

LAB REPORT

Submitted by

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In partial satisfaction of the requirements for the degree of

**BACHELOR OF TECHNOLOGY
in
COMPUTER SCIENCE ENGINEERING**

with specialization in Cyber Security



SCHOOL OF COMPUTING

**COLLEGE OF ENGINEERING AND TECHNOLOGY
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY**

KATTANKULATHUR - 603203

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KATTANKULATHUR-603203**

BONAFIDE CERTIFICATE

Certified that this lab report titled **Railway Tracking System** is the bonafide work done by Madavaram Reddi Vinathi (RA2011030010133) who carried out the lab exercises under my supervision. Certified further, that to the best of my knowledge the work reported herein does not form part of any other work.

SIGNATURE

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SEPM – Course Faculty

Assistant Professor

Networking and Communications

ABSTRACT

A software project called the railway track management system supports the services provided by the railway track system in accordance with train timetables. The project has a good GUI that makes it possible to monitor and manage different trains on the network. It has frequently happened that when you are waiting for someone to arrive at the train station, you are in the dark regarding the exact time of the next train and other important details. The track management system follows train schedules and puts out the proper tracks so that trains can go along their planned routes. The various trains on the rail network can be supported and their data maintained by the train management software. A database is used to maintain the train routes and schedules. Every time a train travels down a track, any additional track intersections or joins are controlled in accordance with the train path. The track is then set up for the following planned train to pass after the train has passed.

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LIST OF ABBREVIATIONS

UML - Unified Modelling Language

WBS - Work Breakdown Structure

UI - User Interface

SWOT - Strength Weakness Opportunities Threats

ER - Entity Relationship

DFD - Data Flow Diagram

GANTT - Generalized activity Normalization Time table

SSL - Secure Secret Locker

Experiment-1

Aim :

To Frame a project team, analyze and identify a Software project. To create a business case and Arrive at a Problem Statement for the <title of the project>.

Project Title :


Railway Tracking System

Project Description :

With the help of this system the users can get the information about the train timing and can check whether it's on time or not including other information. The system will track the train timing, be it what time the train departs or arrives, to or from a particular station and then pass these timing details to the other stations systems where the accurate timing according to the train departure from previous station would get displayed. If this system finds any delay in the train due to the signal, it will update the train timing in the next station automatically and would later get displayed for the users.

Business Case template:

ONE PAGE BUSINESS CASE TEMPLATE	
DATE	14/3/22
SUBMITTED BY	Madavaram Reddi Vinathi (RA2011030010133)
TITLE / ROLE	Team Member



THE PROJECT
In bullet points, describe the problem this project aims to solve or the opportunity it aims to develop.

- Giving clients the information they need, whenever they need it, from wherever in the world.
- The customer can book or purchase a ticket via the Online Reservation system, saving time and money for both the customer and the railway agent.
- Since the data is stored centrally, the customer will never lose his ticket as he would in the current system.

THE HISTORY
In bullet points, describe the current situation.

- In the current system, train reservation levels were set higher than seating capacity to accommodate for passenger cancellations, and it shows accounting to overbooking in the agency on a regular basis, wasting time and money for everyone.
- Integration of different railways on same platforms was not possible in the previous system. These problems can now be avoided because of the online reservation system.

LIMITATIONS
List what could prevent the success of the project, such as the need for expensive equipment, bad weather, lack of special training, etc.

- The system will not function properly if there is a network breakdown.
- If the train information entered by the administrator is incorrect, the system at the next step will display the incorrect information.

APPROACH
List what is needed to complete the project.

- This system requires the use of API through which it interacts the data from a central database monitor all the data exchanges that are made at the client side to it and update it automatically.
- Software and hardware requirements

BENEFITS
In bullet points, list the benefits that this project will bring to the organization.

- Comparatively lower expenses.
- Saving time by not having to ship the paper or re-entering the data into the computer.
- More accurate data.

Result :

Thus, the project team formed, the project is described, the business case was prepared and the problem statement was arrived.

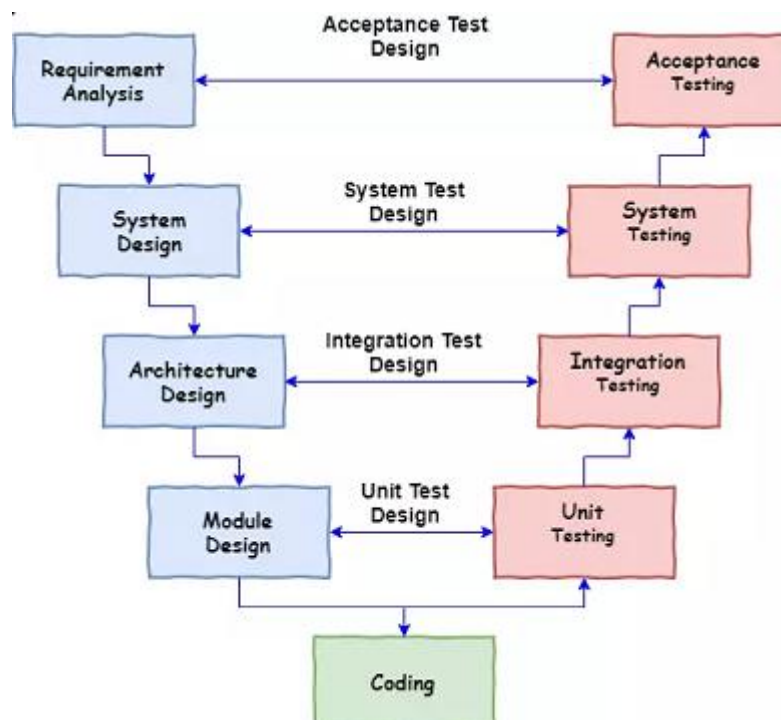
Experiment -2

Aim:

To identify the appropriate Process Model for the project and prepare Stakeholder and User Description.

Project Title: Railway Tracking System

Selection of Methodology: V- Shaped Model



The V-shaped model, like the waterfall model, uses a sequential design process. Testing of the device is planned in parallel with a corresponding stage of development.

➤ **Project Requirement and Planning:**

This is the initial stage in understanding the customer's product requirements. This step includes efficient communication in order to fully understand the customer's expectations and requirements.

➤ **Product Requirement and Specification Analysis:**

By reviewing the user requirements document, system engineers analyze and interpret the proposed system's business.

➤ **Architecture:**

The first step in choosing an architecture is to comprehend everything, which often includes a list of modules, a description of each module's functionality, their interface relationships, dependencies, database tables, architecture diagrams, technological details, and so on. The integration testing model is implemented in a certain stage.

➤ **Detailed Design :**

The system is broken down into individual modules during the module design phase. Low-Level Design is when the detailed design of the modules is specified.

➤ **Coding :**

Following the design phase, the coding step begins. A suitable programming language is chosen based on the requirements. There are certain coding principles and standards. The final build is modified for better performance before being checked into the repository, and the code is subjected to many code reviews to ensure its quality.

➤ **Unit Testing :**

Unit Test Plans (UTPs) are created in the V-Model during the module design phase. These UTPs are used to find and fix issues at the code or unit level. A unit is the smallest entity which can independently exist, e.g., a program module. When separated from the rest of the codes/units, unit testing confirms that the smallest entity can function correctly.

➤ **Integration and Testing :**

During the architectural design phase, integration test plans are created. These tests confirm that groups that were created and tested independently may coexist and communicate.

➤ **System and Acceptance Testing :**

During the system design phase, plans for system tests are created. System Test Plans, unlike Unit and Integration Test Plans, are created by the client's business team. System Test ensures that expectations from an application developer are met.

➤ **Production, Operation and Maintenance :**

Acceptance testing is linked to the analysis of business requirements. It includes testing the software product in user atmosphere. Acceptance testing highlight compatibility issues with the different systems that are present in the user environment. It also detects non-functional issues such as load and performance faults in the real-world user environment.

