

18CSC265J-Software Engineering Lab Report

Submitted by

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Under the Guidance of

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In partial satisfaction of the requirements for the degree of

**BACHELOR OF TECHNOLOGY
in
COMPUTER SCIENCE ENGINEERING**

with specialization in <Business Systems>



SCHOOL OF COMPUTING

COLLEGE OF ENGINEERING AND TECHNOLOGY

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

KATTANKULATHUR - 603203

Oct 2022



**SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
KATTANKULATHUR-603203**

BONAFIDE CERTIFICATE

Certified that this lab report titled “**Railway Reservation System**” is the bonafide work done by <Katha Sai Indra Reddy> (RA2111042010021) who carried out the lab exercises under my supervision in SRM Institute of Science and Technology, Kattankulathur during the academic year 2022-2023.

Signature of Lab-In charge

Date:

Signature of Head of the Department

Submitted for the University Practical Examination held on _____ at SRM Institute of Science and Technology,
Kattankulathur, Chennai- 603 203

Examiner - 1

Examiner - 2

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Experiment no.1a

Aim:

This system is basically concerned with the railway reservation to the passengers. The need of this system arose because as is the known fact that India has the largest railway network in the whole of the world and to handle it manually is quite a tough job. By computerizing it, we will be able to overcome many of its limitations and will be able to make it more efficient. The handling of data and records for such a vast system is a very complex task if done manually but it can be made much easier if the system is computerized.

To be more specific, our system is limited in such a way that a train starting from a particular source will have a single destination

Team Members:

Sl No	Register No	Name	Role
1.	RA2111042010021	Katha Sai Indra Reddy	Implementor
2.	RA2111042010016	V. Nitesh Reddy	Resource Investigator

Project Title: Railway Reservation System

DESCRIPTION:

1. Searching of the trains is so easy:

It is easy to search for the wished train as train code, train number are there, you do not need to remember those, you just have to mention source and destination

2. Provides fare tables for passengers:

A fare table is already there so that passengers can know the specific price of their ticket. And as it is stored the amount cannot go wrong.

3. Reduce the possibility to make mistake:

Due to excessive amount of work the employers tend to do mistakes by manual form. Here the chance of mistake is minimum.

4. Reservation can be done very easily:

The overall method is very easy and based on few steps. No huge amount of knowledge is needed to complete the task.

Experiment No.1b

ONE PAGE BUSINESS CASE TEMPLATE

DATE	19-08-2022
SUBMITTED BY	K. Sai Indra Reddy and V. Nitesh Reddy
TITLE / ROLE	Railway Reservation System



THE PROJECT

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

- ✓ The objective of railway reservation system is to give structural design to railway system.
- ✓ The project provides functionality and flexibility to railway system such that one can operate that system easily and efficiently.
- ✓ This project also provides a complete set of solutions for some common and specific works in the railways.

THE HISTORY

In bullet points, describe the current situation.

India's first passenger train, operated by the Great Indian Peninsula Railway and hauled by three steam locomotives (Sahib, Sindh and Sultan) ran for 34 kilometres with 400 people (5 ft 6 in) broad gauge track between Bori Bunder (Mumbai) and Thane on 16 April 1853.

On 24 February 1873, a horse-drawn 3.8 km (2.4 mi) tram opened in Calcutta between Sealdah and Armenian Ghat Street. On 9 May 1874, a horse-drawn tramway began operation in Bombay between Colaba and Parel.

In 1986, computerized ticketing and reservations were introduced in New Delhi. In 1988, the first Shatabdi Express was introduced between New Delhi and Jhansi; it was later extended to Bhopal. Two years later, the first self-printing ticket machine (SPTM) was introduced in New Delhi.

From there Indian railway reservation system took a great change as everything has become online and E ticket which was introduced and through this it has become more convenient for the people to travel through railways as it saves the time and is more efficient than the previous railway system which used to be before the reservation.

LIMITATIONS

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

Data redundancy:

It means that same data fields appear in many different files and often in different formats. In manual system, it poses quite a big problem because the data has to be maintained in large volumes but in our system, this problem can be overcome by providing the condition that if the data entered is duplicate, it will not be entered, otherwise, updating will take place.

Difficulty in accessing the data:

In manual system, searching information is time consuming but in our system, any information can be accessed by providing the primary key.

Unsatisfactory security measures:

In manual system, no security measures were provided but in this system, password security has been provided. The person can access the system by providing the correct password otherwise he is denied the access

APPROACH/ METHODOLOGY

List what is needed to complete the project.

- The first step is to implement the structure for taking the details of the passengers, like name, gender, and age.
- Five functions are defined void details(int), void add_node(char, char, int), int seat(int), int cal(int, int, int), void bill(int, int) to work smoothly.
- There are three elements in the structure like two strings one for taking passenger name and gender and one integer for taking passenger age. Also, a structure pointer will be used which helps to link the next node of another passenger. It is similar to the linked list.
- Character arrays are defined and some integer arrays are defined globally.
- Take the number of passengers as input and these details are sent to the details() function.
- Execute a for loop to take details of each passenger. The details inputted by the user will be sent to the add_node() function.
- In the add_node function, every detail will store in a node for each passenger. These nodes will link each other. This is based on the linked list concept.
- Take the input for source place, destination place and it will give some choice of trains available. Based on that user has to give a choice. Then call the cal() function.
- In cal() function, the user has to give a choice for sleeper or a.c. class. If the user chooses a.c. class another three options will open where the user has to give another choice based on that the system will add 18% GST on the amount and make total amount.
- Call the seat() function where a seat matrix will be given to the user and the user has to choose a seat same with the number of passengers.
- At last, call the bill() function where the total bill amount with all the necessary details will be displayed.
- Adequate man power.
- A supervisor for the smooth run of the system.
- Minimum budget for the software's to be used in the process.

BENEFITS

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

1. Better customer relationship
2. Synchronization of information
3. Increases flexibility and efficiency

4. Saves time and money
5. Keeping track of reservations
6. Ease of use and secure payment
7. For easier search

RESULT: Description of business case template has been done successfully

Experiment No.2

Aim: Incorporate *Identification of Project Methodology and Stakeholder Description template*

Team Members:

Sl No	Register No	Name	Role
1.	RA2111042010016	V. NITESH REDDY	RESOURCE INVESTIGATOR
2.	RA2111042010021	KATHA SAI INDRA REDDY	IMPLEMENTOR

Project Title: RAILWAY RESEVATION SYSTEM

Project Stakeholder Name	Specific Information Needs	Project Interests	Impact on Project	Role
	<i>Types & Frequency of Communication</i>	<i>Specific Areas of Interest and Participation</i>	<i>Positive, Negative, Influencer, Supporter, Roadblock</i>	<i>Collaborator, Participant, Consultant, Information Recipient, Information Provider, Resource Investigator, Monitor, Implementor, Idea Creator, Shaper</i>
V.NITESH REDDY	Resource Manager	Administrates all the work and gathers information on changes/improvements regarding the project. He plans, guides and manages a group event to meet its goals	Positive, Supporter who has control over the systems.	Resource Investigator.
K.SAI INDRA REDDY	Project Head	Is responsible for all the top-notch solutions from all the niches.	Influencer, Takes decisions in the well will of the project.	Implementor
Indian Railways	Consultancy	Indian Railways monitors the train schedule, passenger number and train tracking through digitalization	Positive.	Monitor
Passenger & Travel Services	Customer	Establishes standards and advised practises for safety, security, and environmental initiatives, and defends railway station	Supporter.	Lead

		locations.		

Result:

Thus the Project Methodology was identified stakeholders were described.

Experiment No.3

PROCESS MODEL

AIM: Identification of process model

Selection of Model:

A software-process-model is a brief representation of how a software process works. It helps to develop a software as per under the functionality of the user keeps a sequence of steps followed for a good software. A process model is chosen based on the nature of the project and application, the methods and tools to be used for functionalities that are required as per user. For the Railway Reservation system we choose spiral model.

