RAILWAY RESERVATION SYSTEM

SOFTWARE REQUIREMENTS

SPECIFICATION

PROJECT MEMBERS:

LAASYA : 19MIS0138 (TEAM LEADER)

SANTHOSH : 19MIS0136 (REQUIREMENT ENGINEER)

SIVAJI : 19MIS0163 (TESTER-2)

VAMSEE : 19MIS0164 (DEVELOPER)

SHARVESH : 19MIS0171 (TESTER-1)

GUNAL : 19MIS0189 (DESIGNER)

A Software Requirements Specification (SRS) is a document that describes the nature of a project, software or application. In simple words, SRS document is a manual of a project provided it is prepared before you kick-start a project/application. This document is also known by the names SRS report, software document. A software document is primarily prepared for a project, software or any kind of application.

There are a set of guidelines to be followed while preparing the software requirement specification document. This includes the purpose, scope, functional and nonfunctional requirements, software and hardware requirements of the project.

What is a Software Requirements Specification document?

A Software requirements specification document describes the intended purpose, requirements and nature of a software to be developed. It also includes the yield and cost of the software.

In this document, railway reservation management project is used as an example to explain few points.

Table of Contents

Introduction:

PURPOSE

The motivation behind this source is to portray the railway reservation system, which gives the train timing subtleties, reservation, charging and wiping out on different kinds of reservation specifically. Moreover, This Railway reservation administration won't just upgrade the reservation yet will likewise help the workers in getting backing, discounts and other constant fixes.

- Confirm Reservation for confirm Seat.
- Reservation against Cancellation.
- Waiting list Reservation.
- Online Reservation.
- TatkalReservation

SCOPE

Innovation has changed numerous parts of life in the 21st century, including the route a significant number of us reserve train spot. For instance, to make ticketing increasingly advantageous for explorers, an online reservation framework encourages us in booking tickets from the solace of our homes or workplaces. While this is advantageous for the vast majority, it has made things especially simpler for individuals dwelling in remote areas.
The various advantages of using the online reservation system are as follows:

- Convenient – You can book or cancel your tickets sitting in the comfort of your home or office.Saves Time and Effort - You can save the time needed to travel to the railway reservation office and waiting in the queue for your turn.
- Towards a greener planet – Instead of printing your ticket you can also choose to travel with the soft copy of your booked ticket in your laptop or even on your mobiles
- Freight Revenue enhancement.
- Passenger Revenue enhancement.
- Improved & optimized service

REFERENCES

downloads.intel.com

cs.swt.edu

General Description:

This area depicts the general factors that influence the item and its necessities. This segment comprises of five subsections that follow. This area doesn't state explicit prerequisites. Every one of the subsections makes those prerequisites more obvious; it doesn't indicate structure or express explicit necessities. Such all subtleties are given in area 3.

PRODUCT PERSPECTIVE:

Before making this a real time running online reservation system, old system suffered from many of the DRAWBACKS, such as:

- The existing system is highly manual involving a lot of paper work and calculation and therefore may be erroneous. This has led to inconsistency and inaccuracy in the maintenance of data.
- The data, which is stored on the paper only, may be lost, stolen or destroyed due to any natural calamity of fire or water.
- Existing system is sluggish and consumes a lot of time, resource etc. causing inconvenience to customers and staff.
- Due to manual working, it is difficult to add, delete, update, or view the data.
- Since number of passengers has increased to an uncertain multiple, it is very difficult to maintain or retrieve detailed record of passengers.
- A Railway has many offices around the world, an absence of link between them all causes to a lack of miscommunication and discoordination.

Hence, this Railway reservation system is proposed, with following benefits:

- Computerization of reservation system will reduce a lot of daily paperwork and hence load on the staff of admin department.

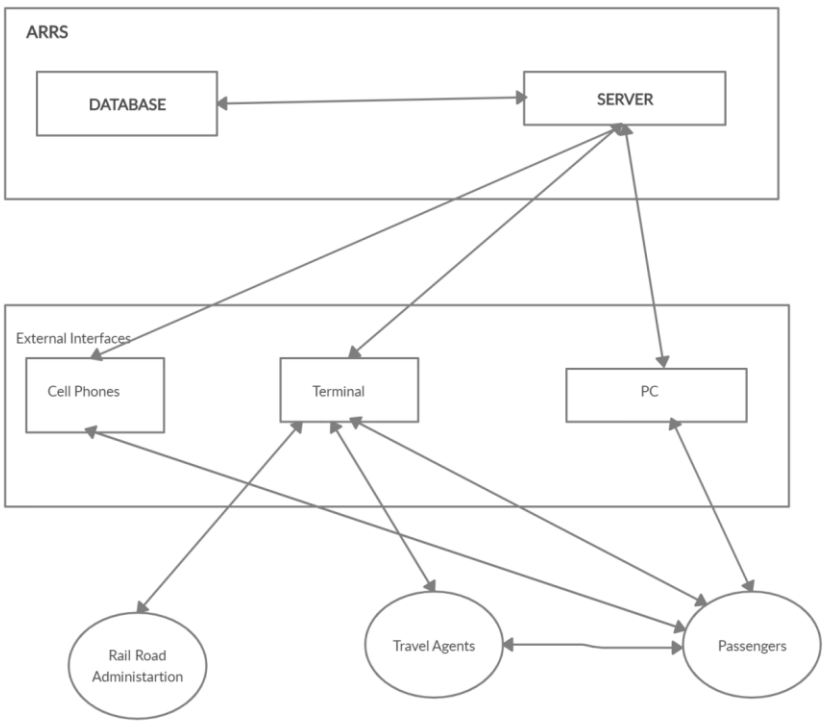
Machine does all the calculations. Hence, chances of error are low.

- Reservation, Cancellation or updation lists of Ticket's can easily be maintained and retrieved and any required additions, deletion or updation can easily be performed.
- This system provides User Name-Password validation, hence unauthorized access is prevented.