Incorporate Identification of Project Methodology and Stakeholder Description Template

Stakeholder Name	Activity/ Area /Phase	Interest	Influence	Priority (High/ Medium/ Low)
Owner	Making sure the requirements are met	Low	High	1
Team Members	Retain and Upgrade Skills.	High	High	3
Project Manager	Accountable for entire project scope, team, success and failure	Medium	High	2
Resource Manager	Management of the available resources, as per the client requirements.	High	High	1
End Users	Uses the Developed Software and provides Feedback.	Low	High	8

Result :

Thus the Project Methodology was identified stakeholders were described.

Experiment-3

Aim :

To identify the system, functional and non-functional requirements for the project.

Project Title :

Railway Tracking System

System Requirements :

Software Requirements :

- Python (with some modules)
- HTML
- SQL
- CSS

Hardware Requirements:

- Desktop computer of any Operating system.
- Keyboard & mouse
- Android/ iOS Mobile Devices with in-built GPS.
- Hard disk

Functional Requirements :

- **Log-in :** Enter Email or Mobile Number details for creating a new account. An OTP will be sent to the User's Email-id or Mobile Number, which should be entered. (If its an existing user, login using email-id /mobile number and password.)
- **Information Needed :** Enter the Date, Starting point of the journey, Destination and Train Number to get details.
- Location of the train, along with the status (On- time or Delay) will be displayed according to details entered by the user.

- **Log-out** : User can log out after the system after the using it.(“Session Time-Out will be displayed, If kept un-used for a long time.)

Non-Functional Requirements :

- **Reliability** : The software should be reliable, as in it should be updated from time to time; continuously maintaining so as to provide the user with as accurate information as possible.
- **Security** : System logs out the user after a certain period of time.
- **Availability**: Users should be able to access the system whenever and wherever based on the network availability.

Result :

Thus the requirements were identified and accordingly described.

Experiment-4

Aim:

To Prepare Project Plan based on scope, Calculate Project effort based on resources, Find Job roles and responsibilities

Requirements :

1. Project Management Plan

Describe the key issues driving the project. [Min 3 Focus Areas]

Focus Area	Details
Integration Management	Project Manager and Technical Lead- SANJAY REDDY Front end developer- DEVIKA P Project steering committee and tester- Vinathi M
Scope Management	Scope Statement Requirement Management (Gathering, Control, Assumption, Constraint Stakeholder) Define Deliverable Requirement Change Control Activities and Sub-Tasks

Schedule Management	<p>Milestones:</p> <ul style="list-style-type: none"> • The front end of the web page i.e user interface • The back end of the web page using services/API • Producing the final product(full stack website) • Testing across batches for compatibility <p>Schedule:</p> <p>Planning - MARCH 2022</p> <p>Coding - APRIL 2022</p> <p>Presentation - MAY 2022</p> <p>Testing - MAY-JUNE 2022</p>
Cost Management	<p>Estimate budget:Rs.70,000/- The workforce is minimal,teams are formed based on the interest and involvement Estimate effort: 8+ hours per week by every team member</p>
Quality Management	<p>Quality Assurance:</p> <p>Quality is assured as resources will be provided on time and time delays will be reduced. Leads help developers in improving the final product. It will be taken care that the final product does not contain any problems</p> <p>Quality control:</p>
	<p>The performance of the website will be examined and the website will be maintained continuously. User feedback will be focused on.</p>

Resource Management	<ul style="list-style-type: none"> • The team contains people with expertise in technical, management skills • Financial support will be provided by investors • The project needs a database to store the user's data. • Code repository • IDE-Jupyter Notebook code
Stakeholder	<p>Stakeholders are found according to their interests, influences, significance, involvements.</p> <p>Stakeholders: Project manager, tester, developer, admin, sponsor, user [students, working staff], third party developers.</p>
Communication Management	<ul style="list-style-type: none"> • Walking through of progress to high interest and high influence stakeholders • Provides single page dashboard • Meetings with team members twice a week to know the progress • Considering suggestions provided by stakeholders • Sending monthly report of the project to stakeholders
Risk Management	<ul style="list-style-type: none"> • Site maintenance to avoid bugs. • Finishing project in given time to avoid delay. • System needs to be fast, and efficiency should be high. • Data privacy needs to be prioritized. • Operational investment is high and if fails, loss The capital is very high.

Procurement Management	Most of the resources we use are free. Most of our team members have all the resources. Few items that are missing can be bought
------------------------	--

2.Estimation

1.1. Effort and Cost Estimation

Activity Description	Sub-Task	Sub-Task Description	Effort (in hours)	Cost in INR
Design the user screen	E1R1A1T1	Display the user privacy policy	3	
	E1R1A1T2	Create a login page for the user to enter their credentials		
	E1R1A1T3	Present information provided by the backend server		

Identify Data Source for displaying units of Energy Consumption	E1R1A1T1	Refer to what data must be exchange between admin and user	5	
	E1R1A1T2	Encrypt credentials		
	E1R1A1T3	Show the current running trains		
	E1R1A1T4	Show the Source , Destination , Date and Train number slots which need to be filled by the user		
	E1R1A1T5	Show the current running trains based on the data given by the user.		
	E1R1A1T6	Integrate backend to the frontend of the website		

Effort (hr)	Cost (INR)
1	500

1.2. Infrastructure/Resource Cost [CapEx]

Infrastructure Requirement	Qty	Cost per qty	Cost per item
Website design	1	50000/per anum	5000
Pc's	6	50000	500000
Networking devices	10	3000	30000
Workspace	1	10000	10000
Food services	10	700	7000

1.3. Maintenance and Support Cost [OpEx]

Category	Details	Qty	Cost per qty per annum	Cost per item
People	Network, System, Middleware and DB admin Developer , Support Consultant	3	2,000,000	6,000,000
License	Operating System Database Middleware IDE	10	10000	100,000
Infrastructures	Server, Storage and Network	20	20000	400,000

2.Project Team Formation

2.1 Identification Team members

Name	Role	Responsibilities
Gunnam Sanjay Reddy	Technical head and backend developer	Provide clear business and user requirements
Devika Pullaikkodi Veetil	Frontend Developer,Project manager	Develop user interface , Discuss project document
Madavaram Reddi Vinathi	Tester	Define Test Cases and Perform Testing

2.2 Responsibility Assignment Matrix

RACI Matrix	Team Members			
Activity	Name (BA)	Name (Developer)	Name (Project Manager)	Key Business User
User Requirement Documentation	A	C/I	I	R
Designing Website		A	R	
Quality Control		A	R	C
Data Security		A	R	C

A	Accountable
R	Responsible
C	Consult
I	Inform

Reference

1. <https://www.pmi.org/>
2. <https://www.projectmanagement.com/>
3. <https://www.tpsgc-pwgsc.gc.ca/biens-property/sngpnpms/tiit/ervcpgpmdsfvpmpteng.html>