Spiral Model:

The spiral model is a very beneficial and efficient model. It is the combination of the prototyping model and the waterfall model. The spiral model is mostly used for large, expensive, and complicated projects as best suits for railway reservation system. A big advantage which is risk management is the highlight of this model, it is one of the best SDLC model available for the risk analysis and risk management at each part. User requirements can be changed at later phases so it is flexible as well.

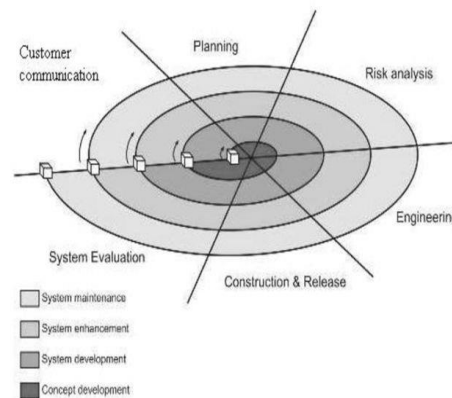
The steps in the spiral lifecycle model are follows:-

1. The system requirements are gathered in detailed from users. It can be done with gathering information from a number of users.
2. An elementary design is created for the system. It is the most important phase of 'Spiral Model'. To create a cost effective project, strategies are applied during creation and alternatives are founded. This stage assists with recognizing and resolve all the potential risks in the undertaking development. If any uncertain functionality meets in requirements, with the sufficient data software proceeds, changes are made to meet the remove the uncertain data.

With the help of the preliminary design first prototype of new system is developed. A second prototype is evolved as follows:

1. Evaluate the strength weakness and risks of first prototype.
2. Defining requirements for the second prototype.
3. Plan and design for the second prototype.

SPIRAL MODEL DIAGRAM:



- **Customer communication**-tasks required to establish effective communication between developer and customer.
- **Planning**-tasks required to define resources, timelines, and other project related information.
- **Risk analysis**-tasks required to assess both technical and management risks.
- **Engineering**-tasks required to build one or more representations of the application.
- **Construction and release**-tasks required to construct, test, install, and provide user support (e.g., documentation and training).
- **Customer evaluation**-tasks required to obtain customer feedback based on evaluation of the software representations created during the engineering stage and implemented during the installation stage.

Why Spiral over other models?

The Reason why we choose Spiral Model over other models

- Couples iterative nature of prototyping with the controlled and systematic aspects of the linear sequential model
- Using spiral, software developed in as series of evolutionary release.

Early iteration, release might be on paper or prototype.
Later iteration, more complete version of software.

The main drawback of the other models is to accommodate the changes or modification is difficult after the process is underway.

Result:

Therefore, we identified the software model (Spiral Model) for our project. (Railway reservation system)

Experiment No : 4

Software Engineering [Estimations of the Railway Reservation]

AIM: TO DESIGN PROJECT PLAN WITH EFFORT ESTIMATION

Estimation of Project Effort:

The estimating approach to be employed is Three Point Analysis(TPA).

The estimation technique based on statistical information is called three point estimation. In this, tasks are divided into smaller tasks, and three different estimating methods are applied to these smaller jobs.

Information Domain Description:

Optimistic Estimate (O):

Estimate assuming all favourable circumstances with no risks or changes

Pessimistic estimate (P):

It accounts for all unfavourable circumstances, the occurrence of all potential negative risks, and the absence of any negative risk mitigation.

Most Likely Estimate (M):

Estimate for both positive and unfavourable circumstances, with the possibility of some risks.

Cocomo Model :

Barry Boehm created the COCOMO Model, also known as the Constructive Cost Model, in 1981 to provide an estimate of the number of man months needed to develop a software product. The model also provides us with a schedule distribution for each of the major project phases and anticipates the project's development timetable in months.

Three categories of software projects are covered by the COCOMO models. These are what they are:

○ Organic Projects :

Modest teams with strong application knowledge work on these relatively small and straightforward software projects to meet a set of flexible requirements.

○ Semi-detached Projects :

These are mid-sized software projects where teams with different levels of experience have to meet a mixture of more rigid and less demanding requirements.

○ Embedded Projects :

These are software projects that must be developed within a set of strict hardware, software, and operational constraints.

ESTIMATION :

Assuming average **KLOC** to be **250**.

Since it can be either **semi-detached** or **embedded** model, as it manages the **database** in **real time**.

Basic Model (Approximate cost estimation)

$[E] = \text{Effort Applied} = a[\text{KLOC}]^b$

$[D] = \text{Development time} = c[\text{KLOC}]^d$

$[P] = \text{People-required} = [E] / [D]$

Basic Model	[E] Effort Applied	[D] Development Time	[P] People Required
Organic Model	790.7664	31.56	25.052
Semi-Detached Model	1454.836	31.983	45.487
Embedded Model	2715.379	31.388	86.509

Calculations : Basic Model

For Organic Model

$[E] = 2.4[250]^{1.05} = 600^{1.05}$

$[E] = 790.7664$

$[D] = 2.5[790.7664]^{0.38}$

$[D] = 31.56$

$[P] = [E] / [D] = 790.766/31.56$

$[P] = 25.052$

For Semi Detached Model,

$$[E] = 3.0[250]^{1.12}$$

$$= 750^{1.12}$$

$$[E] = \mathbf{1454.836}$$

$$[D] = 2.5[1454.836]^{0.35}$$

$$[D] = 31.983$$

$$[P] = [E] / [D]$$

$$= 1454.836/31.983$$

$$[P] = \mathbf{45.487}$$

For Embedded Model,

$$[E] = 3.6[250]^{1.20}$$

$$= 900^{1.20}$$

$$[E] = \mathbf{2715.379}$$

$$[D] = 2.5[2715.379]^{0.32}$$

$$[D] = 31.388$$

$$[P] = [E] / [D]$$

$$= 2715.379/ 31.388$$

$$[P] = \mathbf{86.509}$$

RESULT:

Therefore, we have estimated the required effort, time, and people for the railway reservation system using cocomo model for all the types.

