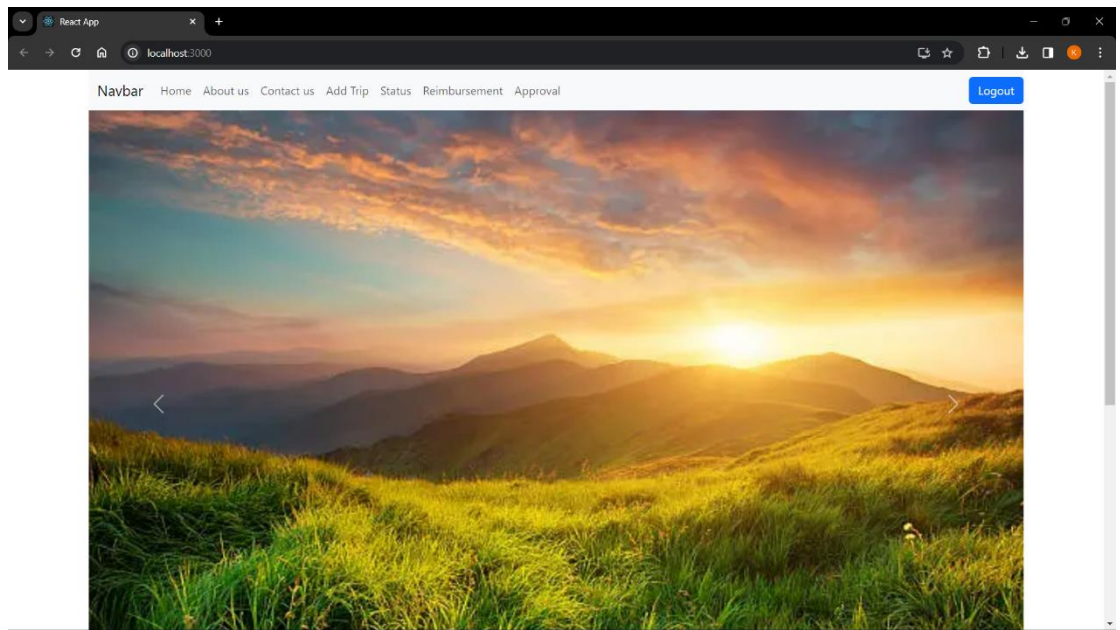


Fig 7.1.5 Home Page After Login

7.1.6 About Us Page After Login

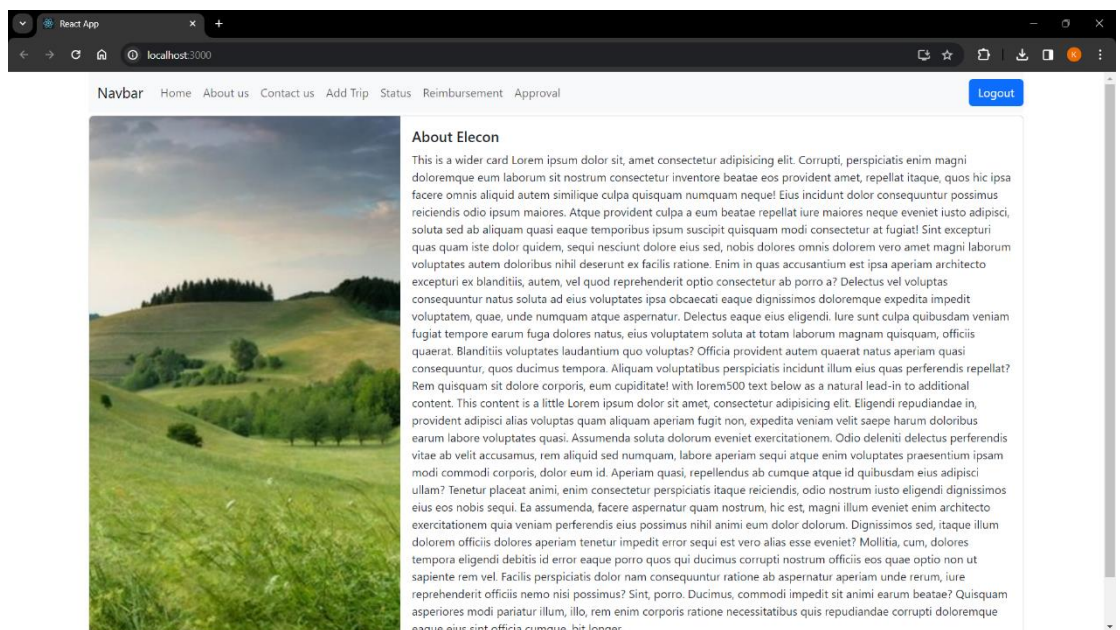
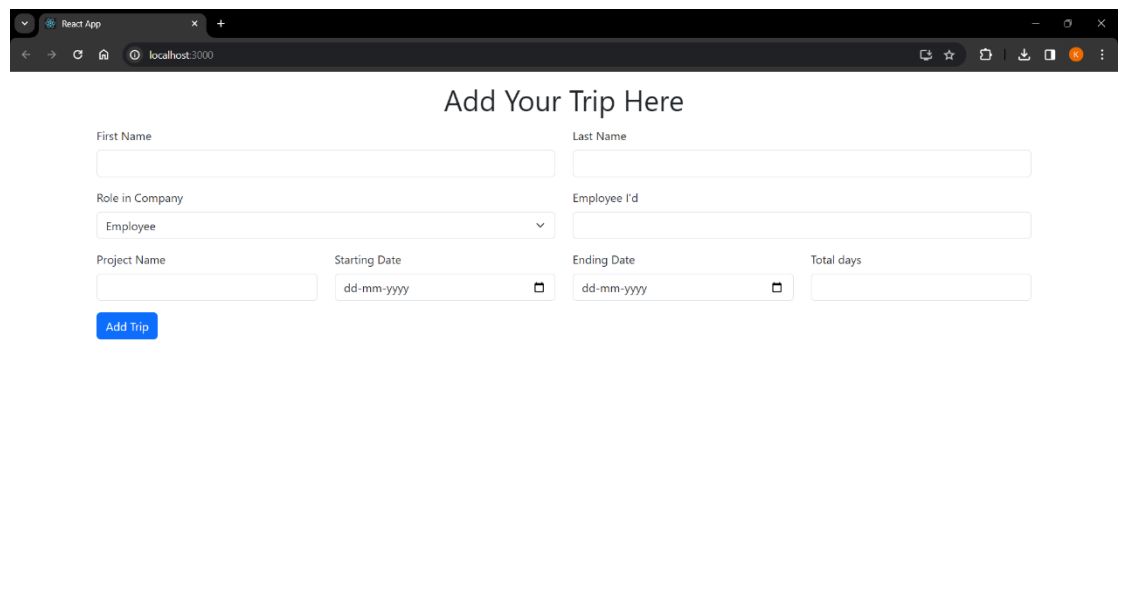