PRODUCT FUNCTIONS:

Users with varying levels of familiarity with computers will mostly use this system. With this in mind, an important feature of this software is that it can be relatively simple to use. The scope of this project encompasses:

- **Search:** This function allows the user to search for train that is available between two travel cities namely "Departure City" and "Arrival City" as desired by the traveler. The System initially prompts the agent for these two column values, the date of the journey, preferred time slot and the number of passengers. It then displays a list of trains available with different classes.
- **Selection:** The function allows a particular train to be selected from the displayed list. All the details of the train are as shown:
  - ✓ Train Number.
  - ✓ Date, Time and place of departure.
  - ✓ Train Duration
  - ✓ Fair per head
  - ✓ Number of stoppages – 0, 1, 2…
- **Review:** if the seats are available, the software prompts for the including taxes is shown and train details are reviewed before final payment.
- **Travel Information:** This system asks for details of all the passenger before the booking.
- **Payment:** It requires details of credit/ debit card of the person to make payment and reserve the required seat, Details such as:
  - Card Number
  - Card Type
  - CVV Number
  - Expiry Date
  - Name on card
- **Cancellation:** System also allow cancellation of existing reservation done, making seats unreserved for others to book and refunding the money back to the accounts of users cancelling the tickets.



OVERVIEW

USER CHARACTERISTICS:

As working on this website will require some basic computer knowledge, we classify knowledge required by the users in two basic categories:

- EDUCATIONAL LEVEL: At least the user of this system should be comfortable with English Language.
- TECHNICAL EXPERTISE: User should be comfortable using general-purpose applications on the mobile system.

GENERAL CONSTRAINTS:

Software Constraints:

This System will run on all Android phones and and higher platforms installed.

ASSUMPTIONS AND DEPENDENCIES:

Every system requires some certain parameters to work, to work as per the requirement, our system also requires some parameters, and we assume them as fulfilled before using this system, which are as:

- Booking agent/ user will be having his/ her own username registered before booking of any ticket, else, they'll have to register themselves on our website.
- This software needs booking agent/ user to have somplete knowledge of railway reservation system and its working.
- Software is dependent on access of Internet, as it is a remote application, it is necessary to have internet access.

Specific Requirements:

Requirements refers to the needs of fabricated software to work efficiently and effectively, some of the requirements of this software are as follows:

EXTERNAL INTERFACE REQUIREMENTS:

External Interface requirements refers to needs of this software's front end to work efficiently, the requirements are further classified into certain topics, which are as:

i. User Interfaces:

For the efficient working of the User Interface, i.e. the Front End of the system, the OS must be having at least latest version android to log into the website.

ii. Hardware Interfaces:

For the hardware requirements, the SRS specifies the logical characteristics of each interface b/w the software product and the hardware components. It specifies the hardware requirements like memory restriction, cache size, processor, RAM etc. those are required for software to run.

iii. Software Interfaces:

For Hosting: Any Windows Operations System with DOS Support and Visual Studio for development. Primarily Windows 8, having Dream Weaver Installed with a working LAN connection to be mandatory.

For Using: Any type of Operating System with at Least Internet Explorer Installed and having minimum of 512 kbps working LAN compulsorily.

iv. Communication Interfaces:

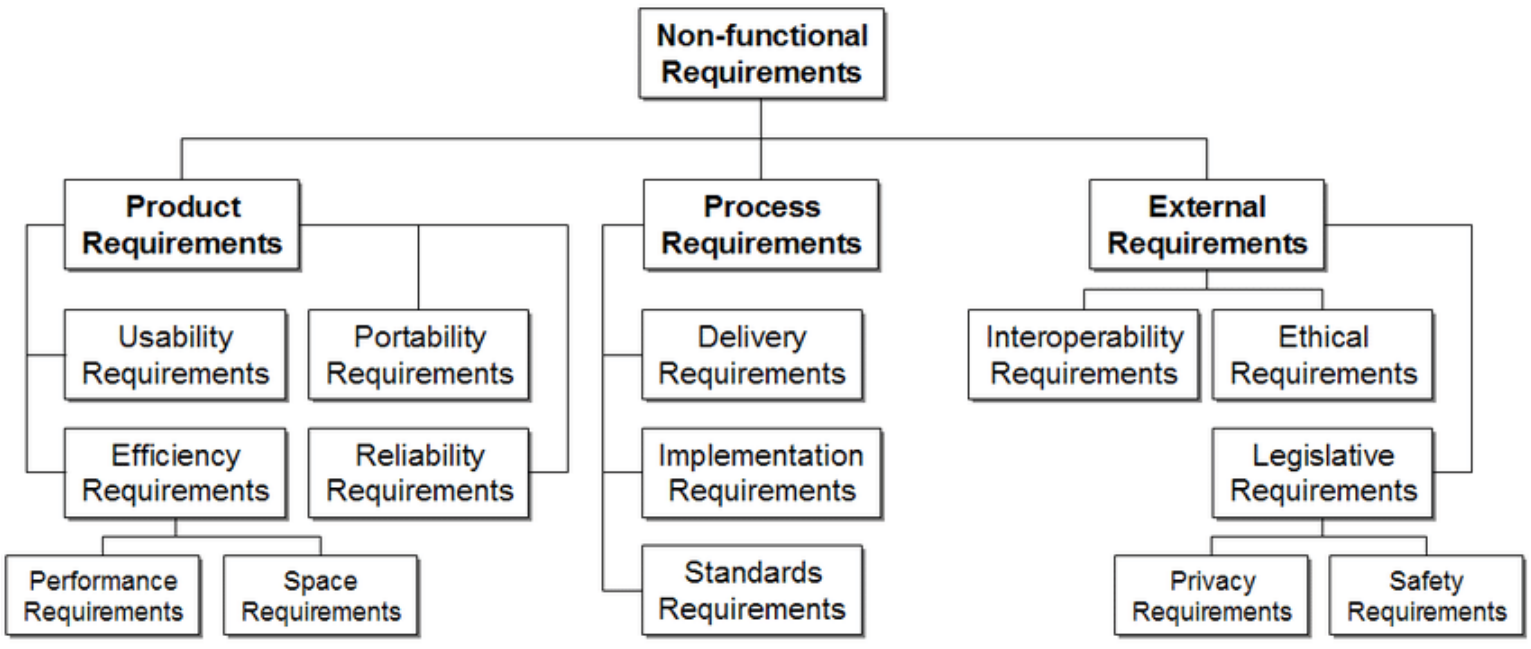
Indian Railway's web-site, www.indianrail.gov.in offers PRS enquiries on the internet Berth/Seat availability, Passenger Status, Fare, Train Schedule etc,.

National Train Enquiry System (NTES) website, www.trainenquiry.comgives dynamic information about the running status of any train and its expected arrival/departure at any given station.