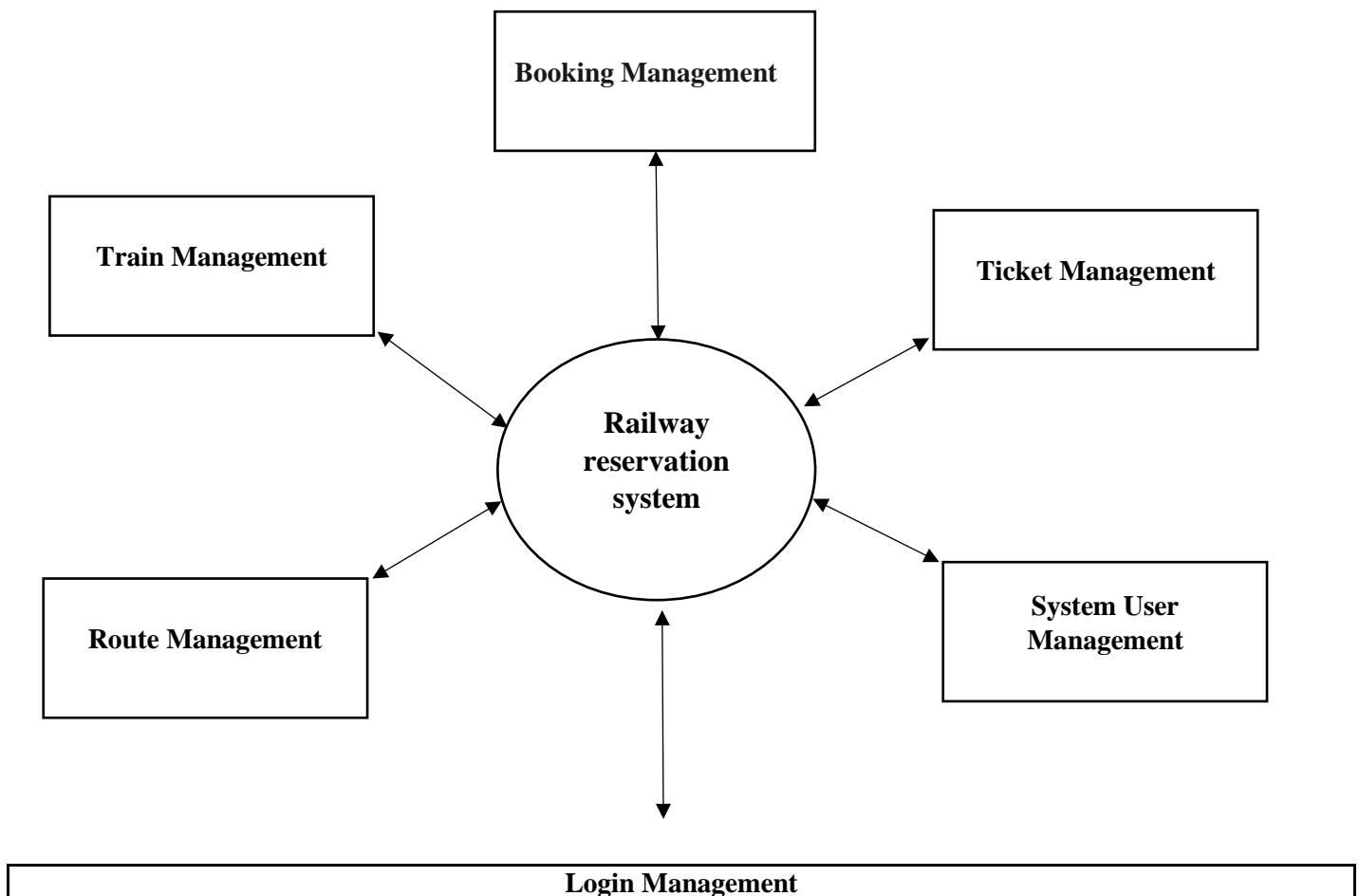
Experiment No:5

Aim: TO DESIGN DATA FLOW DIAGRAM FOR LEVEL 0,1,2

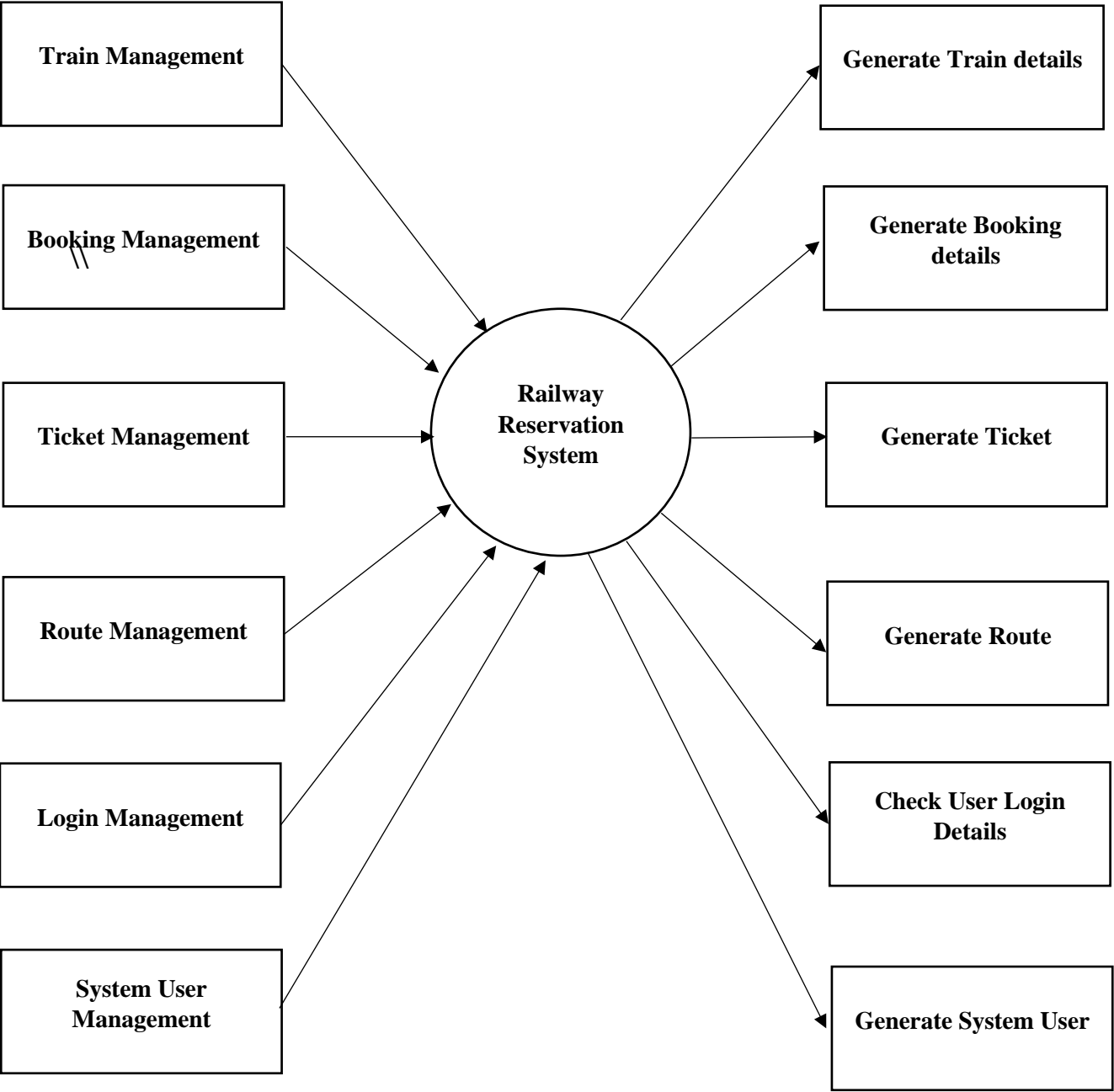
DATA FLOW DIAGRAM:

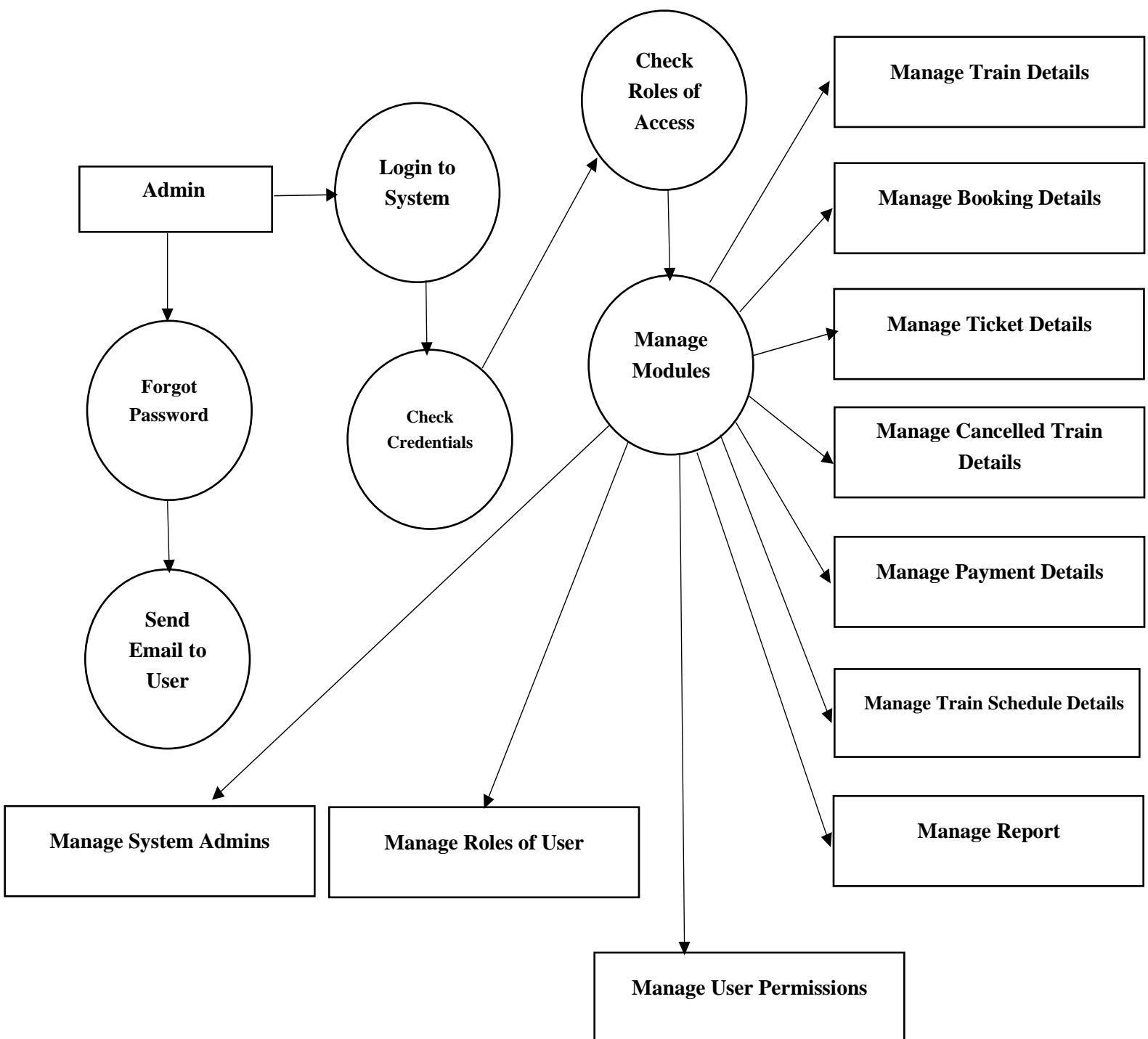
A data flow diagram (DFD) is a graphical or visual representation using a standardized set of symbols and notations to describe a business's operations through data movement.