Fig 7.1.6 About Us Page After Login

7.1.7 Add Trip Page



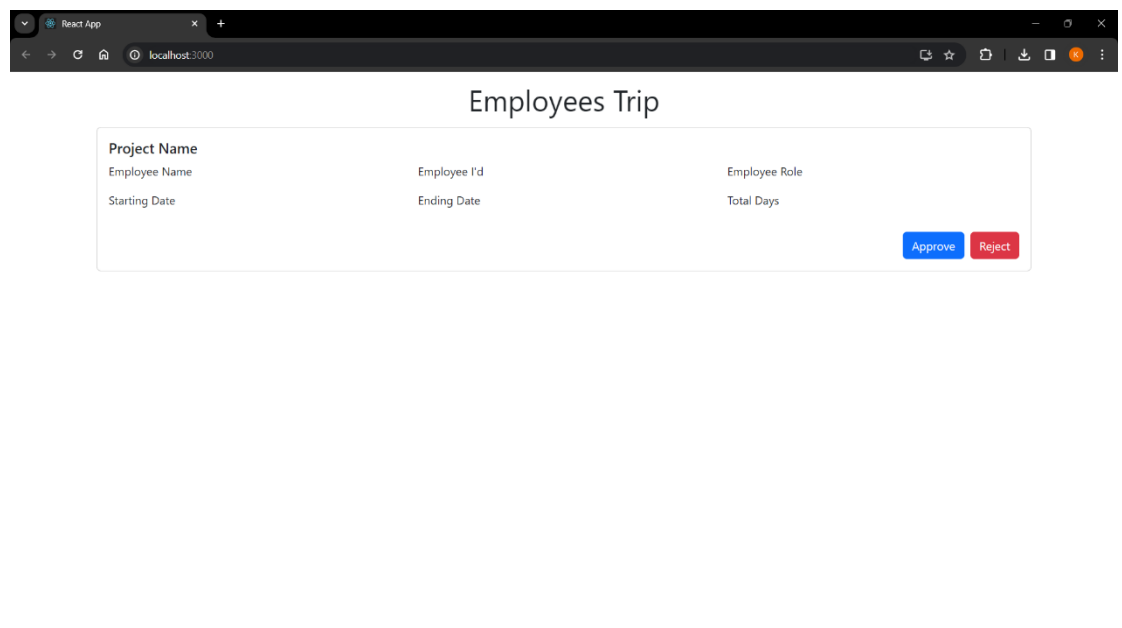
The screenshot shows a web browser window with the title 'React App' and the address bar displaying 'localhost:3000'. The page content is titled 'Add Your Trip Here'. It features a form with the following fields:

- First Name (text input)
- Last Name (text input)
- Role in Company (dropdown menu with 'Employee' selected)
- Employee I'd (text input)
- Project Name (text input)
- Starting Date (date picker with 'dd-mm-yyyy' format)
- Ending Date (date picker with 'dd-mm-yyyy' format)
- Total days (text input)

A blue 'Add Trip' button is located at the bottom left of the form.