Mobile telephone based SMS enquiry service. A new mobile phone based facility for rail users' which is. Country wide extension of Universal Rail Enquiry number "139"through setting up of Interactive Voice Response System (IVRS).

NON-FUNCTIONAL REQUIREMENTS:

Nonfunctional requirements make up a huge piece of the particular. They are significant as the customer and client may well pass judgment on the item on its non-utilitarian properties. Given the item meets its necessary measure of usefulness, the nonfunctional properties - how usable, advantageous, welcoming and make sure about it is - might be the distinction between an acknowledged, popular item, and an unused one.



FUNCTIONAL REQUIREMENTS:

Functional requirements refer to the Functions, which were required before and covered in this system/ software we have developed. Mentioned below are the functions/ features of our newly fabricated software system:

i. Feature #1 - *TRAIN DETAILS**:***

Customers may view the train timing at a date their name and number of tickets.

ii. Feature #2 – *RESERVATION:*

After checking the number of seats available the customers reserve the tickets.

iii. Feature #3 – *BILLING:*

After reserving the required amount of tickets, the customer paid the amount.

iv. Feature #4 – *CANCELLATION:*

If the customers wantto cancel the ticket, then half of the amount paid bythe customer will be refunded to him.

v. Feature #5 – PERFORMANCE REQUIREMENTS*:*

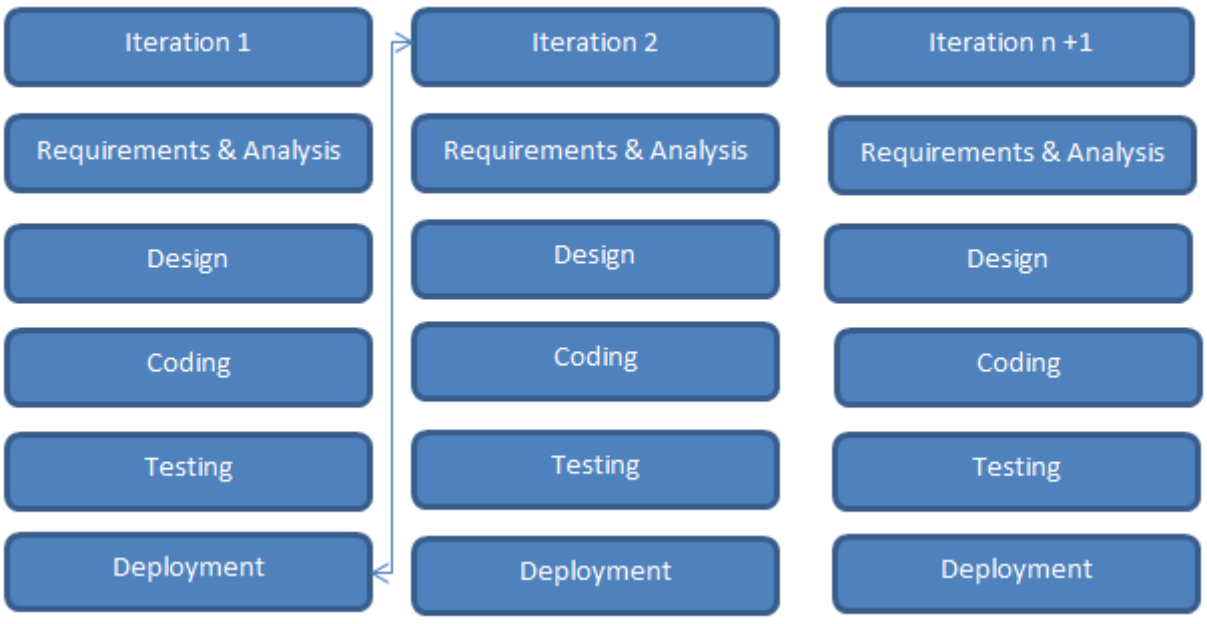
It is available during all 24 hours.

vi. Feature #6 – SOFTWARE SYSTEM ATTRIBUTES*:*

- Reliable
- Available
- Secure

MODEL USED

ITERATIVE MODEL



1.The model can provide updations.
2.Parallel development can be planned.
3.Risks are identified.
4.Feedback at each step can be given by customers.

DESIGN CONSTRAINT:

Quality Characteristics:

There are a number of quality characteristics that can apply to software. Pick the ones most important to this product and develop a section for each one. Definitions of the quality characteristics follow.

- **Correctness** - extent to which program satisfies specifications, fulfills user's mission objectives
- **Efficiency** - amount of computing resources and code required to perform function
- **Flexibility** - effort needed to modify operational program
- **Integrity/security** - extent to which access to software or data by unauthorized people can be controlled
- **Interoperability** - effort needed to couple one system with another
- **Maintainability** - effort required to locate and fix an error during operation
- **Portability** - effort needed to transfer from one h/w or s/w environment to another
- **Reliability** - extent to which program performs with required precision
- **Reusability** - extent to which it can be reused in another application
- **Testability** - effort needed to test to ensure performs as intended
- **Usability** - effort required to learn, operate, prepare input, interpret output

OTHER REQUIREMENTS

Data Base

This could specify the requirements for any data base that is to be developed as part of the product. This might include:

(1) Types of information
(2) Frequency of use
(3) Accessing capabilities
(4) Data element and file descriptions
(5) Relationship of data elements, records and files
(6) Static and dynamic organization
(7) Retention requirements for data