Zero Level Data Flow Diagram (0 Level DFD):



First Level Data Flow Diagram (1st Level DFD):





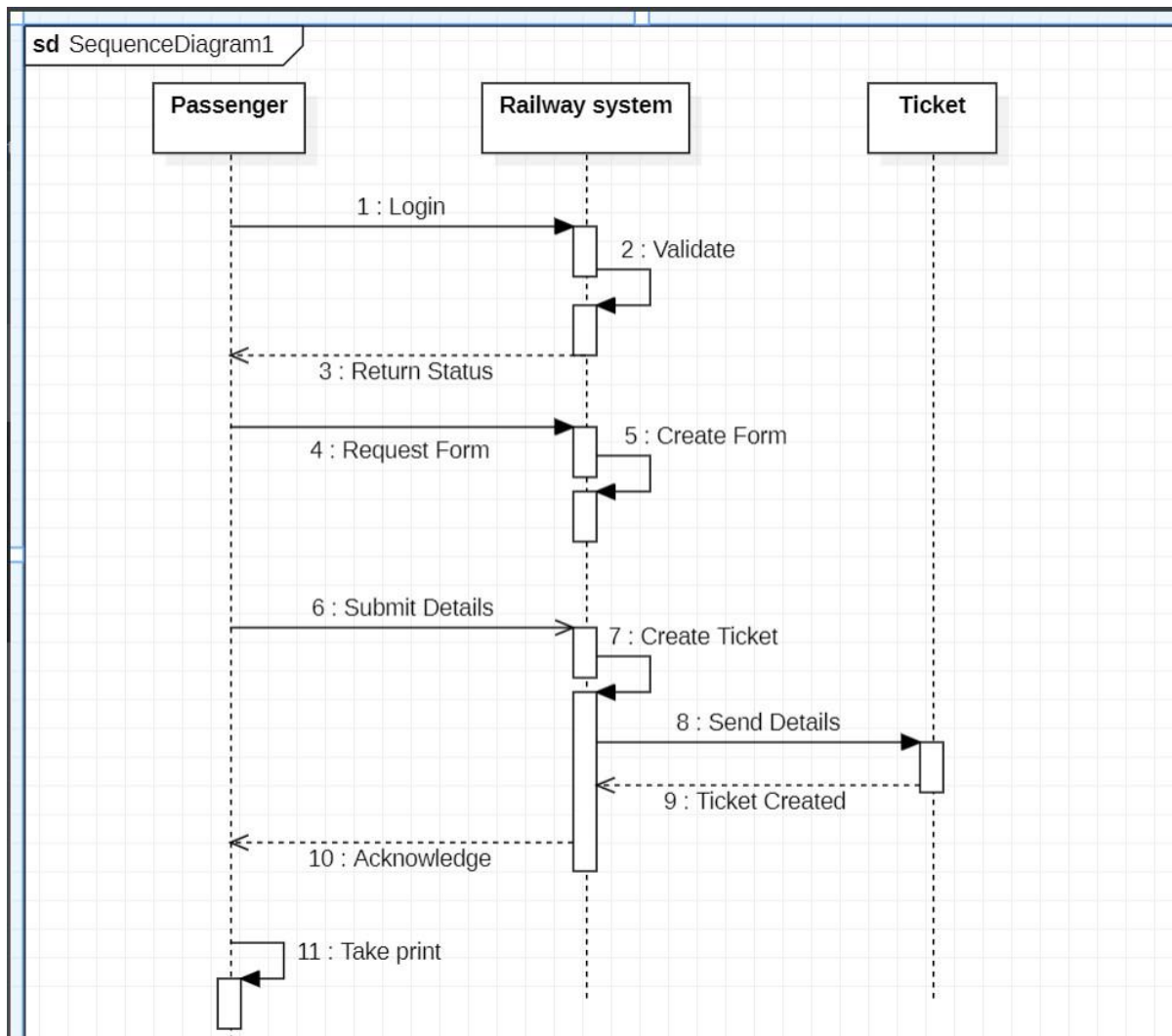
Second Level Data Flow Diagram (2nd Level DFD):

RESULT: Hence the data flow diagrams of levels 0,1,2 for E-health care management have been plotted.