Result :-

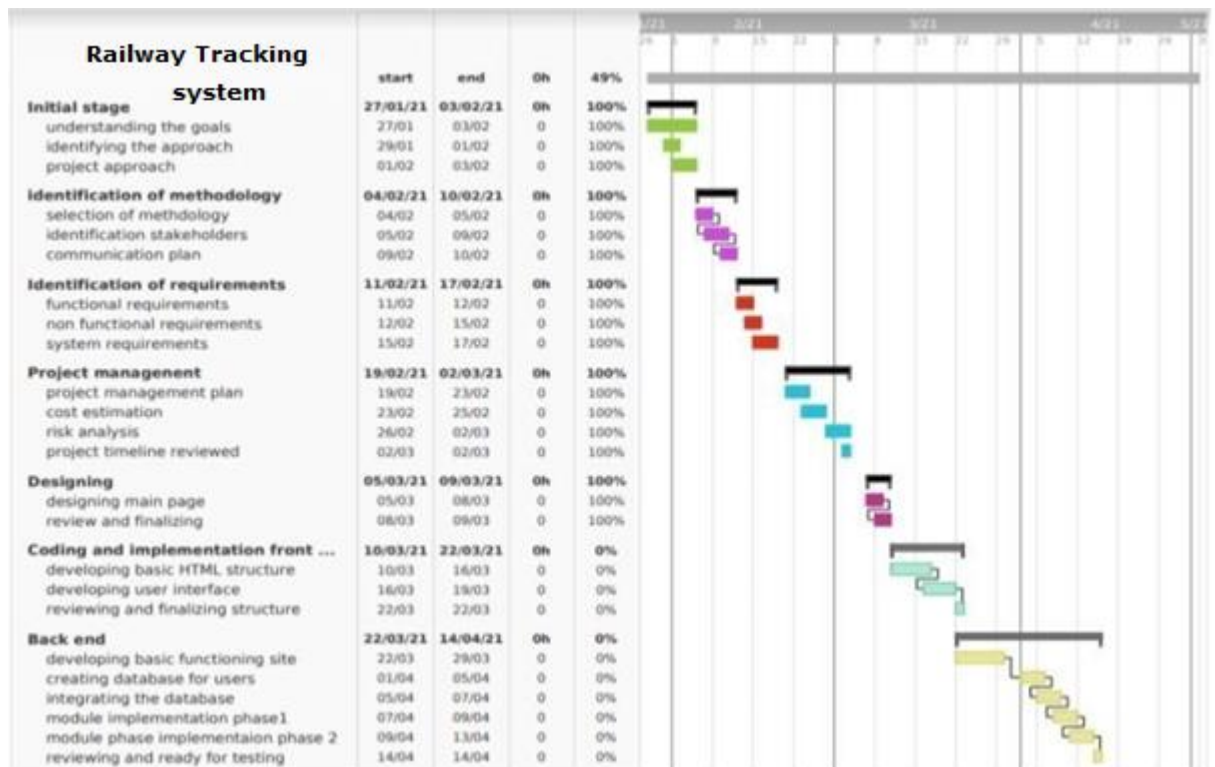
Thus, the Project Plan was documented successfully

Experiment-5

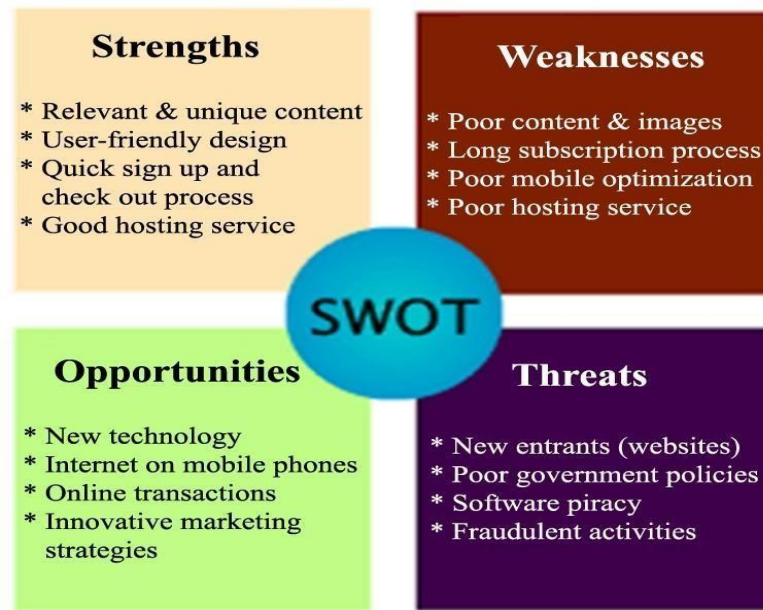
Aim :

To Prepare Work breakdown structure, Timeline chart and Risk identification table

TIMELINE – GANTT CHART :



RISK ANALYSIS – SWOT & RMMM



The project's start date (March 2022) and Project end date (July 2022). Risk management is the process of analysing exposure to risk and determining how to best handle such exposure. Our project undertakes a best practices approach and focuses on understanding the key risks and managing them within acceptable levels.

WBS

Module (#)	Activity (#)	Sub-Task(#)	Assignee(s)	Planned Start Date	Planned End Date	Actual Start Date	Actual End Date
UX Design	Design the user interface	Display the user privacy policy	Devika Pullaikkodi Veetil	08 Mar 2022	15 Mar 2022	-	-
		Create a login page for the user to enter their credentials		11 Mar 2022	20 March 2022	10 Apr 2022	10 Apr 2022

		Present information provided by the backend server		10 May 2022	20 May 2022	-	-
Database management	Designing backend	Refer to what data must be exchanged between user and admin	Gunnam Sanjay Reddy	08 Apr 2022	1 May 2022	10 Apr 2022	12 Apr 2022
		Encrypt credentials		15 Apr 2022	16 May 2022	-	-
		Acquire the source, destination, time and tarin number using the credentials provided		05 May 2022	09 May 2022	11 Apr 2022	15 Apr 2022
		Integrate back end to the front end of the website		24 May 2022	25 June 2022	-	-
Admin	Control and repository maintenance	Create a privacy policy for the user to ensure the safety of their credentials	Gunnam Sanjay Reddy	03 June 2022	30 June 2022	-	-
		Maintain the server / repository		10 June 2022	14 June 2022	-	-
Test releases	Testing	Test the software with multiple test cases	Madavaram Reddi Vinathi	14 June 2022	25 June 2022	-	-

		Report bugs	20 June 2022	26 June 2022	-	-
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Risk Identification SWOT

ANALYSIS

STRENGTHS 1. Knowledgeable team 2. Provide good customer care	WEAKNESSES 1. Low reputation 2. Small team 3. Unforeseen problems
OPPORTUNITIES 1. Broadening the team 2. Broadening the project 3. Unique product	THREATS 1. Failing to use https or any other security protocols 2. Technical bugs

3.1. List (Describe) Register

<Issue can potentially occur in future and list all risks identified >

Risk ID (#)	Risk Description	Impact Description
R01	Technical Bugs	Sudden rework of the Tracking system framework
R02	Disbanding of a team member	Not being able to complete the project before the deadline
R03	Developing Glitch	Failing to use https or any other security protocols
R04	Inability to gain user commitment	Lack of effort / diligence

3.2. Managing Risk

Risk ID (#)	Risk Appetite [Accept/ Mitigate/ Transfer/Avoid]	Action	Action Owner	Target Date
R01	Accept	Circumscribe the damage, Look into the potential problems and take precautions	Team Member	05 July 2022
R02	Avoid/Mitigate	Training the developers skillfully without any further obstacles/ shortcomings	Team Leader	10 July 2022
R02	Accept	Communicate the fix and resolve the issue	Team Member	20 July 2022
R04	Accept	Frequent and clear communication with the user	Team Member	08 July 2022

Result:

Thus, the work breakdown structure with timeline chart and risk table were formulated successfully.