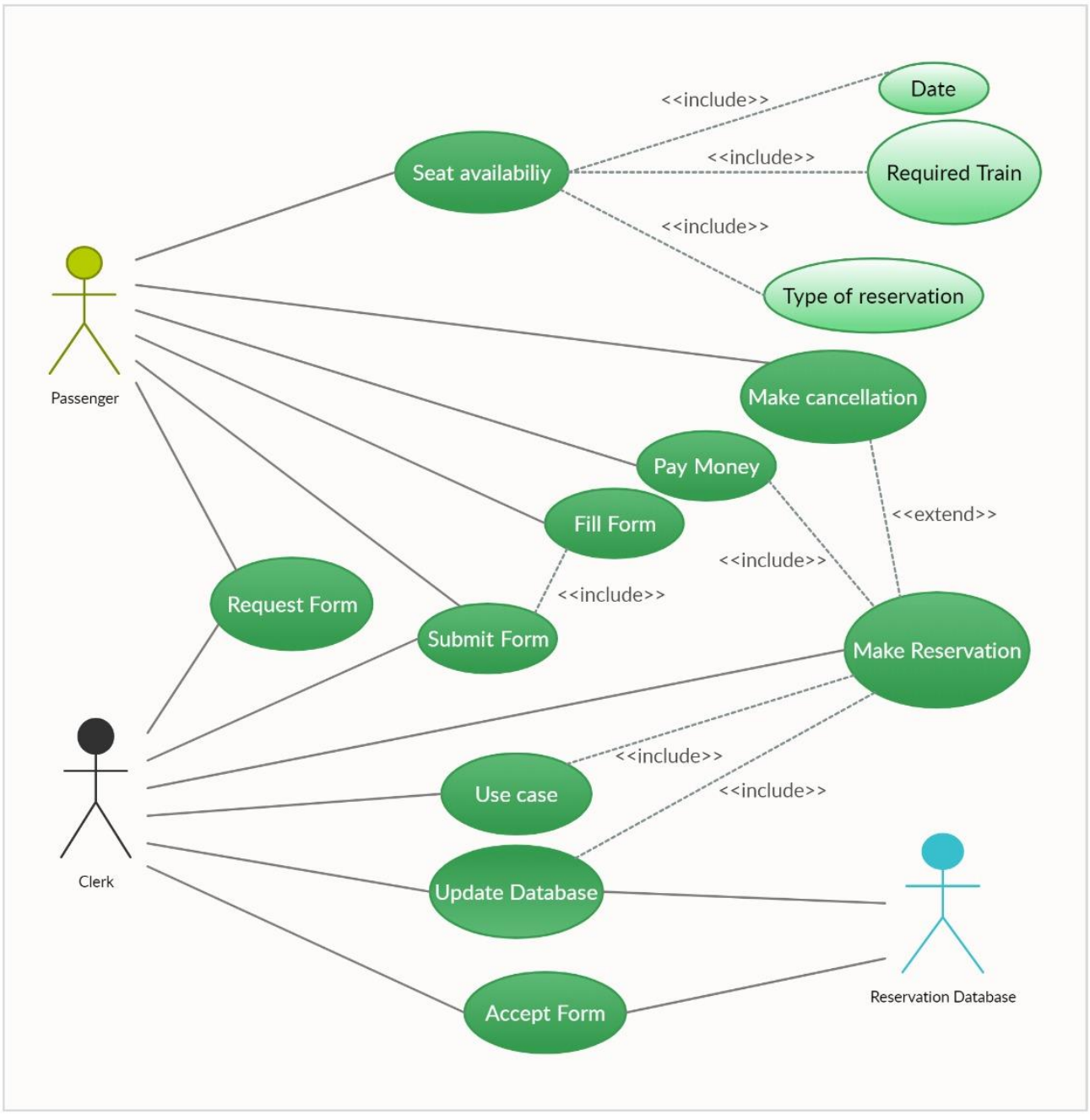
USE CASES:

A **use case diagram** in the Unified Modeling Language (UML) is a type of behavioral diagram defined by and created from a Use-case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any dependencies between those use cases. The main purpose of a use case diagram is to show what system functions are performed for which actor. Roles of the actors in the system can be depicted. Interaction among actors is not shown on the use case diagram. If this interaction is essential to a coherent description of the desired behavior, perhaps the system or use case boundaries should be re-examined. Alternatively, interaction among actors can be part of the assumptions used in the use case.

Use cases: A use case describes a sequence of actions that provide something of measurable value to an actor and is drawn as a horizontal ellipse.

Actors: An actor is a person, organization, or external system that plays a role in one or more interactions with the system.

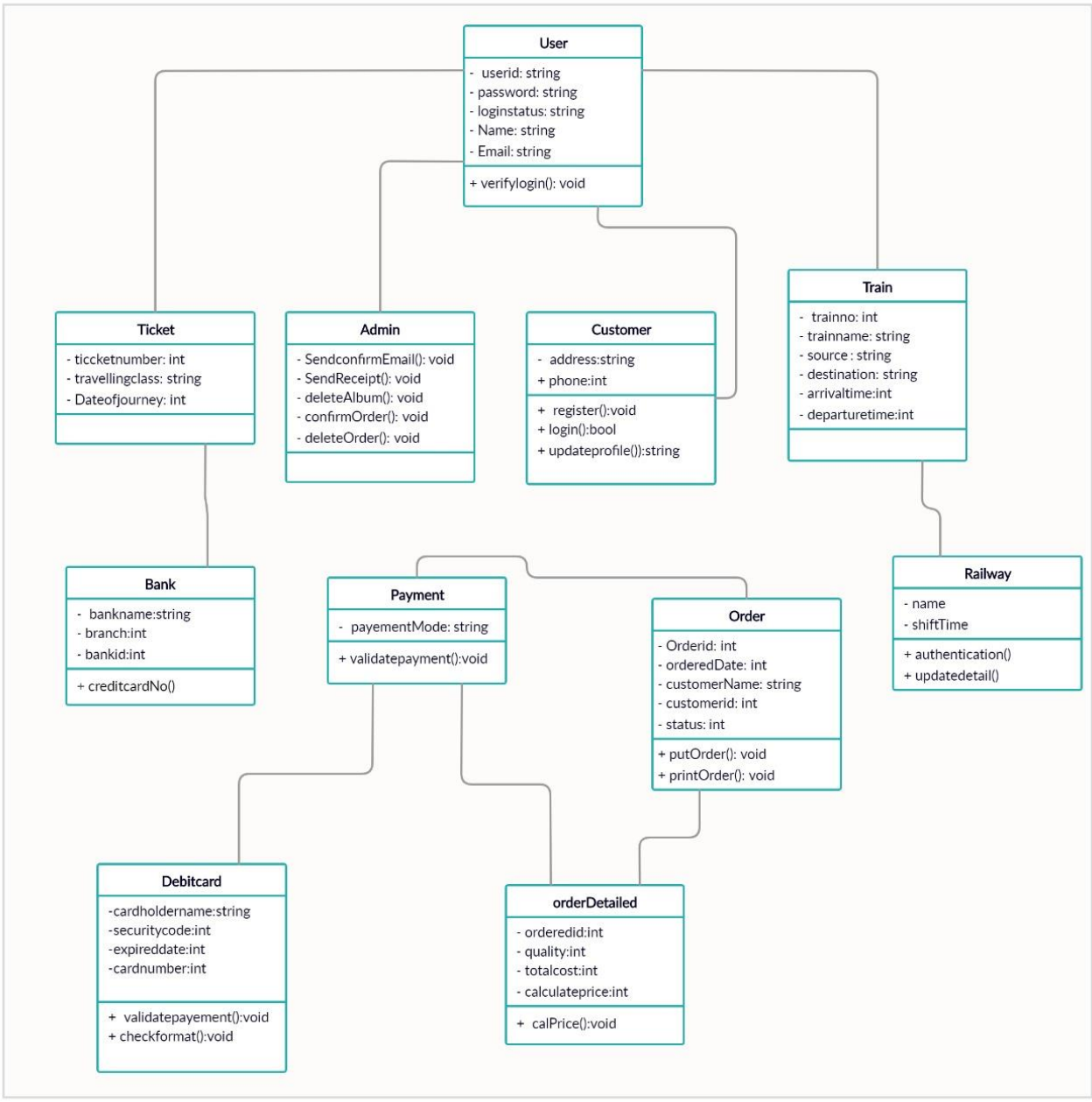
System boundary boxes (optional): A rectangle is drawn around the use cases, called the system boundarybox, to6 indicate the scope of system. Anything within the box represents functionality that is in scope and anything outside the box is not