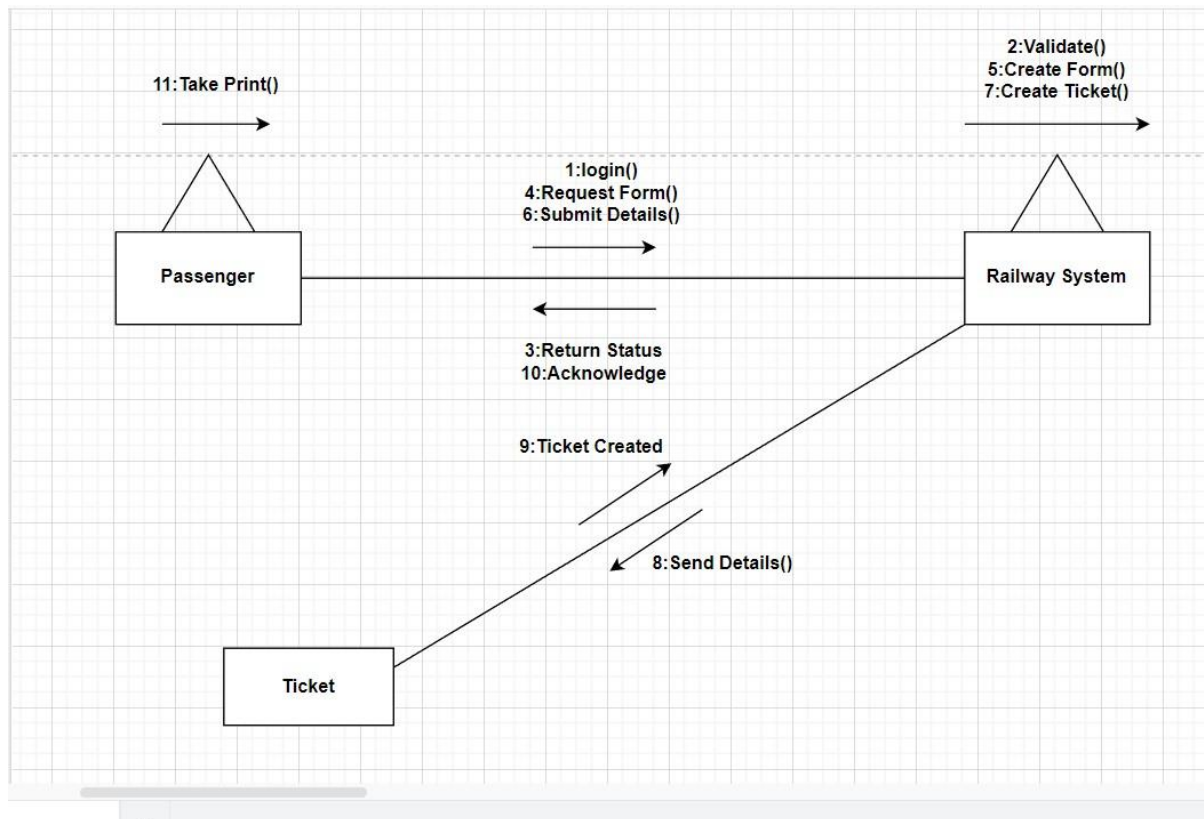
Experiment No.6

AIM: TO CONSTRUCT SEQUENCE AND COLLABORATION DIAGRAM

Sequence Diagram:



Collaboration Diagram:



Result:

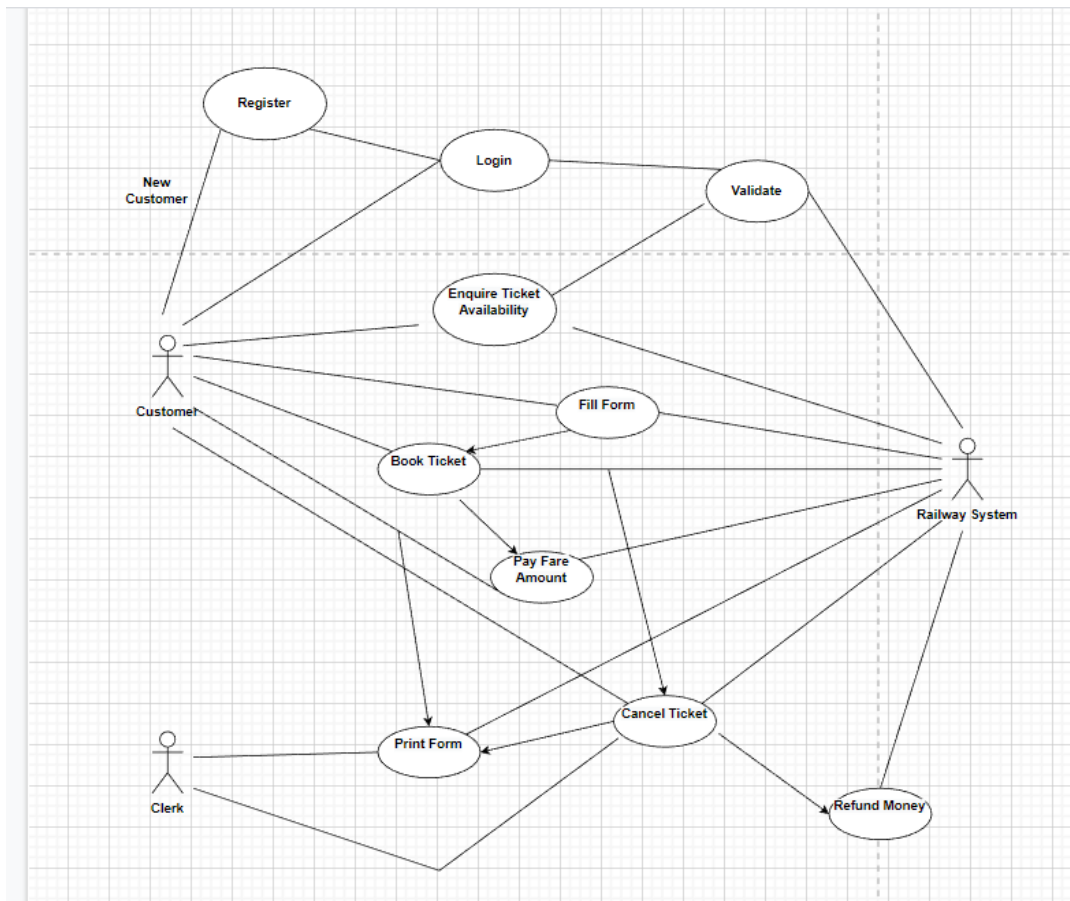
Hence ,these are the required sequence and collaboration diagrams for our project railway reservation system.

EXPERIMENT NO: 7

AIM: TO PREPARE USE CASE AND STATE CHART DIAGRAM

Use Case Diagram:

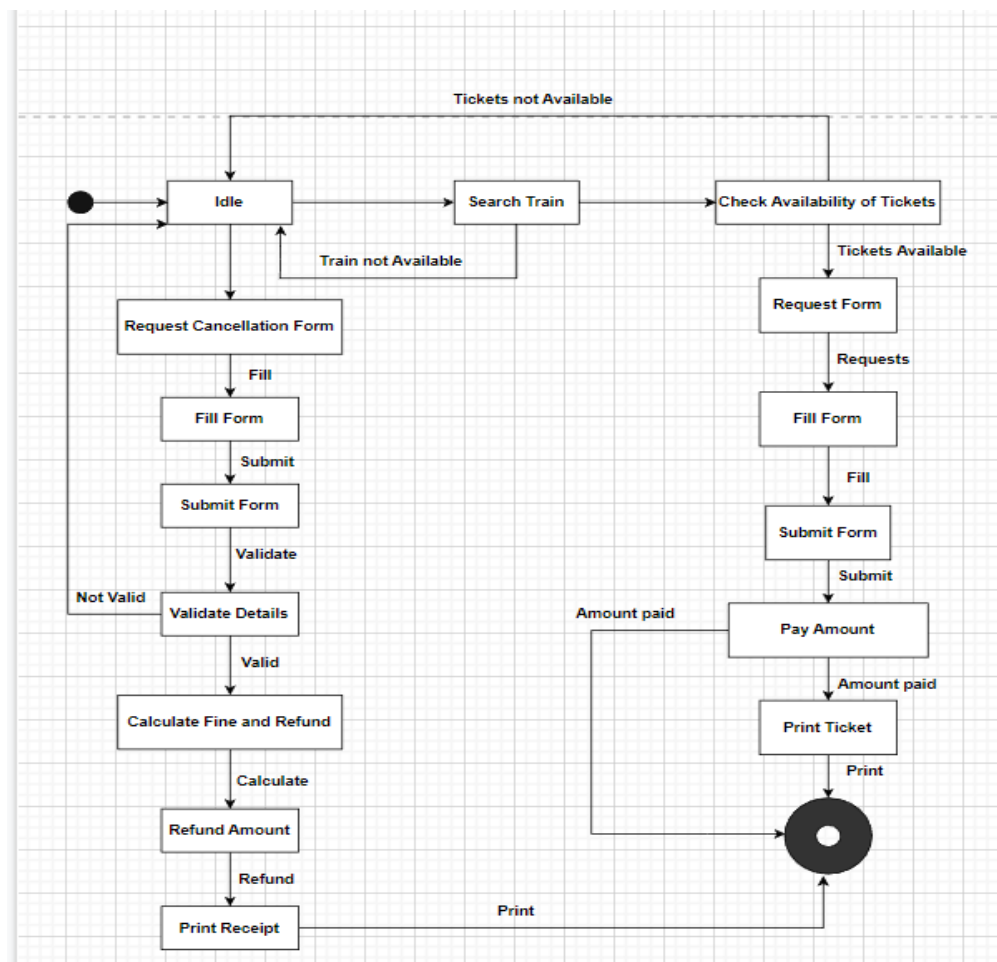
This Use Case Diagram is a graphic depiction of the interactions among the elements of Railway Reservation System. It represents the methodology used in system analysis to identify, clarify, and organize system requirements of Railway Reservation System. The main actors of Railway Reservation System in this Use Case Diagram are: Super Admin, System User Ticket Agent, Customers, who perform the different type of use cases such as Manage Train, Manage Ticket, Manage Booking, Manage Customer, Manage Payment, Manage Train Route, Manage Train Schedule, Manage Users and Full Railway Reservation System Operations. Major elements of the UML use case diagram of Railway Reservation System are shown on the picture below.