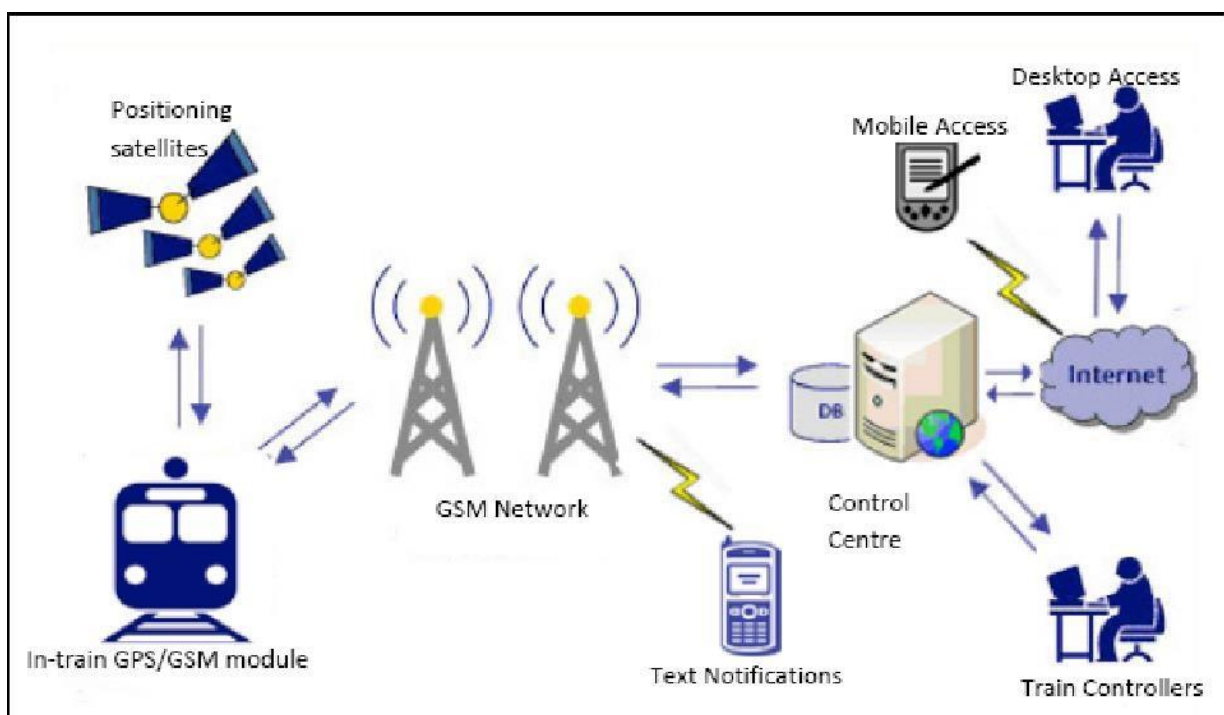
Experiment 6

Aim :

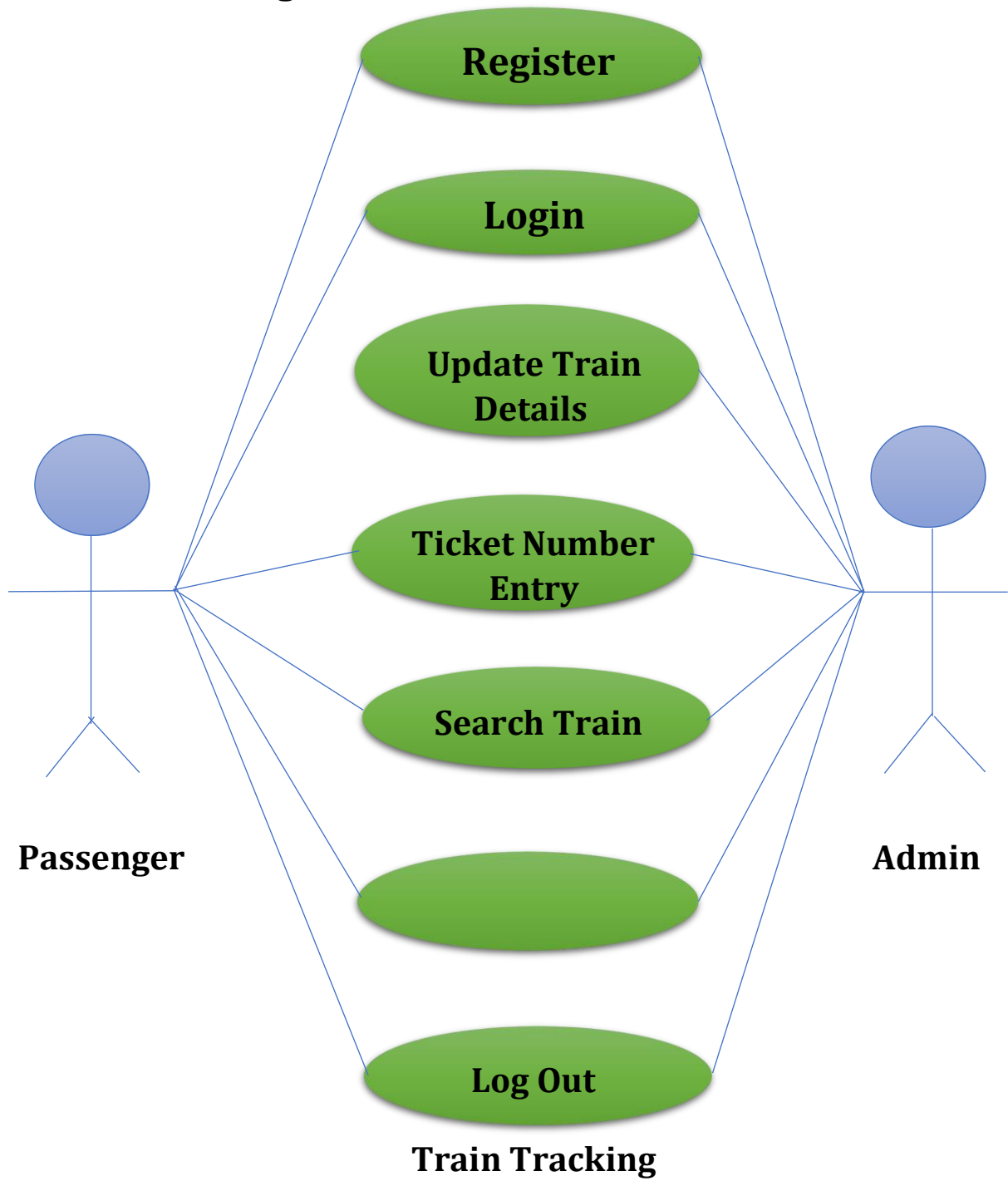
To Design a System Architecture, Use case and Class Diagram

Requirements :

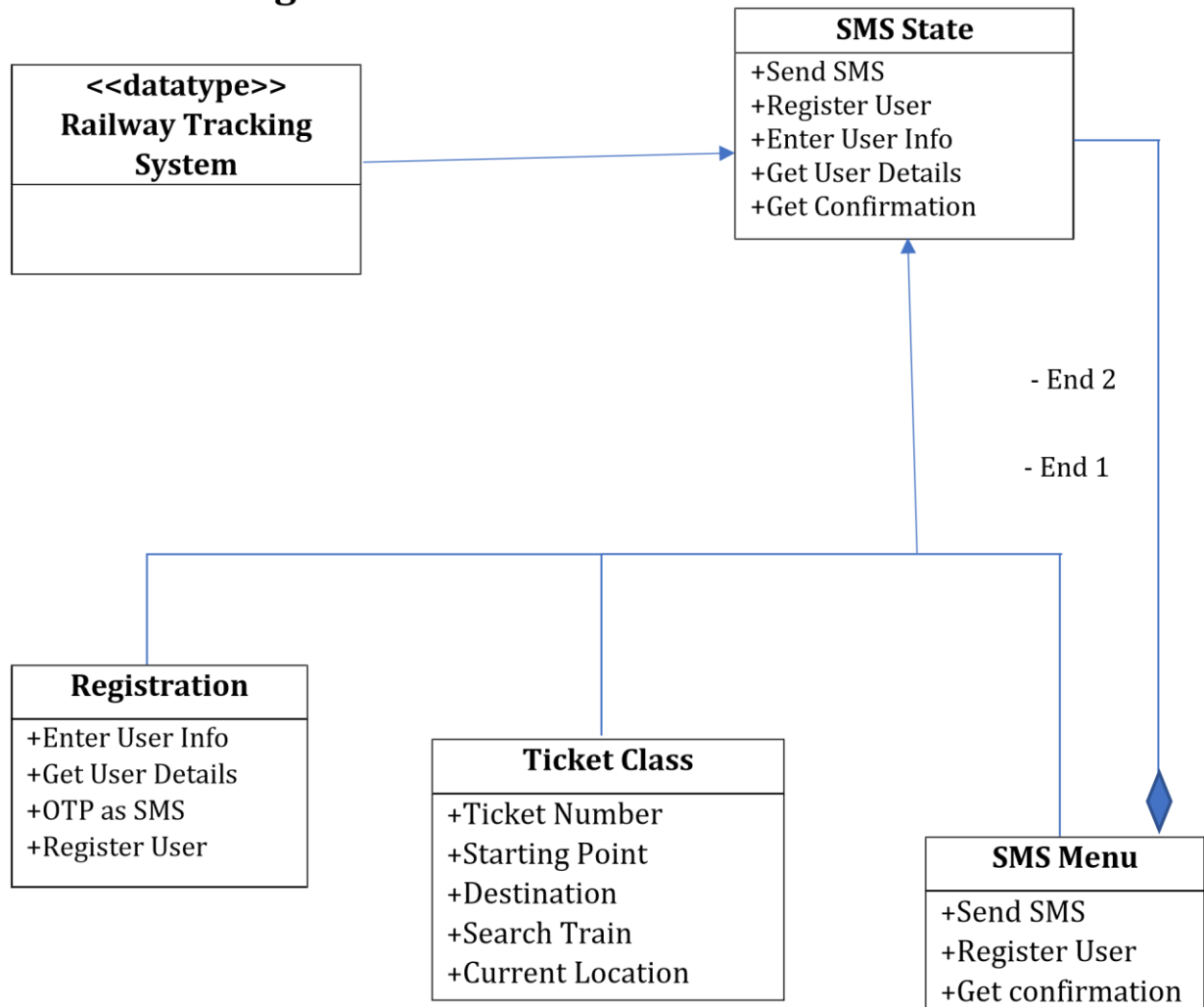
System Architecture Diagram:



Use Case Diagram :



Class Diagram :



Result:

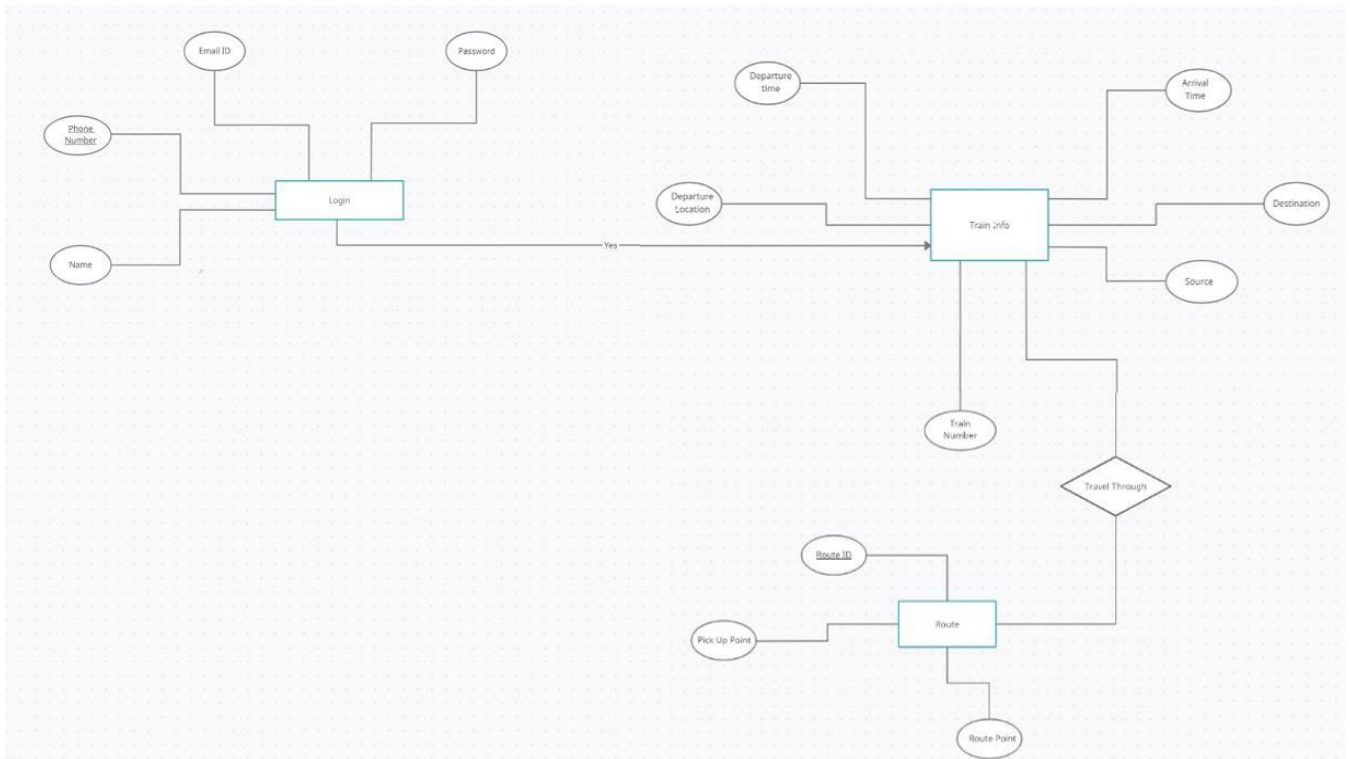
Thus, the system architecture, use case and class diagram created successfully.

Experiment-7

Aim :

To create the Entity Relationship Diagram

ER Diagram :



Result:

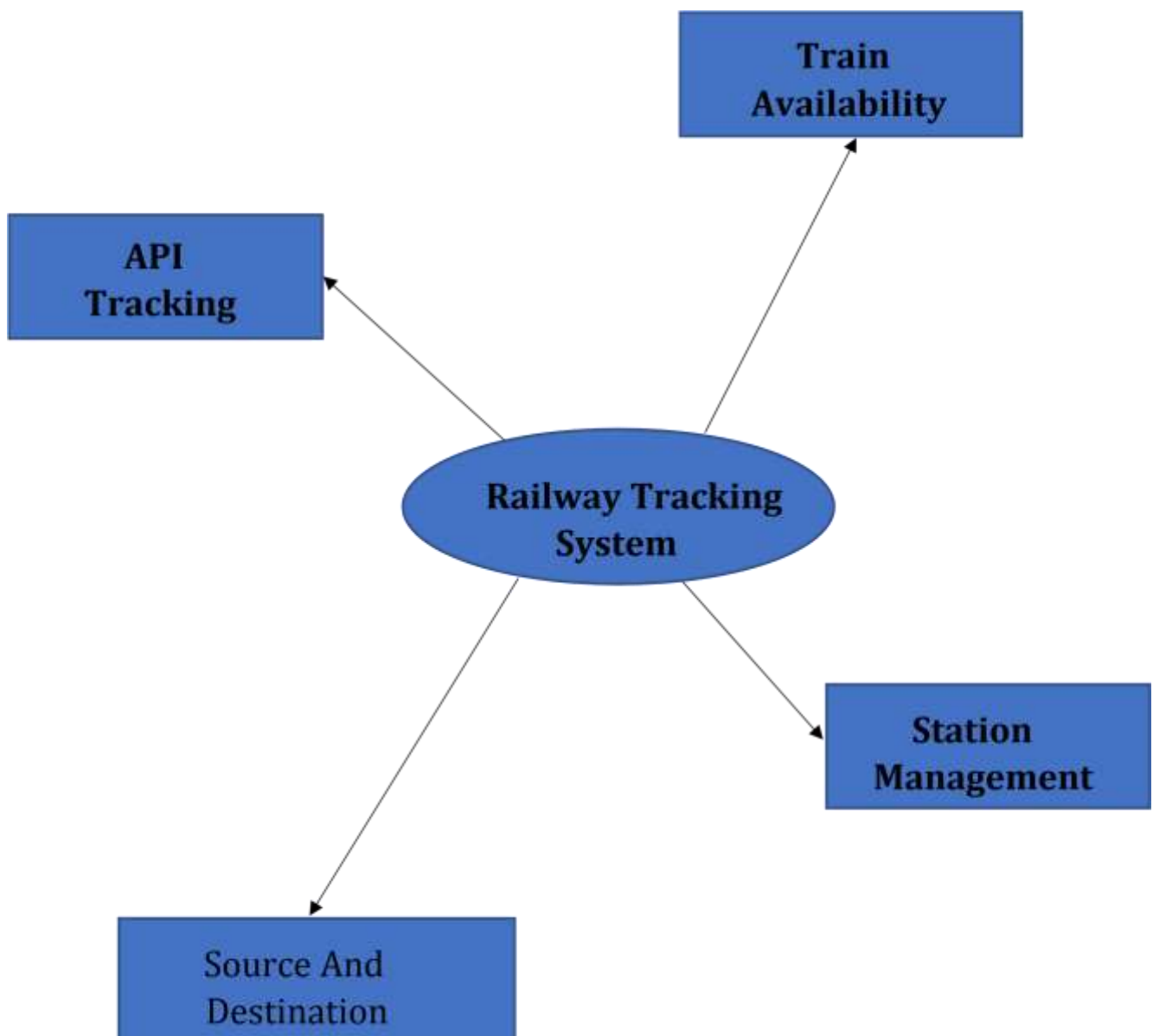
Thus, the entity relationship diagram was created successfully.