OBJECTS/ CLASSES:

A **class diagram** in the Unified Modeling Language(UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

The class diagram is the main building block of object-oriented modelling. It is used both for general conceptual modelling of the systematics of the application, and for detailed modelling translating the models into programming code. Class diagrams can also be used for data modeling. The classes in a class diagram represent both the main elements, interactions in the application, and the classes to be programmed.



Classes:

- Train
- Passenger
- Railway Administration
- Ticket

Analysis Models:[28]

The Unified Modeling Language (UML) is a graphical language for OOAD that gives a standard way to write a software system's blueprint. It helps to visualize, specify, construct, and document the artifacts of an object-oriented system. It is used to depict the structures and the relationships in a complex system.

- **System** : A set of elements organized to achieve certain objectives form a system. Systems are often divided into subsystems and described by a set of models.
- **Model** : Model is a simplified, complete, and consistent abstraction of a system, created for better understanding of the system.
- **View** : A view is a projection of a system's model from a specific perspective.

Conceptual Model of UML

The Conceptual Model of UML encompasses three major elements:

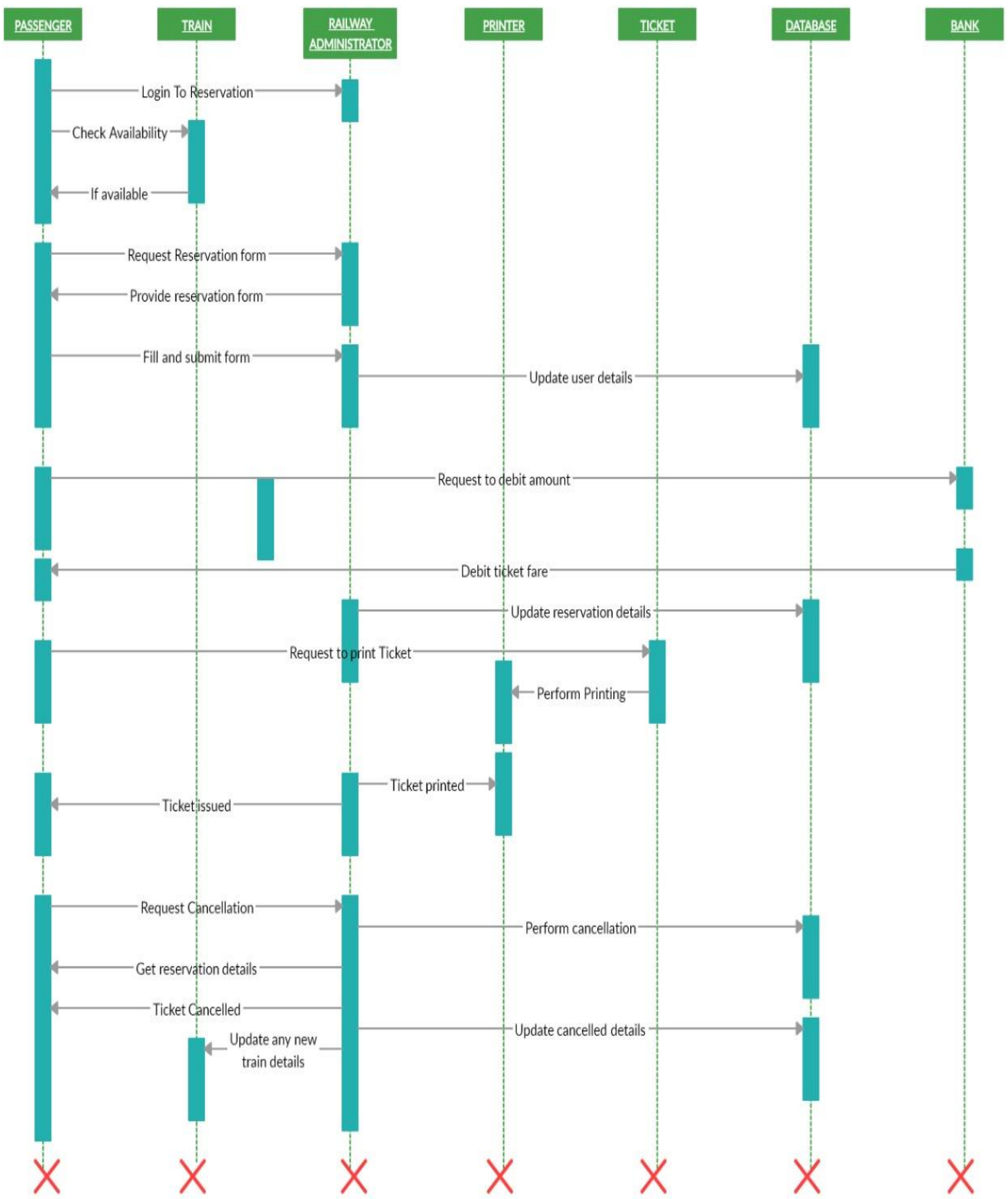
- Basic building blocks
- Rules
- Common mechanisms

SEQUENCE DIAGRAM:

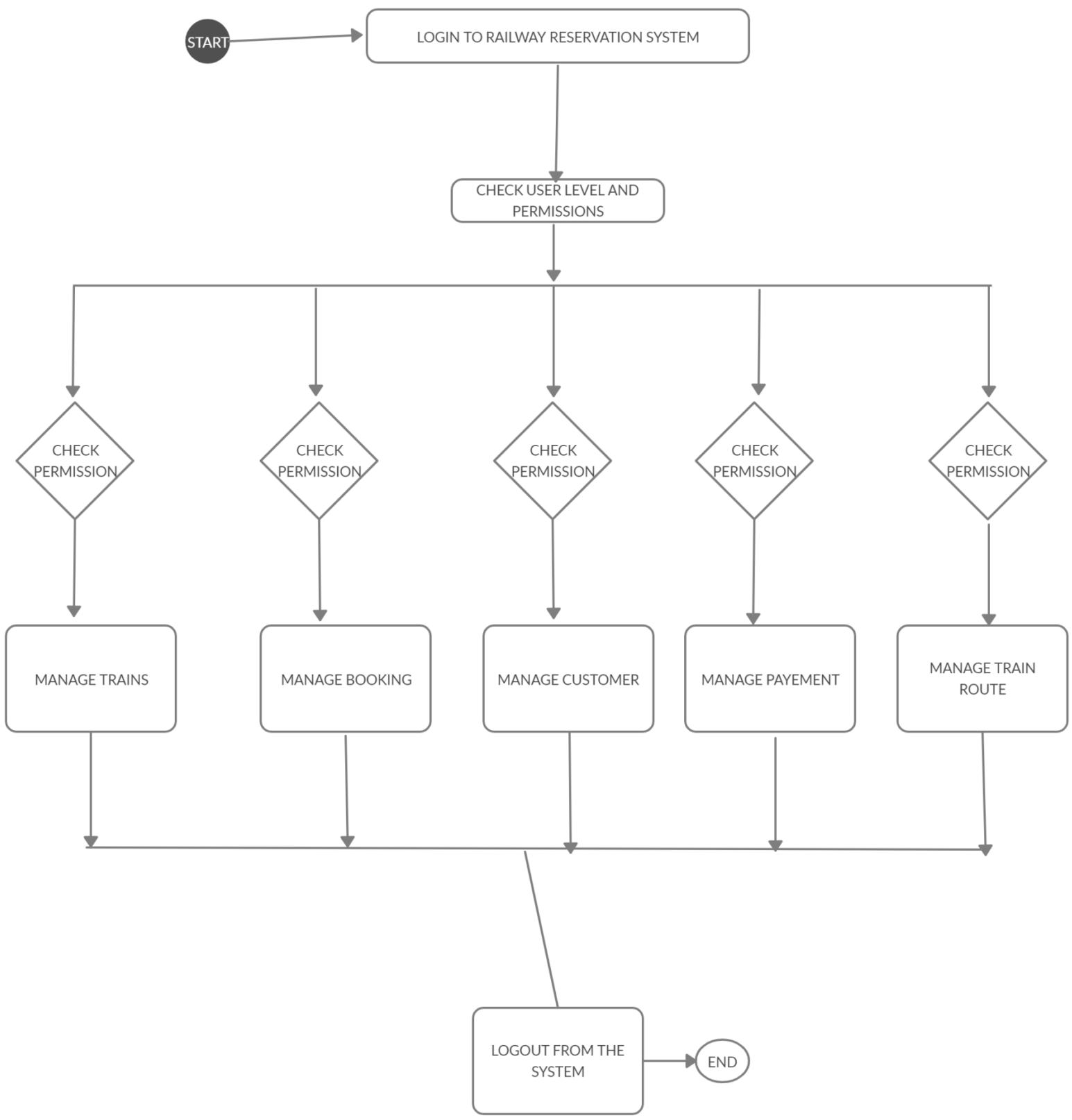
A Sequence diagram is an interaction diagram that shows how objects operate with one another and in what order. It is a construct of a message sequence chart.

A sequence diagram shows object communications orchestrated in time sequence. It portrays the articles and classes engaged with the situation and the sequence of messages traded between the items expected to complete the usefulness of the situation. Sequence diagrams are ordinarily connected with use case acknowledge in the Logical View of the framework a work in progress. Sequence diagrams are once in a while called occasion diagrams orevent situations.

A sequence diagram appears, as equal vertical lines (helps), various procedures or items that live all the while, and, as flat bolts, the messages traded between them, in the request wherein they happen. This permits the particular of basic runtime situations in a graphical way.



ACTIVITY DIAGRAM

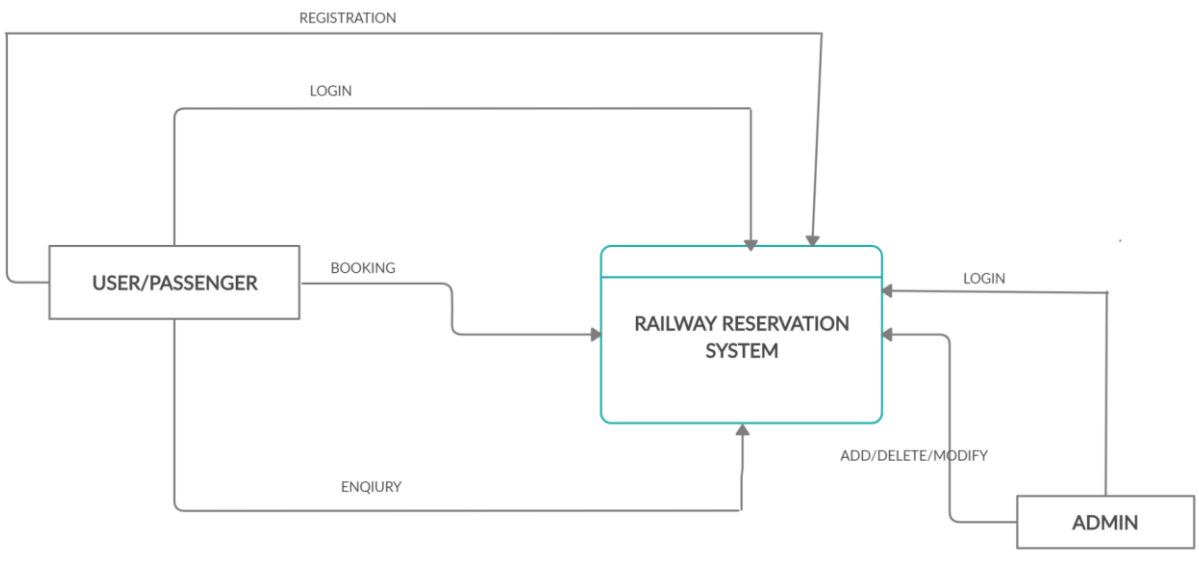


DATA FLOW DIAGRAM:

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system, modelling its *process* aspects. A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated. DFDs can also be used for the visualization of data processing (structured design).