State Chart Diagram:

State chart diagram is one of the five UML diagrams used to model the dynamic nature of a system. They define different states of an object during its lifetime and these states are changed by events. State chart diagrams are useful to model the reactive systems. Reactive systems can be defined as a system that responds to external or internal events.

State chart diagrams are used to model the states and also the events operating on the system. When implementing a system, it is very important to clarify different states of an object during its life time and State chart diagrams are used for this purpose. When these states and events are identified, they are used to model it and these models are used during the implementation of the system.



RESULT: Preparation of use case diagram and state chart diagram has been done successful

EXPERIMENT NO: 8

AIM: TO DESIGN USER INTERFACE

User Interface of Railway Reservation System:

User interface (UI) design is the process designers use to build interfaces in software or computerized devices, focusing on looks or style. Designers aim to create interfaces which users find easy to use and pleasurable. UI design refers to graphical user interfaces and other forms.



This RAILWAY RESERVATION SYSTEM has been an attempt to help the user to minimize his workload along with minimizing the paperwork and saving of time .The system has been developed in a way to make it very user friendly. It provides an on-line message and an error detection and error messages every time the user needs. Any person having a little bit of window based can run this system without any pain. As a future enhancement we have decided to further enhance with a seat reservation available. It is to fulfill passengers' requests to sit where they prefer. They are allowed to choose their seat

The image shows a web form titled "Login" in a large, orange, serif font. The form is set against a light gray background and is enclosed in a thin black border. To the left of the form, the word "Login" is repeated in a smaller, orange, serif font. The form contains several input fields: "Name *" with a placeholder "Enter your name", "Address" with a placeholder "Enter your address", "Email *" with a placeholder "Enter your email", and "Phone" with a placeholder "Enter your phone number". Below these are "Subject" with a placeholder "Type the subject" and "Message" with a placeholder "Type your message here...". At the bottom right of the form is a black "Submit" button. Below the form, the text "Thanks for submitting!" is displayed in a small, black, sans-serif font.

Login

Name *

Enter your name

Address

Enter your address

Email *

Enter your email

Phone

Enter your phone number

Subject

Type the subject

Message

Type your message here...

Submit

Thanks for submitting!

Our Team.

This is your Team section. It's a great place to introduce your team and talk about what makes it special, such as your culture and work philosophy. Don't be afraid to illustrate personality and character to help users connect with your team.



Sangeetha M
Professor



Nitesh V
Project Manager



Indra K
Technical Head

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RESULT: Designing of user interface has been done successfully.

EXPERIMENT NO: 9

AIM: TO PREPARE MANUAL TEST CASES

We have used Robustness testing technique in the following tests:

Robustness testing- It is just an extension of boundary value analysis. What happens in this is we assume a single value fault assumption in which we chose a value of a test case outside the domain of the input that is just above maximum and just below minimum which was not the case in boundary value analysis. A bunch of invalid data sources or odd/distressing climate is set up. Now and then it so happens that on giving certain data sources the program may crash . It gets critical to catch those mistakes and amend it as per the prerequisite determinations. Consequently reasonable experiments are created to perform testing in a proper test climate. There are different ways to deal with this testing strategy. Robust test cases are $6n+1$.

TEST CASE ID	SCENARIO NAME AND DESCRIPTION	USER NAME	PASSWORD	EXPECTED OUTPUT	REMARKS (if any)
TC1	Scenario 1: Login basic flow: Login	Valid	Valid	User is allowed to login	-
TC2	Scenario 2 :Login basic flow: Forgot password	N/A	N/A	User is allowed to forgot password	-
TC3	Scenario 3: Login	Invalid	valid	Username invalid	Username is not in specific format
TC4	alternative flow: Invalid	Valid	Valid	Username invalid	Username does not exist
TC5	entry	Valid	Valid	Password invalid	Password does not exist
TC6	Scenario 4: Login alternative flow : User exit	Valid/Invalid	Valid/Invalid	User comes out of the system	-

TEST CASE ID	SCENARIO NAME AND DESCRIPTION	TRAIN NUMBER	TRAIN NAME	TRAIN TYPE	SOURCE STATION	DESTINATION STATION	EXPECTED OUTPUT	REMARKS (IF ANY)
TC1	Scenario 1: Manage train details basic flow	1000000	Chennai express	A/c	Chennai	Kanyakumari	New train added	-
TC2	Scenario 2: Add train details alternative flow : Invalid entry	123a45	Chennai express	A/c	Chennai	Kanyakumari		Train number is not in specific form
TC3		1000000	Mumbai express	A/c	Chennai	Kanyakumari		Train name is not in specific format
TC4		1000000	Chennai express	789	Chennai	Kanyakumari		Train type not in specific format
TC5		1000000	Chennai express	A/c	QRTE	Chennai		Source station is incorrect
TC6		1000000	Chennai	A/c	Chennai	Delhi		Destination station is incorrect
TC7	Scenario 3: Add train details alternative flow: User exits	Valid /Invalid input	Valid /Invalid input	Valid /Invalid	Valid /Invalid input	Valid /Invalid input	User exits	

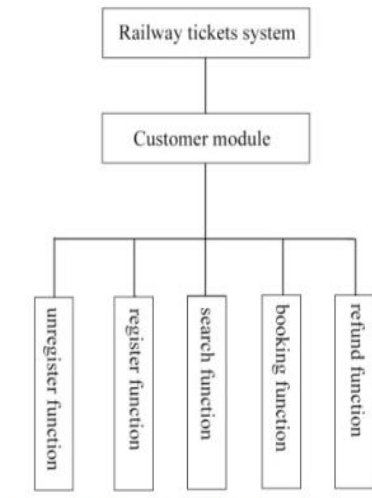
RESULT: Test cases have been implemented.

EXPERIMENT NO: 10

AIM: IMPLEMENTATION WITH LOGIN VALIDATION

System function:

The system functions are as following: customer register function, customer cancellation function, searching function, booking function, refunding function. Functional blocks of the system as shown in Figure .

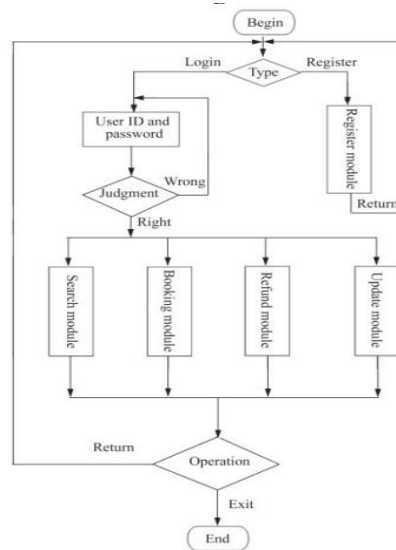


Customer register function: Customers could order tickets after they login on the system. The registration information includes user's name, user's telephone, user's address. According to the customer's cancellation request, the system could complete the cancelling operation, delete the user's registration information from the table in the database. **searching function:** Customers can use the train number or site to site to query. When they type the information, the system will return the relevant information to customers, including the type of train, the type of the tickets, the number of remaining tickets, the price of tickets. **booking function:** Customers could order tickets after they login on the system. They could select the Train Number, sites interval of trips, the number of train tickets. **refund function:** Customers may refund their tickets for some reasons. The system checks tickets information to determine whether to allow refunding tickets, then returns the process result.