Experiment -8

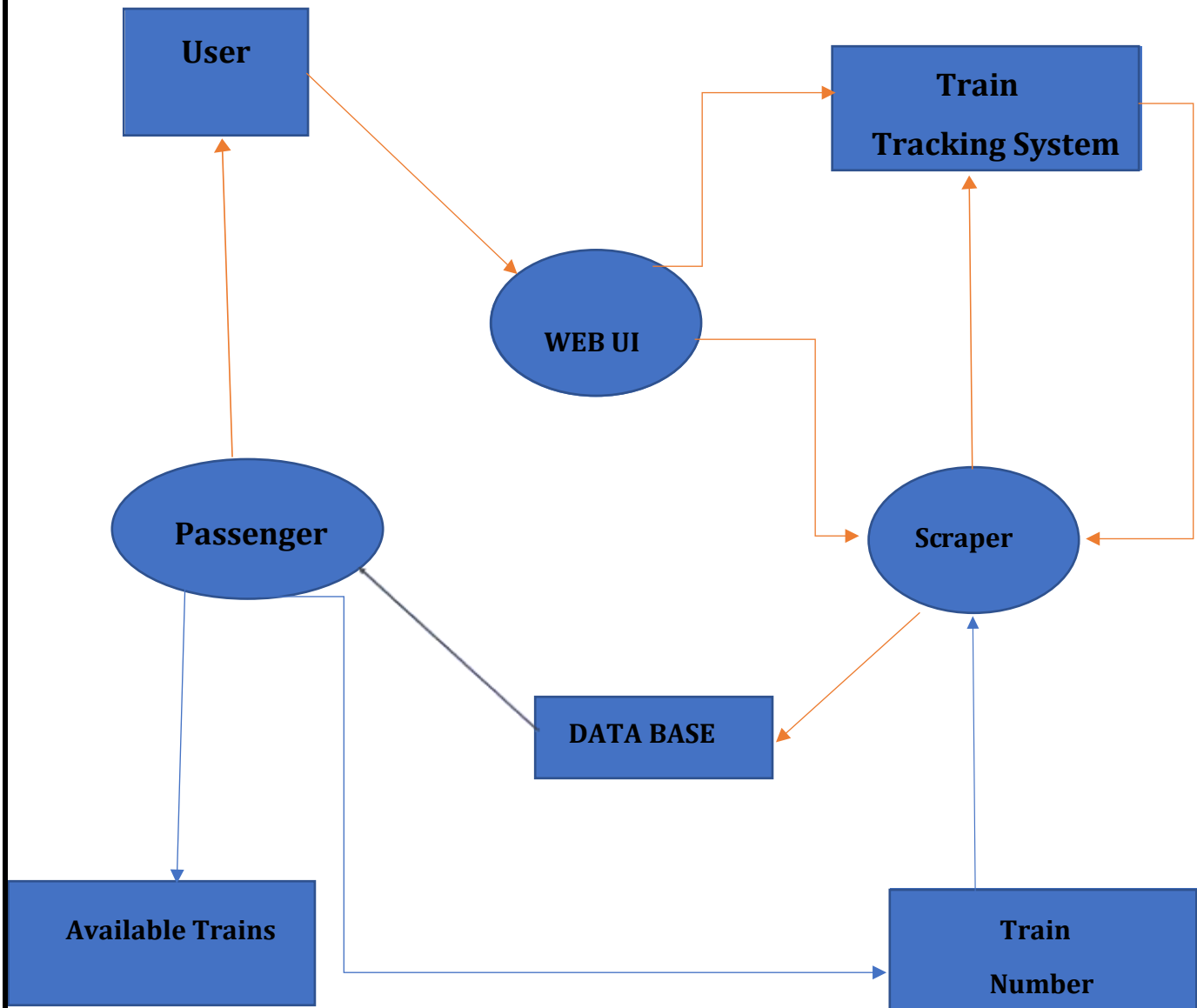
Aim :

To develop the data flow diagram up to level 1 for the Railway Tracking System.

DFD Level 0:



DFD Level 1:



Result:

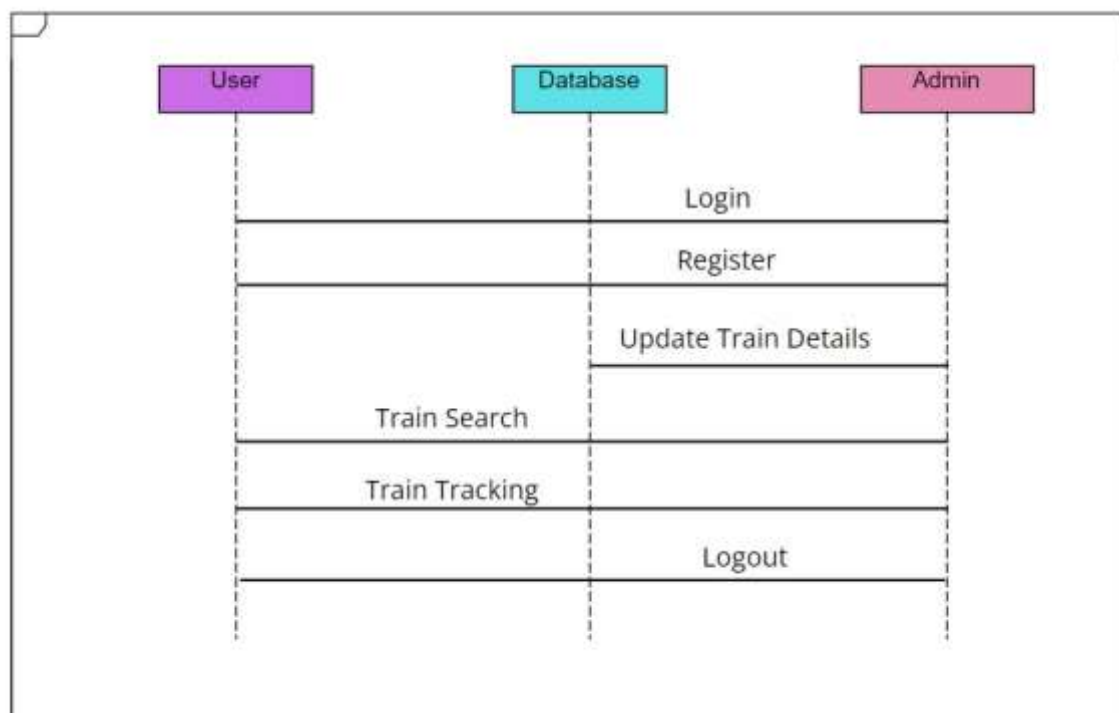
Thus, the data flow diagrams have been created for the Railway Tracking System.