Fig 7.1.7 Add Trip Page

7.1.8 Approval Page



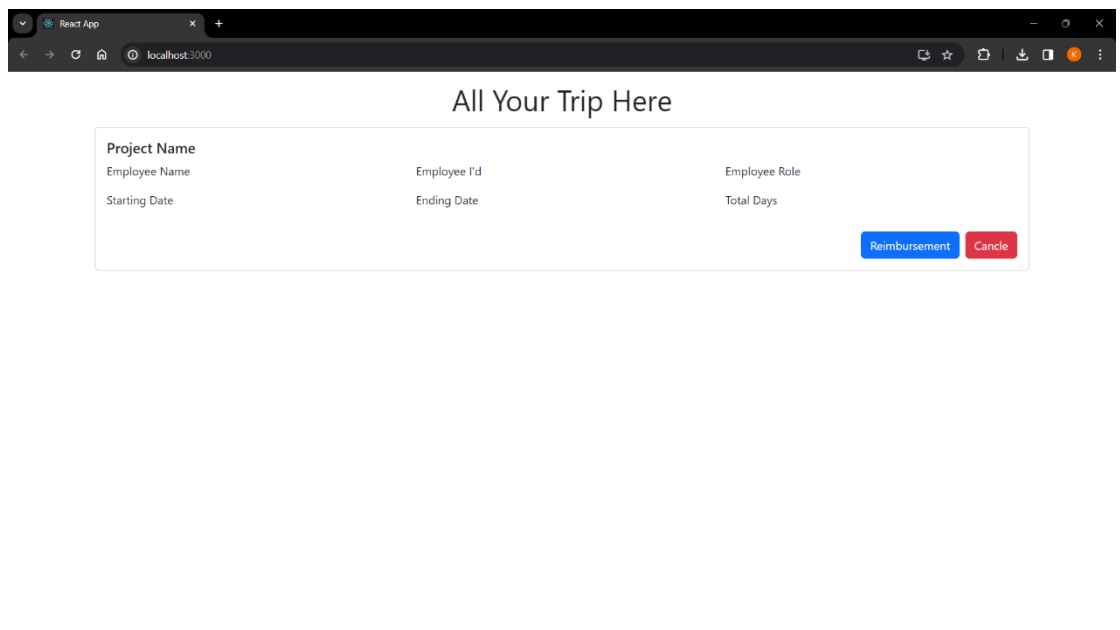
The screenshot shows a web browser window with the title 'React App' and the address bar displaying 'localhost:3000'. The page content is titled 'Employees Trip'. It features a table with the following columns:

Project Name	Employee Name	Employee I'd	Employee Role
Starting Date		Ending Date	Total Days

At the bottom right of the table, there are two buttons: 'Approve' (blue) and 'Reject' (red).

Fig 7.1.8 Approval Page

7.1.9 Reimbursement Page



The screenshot shows a web browser window with a single tab titled 'React App'. The address bar displays 'localhost:3000'. The page content features a heading 'All Your Trip Here' centered above a form. The form is a light gray rectangle containing a table with three columns: 'Project Name', 'Employee I'd', and 'Employee Role'. The first row of the table contains the labels 'Employee Name', 'Employee I'd', and 'Employee Role'. The second row contains the labels 'Starting Date', 'Ending Date', and 'Total Days'. At the bottom right of the form, there are two buttons: a blue 'Reimbursement' button and a red 'Cancel' button.

Project Name	Employee I'd	Employee Role
Employee Name	Employee I'd	Employee Role
Starting Date	Ending Date	Total Days

Reimbursement Cancel

Fig 7.1.9 Reimbursement Page

CHAPTER 8

CONCLUSION

In conclusion, the Travel Management and Reimbursement System is designed to provide a comprehensive and efficient solution for managing the complex processes associated with employee travel and reimbursement within the organization. The system leverages a user-friendly interface and role-based access control to streamline tasks, ensuring a seamless experience for employees, project managers, HR personnel, HODs, and finance management.

The implementation incorporates two databases, "whole_company" for storing global employee information and "travel_management" for user-specific travel data. Through rigorous system analysis, design, and validation processes, the project aims to meet the organizational requirements for data consistency, security, and process optimization.

The hierarchical approval workflows for trip requests and reimbursements contribute to a structured and transparent process. Automation of tasks such as ticket booking and reimbursement calculations enhances efficiency, reducing manual efforts and minimizing errors.

The project prioritizes security measures, including strong encryption and regular security audits, to safeguard sensitive data and maintain the integrity of the system.

Through the insights gained from the system analysis, the design choices made, and the careful consideration of user needs, the Travel Management and Reimbursement System aims to contribute positively to organizational efficiency, financial accountability, and employee satisfaction.

By offering a user-friendly, secure, and automated solution, the system aligns seamlessly with the operational needs of the organization, providing a reliable framework for managing travel-related processes and facilitating a transparent and traceable workflow for trip approvals and reimbursements.

CHAPTER 9

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2. <https://owasp.org/>
3. <https://developer.mozilla.org/en-US/docs/Web/JavaScript>
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