Business process design

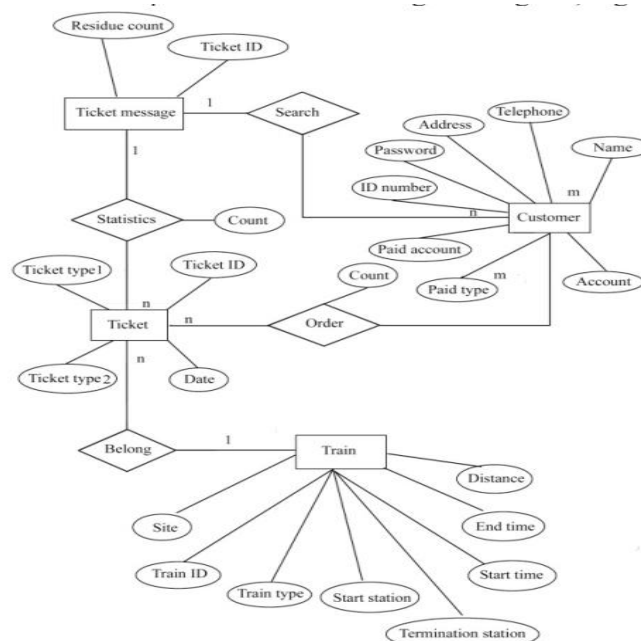
The following business process is made after a detailed analysis of business functions about railway online booking system.

- Customers register personal information, so they can order tickets in the system.
- Customers search train information through the system and see whether having appropriate tickets. Customers order tickets on the user interface. The system returns the result of ordering tickets information.
- Customers can select cancelling operation for some reasons, so the personal information will be removed from the system.



Database Conceptual Design:

In the database conceptual design phase, the entity - relationship diagram can be used to establish the data model to form a ER graph model independent of the machine and DBMS. ER diagram provides entities (ie data object), properties, and associated methods, in order to describing the conceptual model of the real world. The basic elements of ER diagram are constituted by entities, attributes and links. The representation is as following: Entity type: It is expressed by rectangle. The entity name is written in the rectangle. Attribute: It is expressed by oval and linked with the corresponding entity by line; multi-valued attributes is connected by the two-lane; line is added under the name of the main attribute. Contact: It is expressed by the diamond and linked with the corresponding entity by line. The contact name is written in the diamond box. The contact type is written near by the line. The relationship of 1 to 1, 1 to n, n to m should be clearly shown in the ER diagram. 1 to 1 relationship between the two entities connected in the direction of writing 1; 1 to n relations in the one to writing 1 and multi-party write N; n to m relationship between the two entities are connected in the direction of writing N, M. Data tables and mutual relationship is shown in following ER diagram, Figure.



Logic model design

Logic model design task is to convert the basic ER diagram of the conceptual models to logical structure of the consistent data model which was supported by DBMS products. In this paper, the user view method is used to standard tables. All the keywords of tables are listed. The contact and constraint relation is description by data collection chart. The design result of the user view is summarized. All of user view tables are composed to a complex database system. The logic design of database as following; Customer information , name, password, sex, telephone, address, paid account, paid type Order record , ticket ID, count, date, total price Ticket message ticket ID, residue number,date, start station, end station, price Train message (train ID, train type, start station, end station, start time, end time, distance)

Physical design of the database

The physical structure of the database mainly refers to record format, record organization and record access methods. Obviously, the physical design of the database entirely dependent on a given hardware environment and database products. In relational model system, the physical design is relatively simple because the file format is a single record type file which contains only index mechanism, space size, block size, etc. Mainly physical database tables design as shown below:

CUSTOMER MESSAGE:

Field name	Data type	width	empty	Primary key	note
ID8	char	20	no	yes	Customer ID
Name	char	20	no	no	name
pwd	char	20	no	no	password
Sexno	int	1	no	no	sex
tel	char	11	no	no	telephone
Address	char	30	no	no	address
payA	char	40	no	no	Paid account
payT	char	20	no	no	Paid type

ORDER TICKET MESSAGE:

Field name	Data type	width	empty	Primary key	note
ID	char	20	no	yes	Train ID
type	char	20	no	no	Train type
Start station	char	40	no	no	Start station
End station	char	40	no	no	End station
Start time	datetime	1	no	no	Start time
End time	datetime	1	no	no	End time
distance	int	1	no	no	distance

TRAIN MESSAGE

Field name	Data type	width	empty	Primary key	note
ID8	char	20	no	yes	Customer ID
ID	char	20	no	yes	Ticket ID
num	int	1	no	no	count
Date	datetime	1	no	no	date
price	int	1	no	no	Total price

Code for Login Module:

```
import wixUsers from 'wix-users';

let email = // email address of user to log in
let password = // password of user to log in

wixUsers.login(email, password)
  .then( () => {
    console.log("User is logged in");
  } )
  .catch( (err) => {
    console.log(err);
  } );|
```

Login Interface:

Sign Up

Please fill in this form to create an account.

Email

Password

Repeat Password

☒ Remember me

By creating an account you agree to our [Terms & Privacy](#).

Cancel

Sign Up

RESULT: Implementation of Login has been done successfully

EXPERIMENT NO: 11

AIM: Implementation with functionalities

Code:

```
#include <conio.h>
#include <stdio.h>
#include <stdlib.h>
#include <string.h>

typedef struct mynode {
    char name[20];
    char gen[6];
    int age;
    struct mynode* link;
} Node;

Node* start = NULL;

void details(int);
int seat(int);
int cal(int, int, int);
void bill(int, int);

char source[20], des[20], train[40];
char station[40], cla[40];
int time1, time2, a[55];

void main()
{
    int i,j,a1,a2,b,c,x = 0, d, e, r;
    char o;
    printf("Enter Number Of Passengers: ");
    fflush(stdin);
    scanf("%d", &j);

    // Calling details() function with
    // argument number of passenger
    details(j);
    printf("Enter The Source Place: ");
    fflush(stdin);
    gets(source);
    printf("Enter The Destination Place: ");
    gets(des);
    printf("\t\tThe Following Trains "
    "Are Available.....\n");
    printf("\t\t1. Rajdhani Express.."
    ".....10:00 "
    "a.m.....Sealdah Station\n");
```

```

printf("\t\t2. Satabdi Express..."
".....05:00 "
"p.m.....Howrah Station\n");
printf("\t\t3. Humsafar Express..."
".....11:00 "
"p.m.....Kolkata Chitpur"
" Station\n");
printf("\t\t4. Garib-Rath Express"
".....05:00 "
"p.m.....Sealdah Station\n");
printf("\t\t5. Durgam Express..."
".....07:00 "
"a.m.....Santraganchi"
"Station\n");
scanf("%d", &i);
do {
switch (i) {
case 1: {
strcpy(train,
"Rajdhani Express");
strcpy(station,
"Sealdah Station");
time1 = 10;
time2 = 00;
a1 = 2099;
a2 = 1560;

d = cal(a1, a2, j);
printf("Total Bill Amount:"
" %d\n",
d);
}; break;
case 2: {
strcpy(train,
"Satabdi Express");
strcpy(station,
"Howrah Station");
time1 = 05;
time2 = 00;
a1 = 1801;
a2 = 981;

d = cal(a1, a2, j);
printf("Total Bill Amount:"
"%d\n",
d);
}; break;
case 3: {
strcpy(train,
"Humsafar Express");
strcpy(station,
"Kolkata Chitpur Express");
time1 = 11;
time2 = 00;