A DFD shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of process or information about whether processes will operate in sequence or in parallel (which is shown on a flowchart).

Data flow diagrams are also known as bubble charts. DFD is a planning instrument utilized in the top-down way to deal with Systems Design. This setting level DFD is next "detonated", to create a Level 1 DFD that shows a portion of the detail of the framework being displayed. The Level 1 DFD shows how the framework is isolated into sub-frameworks (forms), every one of which manages at least one of the information streams to or from an outer operator, and which together give the entirety of the usefulness of the framework in general. It additionally recognizes inside information stores that must be available all together for the framework to carry out its responsibility, and shows the progression of information between the different pieces of the framework.



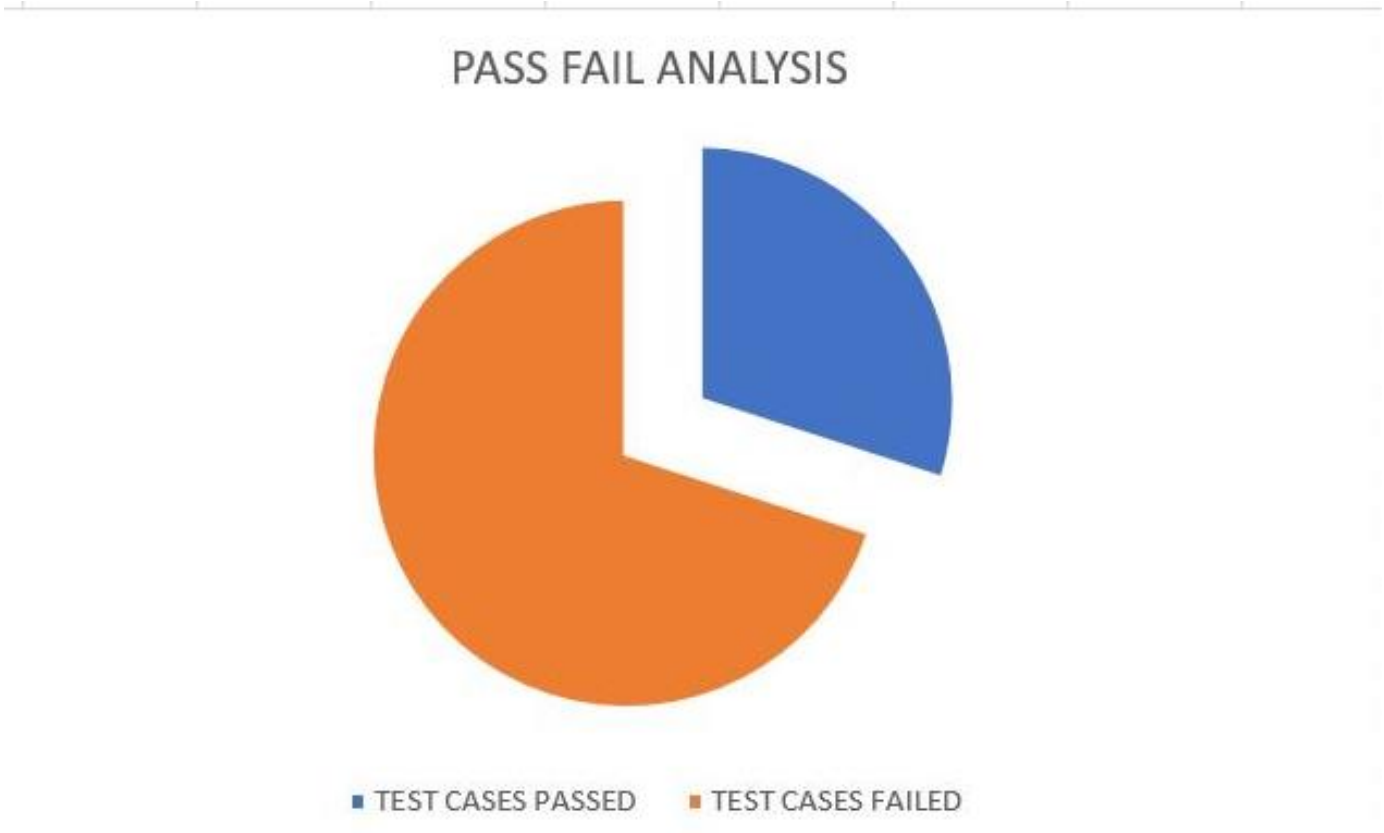
TEST CASES

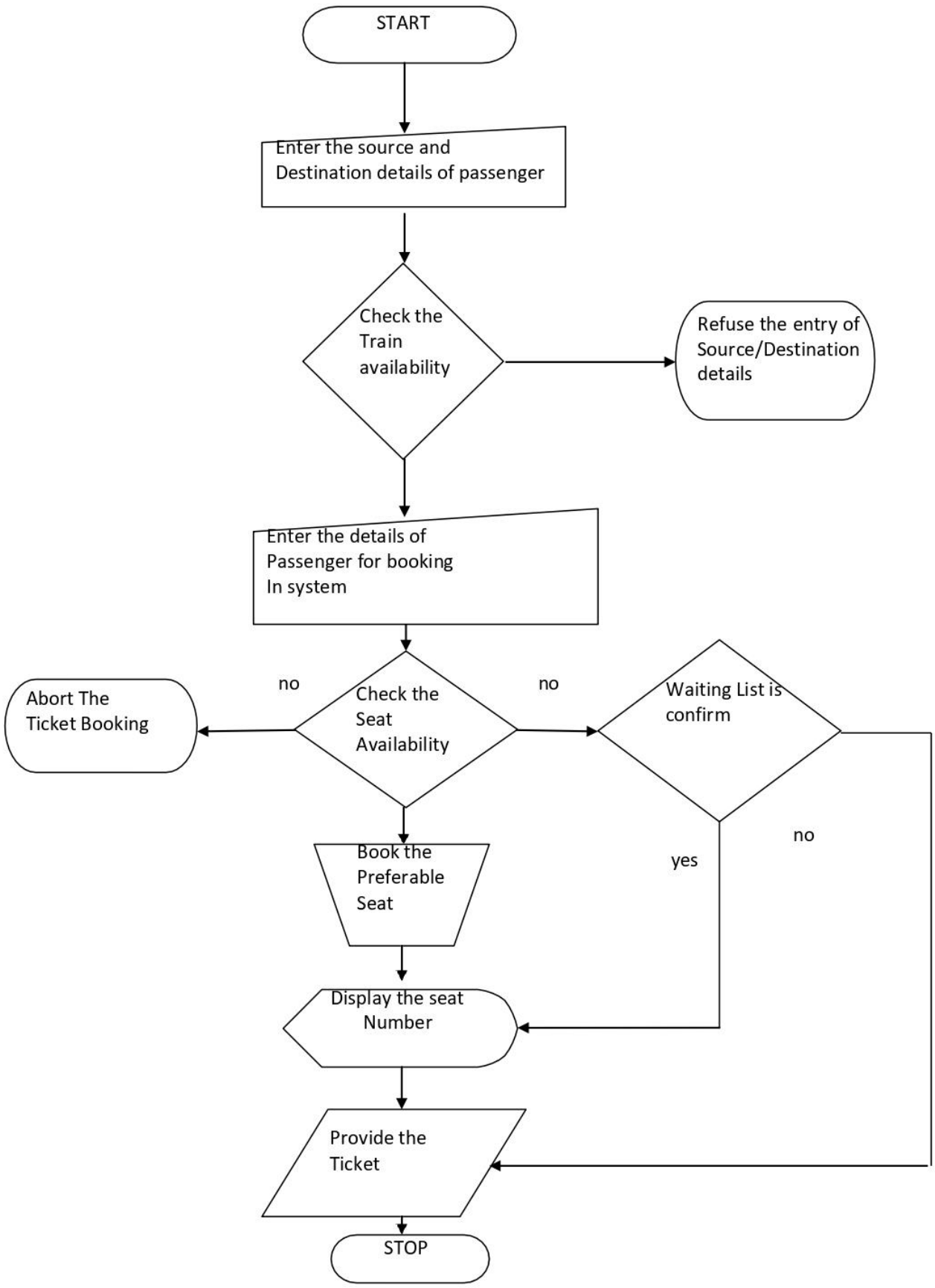
A. Login
B. Date of journey
C. Destination
D. Train availability
E. Seat selection
F. Max reservation
G. Reservation type
H. Payment
I. Cancellation
J. Refund

OLCS	Project Name:	RAILWAY RESERVATION SYSTEM	Test Designed by:	SharveshS				
	Module Name:	RAILWAY RESERVATION APP	Test Designed date:	22-02-2020				
	Release Version:	1.0.1	Test Executed by:	Sharvesh S				
			Test Execution date:	23-02-2020				

Test Case#	Test Title	Test Summary	Test Steps	Sample Input	Expected Result	Actual Result	ERROR	Status
TC001	Login	Login and Validate User	1.Launch the App 2.Enter Login Credientials 3.Login 4.Validate the Correct	User Id:Shar_0608 Pass:vk1212(Encrypted)	Validate and enter into home screen designd for user Login	As expected loged in and credientials verified and user's home page displayed.	....	PASSED
TC002	Date Of Journey	DD/MM/YYYY Entery	1.Enter the DOJ as per format 2.Show Destination field as per date	DOJ:23/06/2020	Validate and display invalid limited to 90 days	Validated and passed to destinations	MEDIUM	FAILED
TC003	Destination	choose from dropdown list inclusive international(pak,Nepal,Myanmar) Destinations	1.Enter destination	Destination:Shillong	Validate destination and show trains available	As expected destiation vlidated and went to trains available	....	PASSED