Experiment - 9

Aim :

To create the sequence and collaboration diagram for the <project name>

Sequence and Collaboration Diagram :



Result:

Thus, the sequence and collaboration diagrams were created for the Railway Tracking System.

Experiment - 10

Aim :

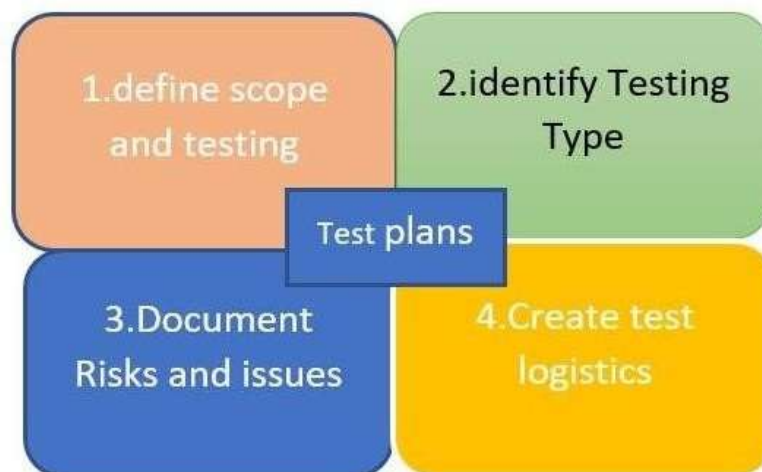
To develop the testing framework and/or user interface framework for the Railway Tracking Sytem.

Executive Summary

The objective is to test the user interface and each module related to it.

- To design effective test cases for identifying the errors
- To check whether all the calculations required in the software are correct(S/W).
- Finding errors or defects which may be created while developing the Railway Tracking System.
- To be confident about the quality of the product.

Test Plan



- 1) Define scope and testing
- 2) Identify testing type
- 3) Document risks and issues
- 4) Create test logistics

A Test Plan is a detailed document that describes the test strategy, objectives, schedule, estimation, deliverables, and resources required to perform testing for a software product. Test Plan helps us determine the effort needed to validate the quality of the application under test. The test plan serves as a blueprint to conduct software testing activities as a defined process, which is minutely monitored and controlled by the test manager.

Scope of Testing

Testing Scope is a list of product features, product parts, or product-related integrations that must be tested in order to build a reliable assessment of a product's quality. The Testing Scope doesn't include details of the testing strategy, the automation approach or the tools that are going to be used.

Functional :

Check if the features and operational behaviour of a product are as per specifications provided by the client and verifies the system against the functional requirements.

Non-Functional:

Non-Functional Testing is defined as a type of Software testing to check non-functional aspects (performance, usability, reliability, etc) of a software application. It is designed to test the readiness of a system as per non-functional parameters which are never addressed by functional testing.

Types of Testing, Methodology, Tools

Category	Methodology	Tools Required
Functional Requirements	Unit Testing	Unit test frameworks like jest and python's unit testing framework
Functional Requirements	Integration Testing	Tools like git and git hub are required to merge.
Functional Requirements	System Testing	Testing the whole system using automation.

Non-Functional Requirements	Load testing	Use web tools in chrome to see if the site the loads.
Non-Functional Requirements	Stress Testing	Use selenium to simulate users and see if people can use it.

Result:

Thus, the testing framework/user interface framework has been created for the Railway Tracking System.

Experiment - 11

Aim :

To develop the test cases manual for Train Tracking System

Test Case Functional Test Cases

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
T1	Verifying User	Accept Valid username and password	1.Enter the username and the password on the textbox 2. Click login button	User should be taken to the login page for entering student credentials	User should be taken to the login page for entering student credentials	Pass	success
T2	Entering login credentials	The system should validate the user details	1.Enter user ID and password	ID number and password is necessary	ID number and password are displayed on the system	Pass	success
T3	Adding to database	Adding user details to database	1.By clicking "login" button, data should be uploaded in the database	Data added into database	Data added into database	Pass	success

Non-Functional Test Cases

Test ID (#)	Test Scenario	Test Case	Execution Steps	Expected Outcome	Actual Outcome	Status	Remarks
T1	Updating UI	Changing user interface more convenient to the users	Editing HTML accordingly	User friendly and simple UI	User-friendly and simple UI	Pass	success

Result:

Thus, the test case manual has been created for Train Tracking System.

Experiment -12

Aim :

To prepare the manual test case report for the Train Tracking System

Category	Progress Against Plan	Status
Functional Testing	Green	In-progress
Non-Functional Testing	Green	In-progress

Functional	Test Case Coverage (%)	Status
Module ID	30%	Completed
User registration	30%	In-progress
Verifying the details	20%	In-progress
Showing available trains	20%	In-progress

Non-Functional	Test Case Coverage (%)	Status
Response time	50%	Completed
Data Updation	50%	In-progress

Result:

Thus, the test case report has been created for the Train tracking System.

Experiment-13

Aim: To provide the details of architectural design/ framework/ implementation

CODE:

```
<html>
<head>
  <meta charset="utf-8">
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <title></title>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta1/dist/css/bootstrap.min.css" rel="stylesheet">
  <link href="https://use.fontawesome.com/releases/v5.7.2/css/all.css" rel="stylesheet">
  <script type="text/javascript"
src="https://cdnjs.cloudflare.com/ajax/libs/jquery/3.2.1/jquery.min.js"></script>
<style>
  ::-webkit-scrollbar {
    width: 8px;
  }

  /* Track */
  ::-webkit-scrollbar-track {
    background: #f1f1f1;
  }

  /* Handle */
  ::-webkit-scrollbar-thumb {
    background: #888;
  }

  /* Handle on hover */
  ::-webkit-scrollbar-thumb:hover {
```

```
background: #555;
}

/* Importing fonts from Google */

@import
url('https://fonts.googleapis.com/css2?family=Poppins:wght@300;400;500;600;700;800;900&
family=Kalam&display=swap');

/* Reseting */
* {
margin: 0;
padding: 0;
box-sizing: border-box;
font-family: 'Poppins', sans-serif;
}

.wrapper {
max-width: 40%;
margin: 0px auto;
height: 60%;
background-color: #4b89be6e;
overflow: hidden;
box-shadow: 5px 25px 35px #3535356b;
}

.wrapper.bg-yellow {
background-color: #1f7cfd8f;
height: 100%;
width: 100%;
padding-top: 0px;
```

```
padding-left: 50px;
padding-right: 20px;
}
}
```

```
.wrapper .bg-yellow .text-white {
  font-size: 3rem;
}
```

```
.wrapper .bg-yellow .cursive {
  font-family: 'Kalam', cursive;
  font-size: 1rem;
  font-weight: 600;
}
```

```
.wrapper .contact-form {
  width: 100%;
  padding: 40px 80px 40px 50px;
}
```

```
.wrapper .contact-form .h3 {
  padding-top: 15px;
  font-weight: 700;
}
```

```
.wrapper .contact-form label {
  font-size: 0.9rem;
  color: #555;
  font-weight: 500;
  margin-bottom: 10px;
}
```

```
.wrapper .contact-form textarea {  
  height: 120px;  
}
```

```
.wrapper .contact-form .form-control {  
  background-color: #e7e7e7;  
  box-shadow: none;  
  font-weight: 600;  
  font-size: 0.95rem;  
  border: none;  
  border-top: 1px solid #bbb;  
}
```

```
.wrapper .contact-form .btn {  
  font-size: 1.2rem;  
  font-weight: 700;  
}
```

```
.wrapper .contact-form .btn.btn-default {  
  color: #F50057;  
}
```

```
.wrapper .contact-form .btn.btn-primary {  
  background: #F50057;  
  border: none;  
  padding: 8px 18px;  
  box-shadow: 0 8px 12px #3535356b;  
}
```

```
.wrapper .contact-form .btn.btn-primary:hover {  
  background-color: #f50056e5;  
}
```

```
.modal .modal-content .modal-header .fas {  
  color: #F50057;  
}
```

```
@media(max-width: 900.5px) {  
  .wrapper {  
    margin: 20px;  
  }  
}
```

```
@media(max-width: 575.5px) {  
  .wrapper .contact-form {  
    padding: 40px;  
  }  
}
```

```
.wrapper .bg-yellow {  
  padding-left: 30px;  
}  
}
```

```
@media(max-width: 350px) {  
  .wrapper {  
    height: 570px;  
  }  
}
```

```
.wrapper .contact-form {  
  padding: 20px;  
}  
}
```