```

```

a1 = 2199;
a2 = 1780;

d = cal(a1, a2, j);
printf("Total Bill Amount: %d\n", d);
}; break;
case 4: {
strcpy(train, "Garib-Rath Express");
strcpy(station, "Sealdah Station");
time1 = 05;
time2 = 00;
a1 = 1759;
a2 = 1200;

d = cal(a1, a2, j);
printf("Total Bill Amount: %d\n", d);
}; break;
case 5: {
strcpy(train, "Duronito Express");
strcpy(station, "Santraganchi Station");
time1 = 07;
time2 = 00;
a1 = 2205;
a2 = 1905;

d = cal(a1, a2, j);
printf("Total Bill Amount: %d\n", d);
}; break;
default:
printf("Enter Correct choice.....\n");
x = 1;
break;
}
} while (x);
printf("Now Book Your Seats.....\n");

seat(j);

bill(d, j);
}

int cal(int y1, int y2, int h)
{
int b, c, i, t, r, n;
printf("\t\tEnter Your Choice.....\n");
printf("\t\t1. Slepper Class....\n");
printf("\t\t2. A.C Class.....\n");
scanf("%d", &i);
switch (i) {
case 1: {
strcpy(cla, "Slepper Class");
b = y2 * h;
c = b + (b * 0.18);

```

```

    } break;
case 2: {
printf("\t\tEnter Your Choice....\n");
printf("\t\t1. 3A Class....\n");
printf("\t\t2. 2A Class....\n");
printf("\t\t3. 1st Class A.C.....\n");
scanf("%d", &n);
switch (n) {
case 1: {
strcpy(cla, "3A Class");
b = y1 * h;
c = b + (b * 0.18);
} break;
case 2: {
strcpy(cla, "2A Class");
b = (y1 + 1000) * h;
c = b + (b * 0.18);
} break;
case 3: {
strcpy(cla, "1st Class A.C.");
b = (y1 + 5000) * h;
c = b + (b * 0.18);
} break;
default: {
printf("\t\tEnter Right Choice.....\n");
}
}
} break;
default: {
printf("\t\tEnter Right Choice.....\n");
}
}
return c;
}

```

```

void details(int k)
{
int i, a;
char val[20], gen[6];
for (i = 1; i <= k; i++) {
printf("Enter The %d Passenger Name: ", i);
fflush(stdin);
gets(val);
printf("Enter The %d Passenger Gender: ", i);
fflush(stdin);
gets(gen);
printf("Enter The %d Passenger Age: ", i);
fflush(stdin);
scanf("%d", &a);

add_node(val, gen, a);
}
}

```

```
// for each passengers
void add_node(char lol[20], char der[6], int b)
{
Node *newptr = NULL, *ptr;
newptr = (Node*)malloc(sizeof(Node));
strcpy(newptr->name, lol);
strcpy(newptr->gen, der);
newptr->age = b;
newptr->link = NULL;
if (start == NULL)
start = newptr;
else {
ptr = start;
while (ptr->link != NULL)
ptr = ptr->link;
ptr->link = newptr;
}
}

// Function for choosing seats
int seat(int p)
{
int i;
printf("\t\t\t\t\t-:SEAT MATRIX:- \n");
printf("\t(U) (M) \t\t(L) (L) "
"\t(U)\n\n");
printf("\t01 02 03\t04 "
"05\n\n");
printf("\t06 07 08\t09 "
"10\n");
printf("\t11 12 13\t14 "
"15\n\n");
printf("\t16 17 18\t19 "
"20\n");
printf("\t21 22 23\t24 "
"25\n\n");
printf("\t26 27 28\t29 "
"30\n");
printf("\t31 32 33\t34 "
"35\n\n");
printf("\t36 37 38\t39 "
"40\n");
printf("\t41 42 43\t44 "
"45\n\n");
printf("\t46 47 48\t49 "
"50\n");
printf("\t51 52 53\t54 "
"55\n\n");
printf("\t56 57 58\t59 "
"60\n");
printf("\nEnter Seat Numbers: \n");
for (i = 0; i < p; i++)
scanf("%d", &a[i]);
}
```

```

void bill(int y, int j)
{
    int i;
    Node* ptr = start;
    for (i = 1; i <= j; i++) {
        printf("\t\t%dst Passenger Name: ", i);
        puts(ptr->name);
        printf("\t\t%dst Passenger Gender: ", i);
        puts(ptr->gen);
        printf("\t\t%dst Passenger Age: %d\n\n", i,
            ptr->age);
        ptr = ptr->link;
    }
    printf("\t\tSource Place: ");
    puts(source);
    printf("\t\tDestination Place: ");
    puts(des);
    printf("\t\tThe Boarding Station: ");
    puts(station);
    printf("\t\tTrain Is: ");
    puts(train);
    printf("\t\tAllocated Class: ");
    puts(cla);
    printf("\t\tBoarding Time: %d:%d\n", time1, time2);
    printf("\t\tTotal Bill Amount: %d\n", y);
    printf("\t\tAllocated Seats Are: \n");
    for (i = 0; i < j; i++) {
        printf("\t\t%d ", a[i]);
    }
    printf("\n");
    printf("\t\t\tThank You.....\n");
}

```

OUR PROJECT UNIQUENESS:

Our railway reservation system is with a uniqueness of passengers selecting there own seats and in the present scenario of Indian railways we only have the option of selecting the berth type but in our model we provide the facility of selecting seats to the passengers which will enable passengers to select there seats and enjoy there journey through out, this uniqueness is much needed for the present system as many want to select there seats and be placed in the desired seats they choose which cannot happen in the present scenario . This is our main uniqueness which we are producing in our project

Output:

```
"C:\Users\saini\OneDrive\Documents\Railway Reservation\bin\Debug\Railway Reservation.exe"
Enter Number Of Passengers: 2
Enter The 1 Passenger Name: Nitesh
Enter The 1 Passenger Gender: Male
Enter The 1 Passenger Age: 18
Enter The 2 Passenger Name: Indra
Enter The 2 Passenger Gender: Male
Enter The 2 Passenger Age: 18
Enter The Source Place: Vijayawada
Enter The Destination Place: Chennai
The Following Trains Are Available....
1. Rajdhani Express.....10:00 a.m.....Sealdah Station
2. Satabdi Express.....05:00 p.m.....Howrah Station
3. Humsafar Express.....11:00 p.m.....Kolkata Chitpur Station
4. Garib-Rath Express.....05:00 p.m.....Sealdah Station
5. Duronto Express.....07:00 a.m.....SantraganchiStation
1
Enter Your Choice.....
1. Sleeper Class....
2. A.C Class.....
2
Enter Your Choice....
1. 3A Class....
2. 2A Class....
3. 1st Class A.C.....
1
Total Bill Amount: 4953
Now Book Your Seats.....
--SEAT MATRIX:-
(U) (M) (L) (L) (U)
01 02 03 04 05
06 07 08 09 10
11 12 13 14 15
16 17 18 19 20
21 22 23 24 25
26 27 28 29 30
31 32 33 34 35
```

```
"C:\Users\saini\OneDrive\Documents\Railway Reservation\bin\Debug\Railway Reservation.exe"
26 27 28 29 30
31 32 33 34 35
36 37 38 39 40
41 42 43 44 45
46 47 48 49 50
51 52 53 54 55
56 57 58 59 60
Enter Seat Numbers:
01
06
1st Passenger Name: Nitesh
1st Passenger Gender: Male
1st Passenger Age: 18
2st Passenger Name: Indra
2st Passenger Gender: Male
2st Passenger Age: 18
Source Place: Vijayawada
Destination Place: Chennai
The Boarding Station: Sealdah Station
Train Is: Rajdhani Express
Allocated Class: 3A Class
Boarding Time: 10:0
Total Bill Amount: 4953
Allocated Seats Are:
1 6
Thank You.....
Process returned 0 (0x0) execution time : 125.484 s
Press any key to continue.
```

RESULT: Implementation of functionalities has been done successfully

EXPERIMENT NO: 12

AIM: ARCHITECTURE/DESIGN/FRAMEWORK/IMPLEMENTATION



Login

Name *

Enter your name

Address

Enter your address

Email *

Enter your email

Phone

Enter your phone number

Subject

Type the subject

Message

Type your message here...

Thanks for submitting!

Submit

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Professor



Nitesh V
Project Manager



Indra K
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RESULT: Implementation has been done successfully