TC004	Train Availability	Show all Trains available for the destination	1.Choose Train 2.Click Train Availablity	Train: Mumbai Express	Validate Train and display seats available	As expected Train selected and showed seats available	....	PASSED
TC006	Seat Selection	show seats avaiable with coach type (NAS/NA/AS/A)-seat no	1.Choose available Seat	Select Seat: A2	Validate and show seat already booked	diaplayed Seat reserved	MEDIUM	FAILED
TC007	Max Reservation	Limit Reservation to 10 heads per person	1.Check For Reservation Limit	11 seats selected	Validate and display" seat limit exceded".	As Unexpected Reserved 11 seats	LOW	FAILED
TC006	Reservation Type	`1st class/general/tatkal	1.Enter Type of Reservation	1st class	Validate Resevation Type and show proceed to payment	Displayed Reservation Failure	CRITICAL	FAILED
TC008	Payment	Selete Mode Of payment and Confirm Payment	1.Launch Secure Payment Portal 2.Select Mode Of Payment 3.Enter Bank Details 4.Enter OTP 5.select Confirm Payment	MOP:UPI UPI ID:shwkgl@Okicici.com OTP:5678(ENCRYPTED) Selected Confirm Payment	Validate Credientials and Confirm Payment	NOT ACCEPTING UPI MODE OF PAYMENT	MEDIUM	FAILED
TC009	Cancellation	Select seat and click Cancel Reservation	1.Select the seat 2.Click confrim Cancellation 3.Diplay "Reservation Cancelled"	SeatNO:A2 clicked confirm Cancellation field	Credientials Validated Warning Message Displayed	Credientials Validated Warning Message Not Displayed!!!	LOW	FAILED
TC010	Refund	Confirm Cancelled Reservation Refund	1.Confirm Cancelled Reservation 2.Request Amount Refund 3.Refund Half Amount	1.Confirmed Cancell Reservatin 2.Amount Refund Request sent 3.Refund request sent	Verified and Got Request successfully Half Amount Refunded	Amount Refund Failed	CRITICAL	FAILED

	A	B
1	DEFECT DESTRIBUTION	
2	LOW	2
3	MEDIUM	3
4	CRITICAL	2
5	TOTAL	7




START
Enter the source and Destination details of passenger
Check the Train availability
Refuse the entry of Source/Destination details
Enter the details of Passenger for booking In system
Check the Seat Availability
no
Abort The Ticket Booking
no
Waiting List is confirm
no
yes
Book the Preferable Seat
Display the seat Number
Provide the Ticket
STOP