</style>

OUTPUT :

You Queried For														
Origin						Destination								
VIJAYAWADA JN - BZA						TIRUPATI - TPTY								
Train Number	Train Name	Origin	Departure Time	Destination	Arrival Time	Travel Time	Days of Run							Classes
							M	T	W	T	F	S	S	
22833	HUMSAFAR EXPRES	BZA	00:50	RU	06:28	05:38	N	N	N	Y	N	N	N	3A
12245	YPR DOURNTO EXP	BZA	04:15	RU	09:58	05:43	Y	N	Y	Y	N	Y	Y	1A 2A 3A SL 2S
17479	PURI TPTY EXPRE	BZA	11:20	TPTY	22:45	11:25	Y	Y	N	Y	Y	Y	N	2A 3A SL 2S
07436	CCT TPTY SPL	BZA	11:30	TPTY	18:40	07:10	N	N	N	Y	N	N	N	2A 3A SL
17406	KRISHNA EXPRESS	BZA	13:00	TPTY	21:35	08:35	Y	Y	Y	Y	Y	Y	Y	3A CC SL 2S
18567	VSKP QLN EXP	BZA	13:15	RU	19:18	06:03	N	N	N	Y	N	N	N	2A 3A SL 2S
12863	HWH YPR EXPRESS	BZA	18:20	TPTY	00:35	06:15	Y	Y	Y	Y	Y	Y	Y	2A 3A SL 2S
12254	ANGA EXPRESS	BZA	18:35	RU	00:33	05:58	N	N	N	Y	N	N	N	1A 2A 3A SL 2S
17250	CCT TPTY EXP	BZA	19:30	TPTY	04:45	09:15	Y	Y	Y	Y	Y	Y	Y	2A 3A SL 2S
12640	GURUDEV EXP	BZA	19:40	TPTY	01:55	06:15	N	N	N	Y	N	N	N	2A 3A SL 2S
17488	TIRUMALA EXP	BZA	20:25	TPTY	04:05	07:40	Y	Y	Y	Y	Y	Y	Y	2A 3A SL
12247	NS DMM EXP	BZA	21:20	TPTY	04:05	06:45	Y	Y	Y	Y	Y	Y	Y	2A 3A SL 2S
12626	KERALA EXPRESS	BZA	22:30	TPTY	04:40	06:10	Y	Y	Y	Y	Y	Y	Y	2A 3A SL 2S
17210	SESHADRI EXP	BZA	22:50	TPTY	05:10	06:20	Y	Y	Y	Y	Y	Y	Y	2A 3A SL 2S

Running Status

12626 - NEW DELHI - TRIVANDRUM Kerala SF Express

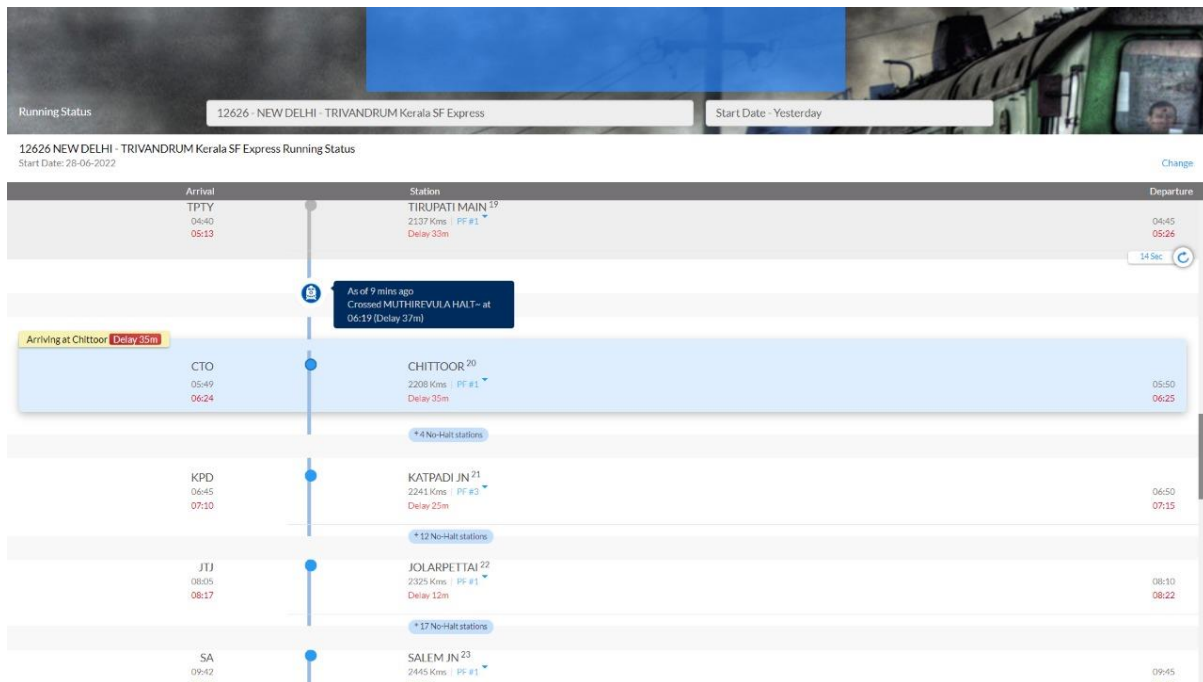
Start Date - Yesterday

12626 NEW DELHI - TRIVANDRUM Kerala SF Express Running Status

Start Date: 28-06-2022

Change

Arrival		Station	Departure
NDLS 20:10 20:12		NEW DELHI ¹ 0 Kms PF #3 Delay 0h:2m	20:10 20:12
MTJ 21:43 22:00		MATHURA JN ² 141 Kms PF #1 Delay 17m	21:45 22:02
AGC 22:20 22:46		AGRA CANTT ³ 195 Kms PF #1 Delay 26m	22:25 22:51
GWL 00:08 00:19		GWALIOR JN ⁴ 313 Kms PF #1 Delay 11m	00:10 00:21
VGLB 01:30 01:34		VEERANGANA LAXMIBAI JN ⁵ 410 Kms PF #2 Delay 4m	01:40 01:55
BINA 03:35 03:27		BINA JN ⁶ 563 Kms PF #2 OnTime	03:40 03:43
BPL 05:20 05:35		BHOPAL JN ⁷ 701 Kms PF #1 Delay 15m	05:25 05:46



Result : Thus, the details of architectural design/framework/implementation along with the screenshots are provided.

Conclusion

Indian Railways can now pinpoint the position and other characteristics of an operating train in an efficient, accurate manner after witnessing numerous improvements and modifications in location tracking technology. Thus, it is clear that a third-world country must keep up with the current information demand, comply with citizen-centric governance, and technological advancements because, in the end, how collaborative and complex the governance framework is in terms of seamless information flow of accurate and timely information between governance ecosystems will determine a country's success.