Srs - srs document of irctc

Software Engineering (Lovely Professional University)

SOFTWARE REQUIREMENT SPECIFICATION

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Topic :- IRCTC

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1. -: INTRODUCTION :-

About IRCTC

Indian railway catering and tourism corporation (IRCTC) is a Subsidary of the Indian Railways that handles the catering, tourism and online ticketing operations of the Indian Railways, with around 5,50,000 to 6,00,000 booking everyday is the world's second busiest and highest of 15lakh to 16Lakh tickets everyday. Its tagline is "Lifeline of the nation".

A. Introduction :

As from the above introduction we can see that the number of bookings everyday are more than normal values. Even the passengers has to reserve the tickets for long train routes 3-4 months prior to their travel to specific place. And Sometimes the train they are willing to reserve are completely reserved earlier and the passengers might have to make changes to their plans. So, there should be a computer or mobile based approach like "Railway Reservation System" to prevent this from happening, from where the user can easily book the train before time and can easily travel on time without any problem. User can also cancel the reservation if there is any change in their plans or if something happens. Users can easily pay

the bill amounts through secure online gateway payments. And this approach can resolve the hustle sintuations in Railway stations, passengers will be there on the specific time when the train is going to arrive by checking the train status on mobile (or) desktop application.

B. PURPOSE/OBJECTIVE :

The IRCTC software is devoloped for the ease of the passengers who use to travel by means of Indian Railways. This software is to be deployed in the whole country. and it is more like "Railway Reservation System". The software is useful in many ways like:

→ To check the train timings.
→ To check PNR status.
→ Easy and manual approach.
→ Reservation
→ Passengers donot have to waint in long qvesves, for tickets.
→ Easy payment
→ Billing and Cancellation on various types of reservations namely:

C. SCOPE :-

"Railway Reservation System" is an attempt to simulate the basic concepts of an online reservation system. The system is based on a relational database with its railway management and reservation functions. We will have a database Supporting all the cities aroung the countriegs as well as a lot of train routes by IRCTC. Above all we hope to provide a Comfortable user experience along with the reasonable pricing. The system enable to perform the following functions:

→ Search for train.
→ Booking of a selected train
→ Payment
→ Cancellation.
→ Catering facility.
→ Improved and Optimized Service.

D. GLOSSARY:

This should define all the technical terms and abrievations used in the document.

→ NTES :- National train enquiry system.
→ IVRS :- Interactive voice response System.
→ PRS :- passenger reservation System.
→ DFD :- Data flow diagram.
→ ERD :- Entity Relationship diagram.
→ SRS :- Software Requirement Specification.
→ STD :- State transition diagram.

E. OVERVIEW :-

The remaining sections of the document provide a general description, including charecteristrics of the users of this project, the products hardware, and the functional and data requirements of the products. General description of the project is discussed in section 2 of this document. Section 3 gives the functional requirements and constraints and assumptions made while designing the E-booking System. It also gives the user viewpoint of the product Section 3 also gives the specific requirements of the product. Section 3 also discuss the external interface requirements and gives the detailed description of functional requirements. Section 4 is for Supporting Information.

-: Overall Description :-

This document containts the problem statements that the current system is facing which is happening the growth opportunities of the company. It further contains a list of the stakeholders and users of the proposed solution. It also illustrates the needs and wants of the stakeholders that were identified in the brainstorming excercises as part of the reqvirements workshop. It further lists and briefly describes the major features and a brief description of each of the proposed system.

A. Product Perspective :-

Before the automation, the system suffered from the following drawbacks:

→ The existing system is highly manual involing a lot of paperwork and calculation and therefore may be erroneous. This has led to inconsistency and inaccuracy in the maintainance of data.

→ The data, which is stored on the paper only, may be lost, stolen or destroyed due to natural calamity like fire and water.

→ The existing system is sluggish and consumes a lot of time causing inconvenience to customers and this airlines staff.

→ Due to manual nature, it is difficult to update, delete, add (or) view the data.

→ Since the number of passengers have drastically increased therefore maintaining and retrieving detailed record of passenger is extreme.

→ A railway has many officers around the world, an absence of a link between these offices lead to lack of coordination and communication.

→ Hence the railways reservation system is proposed with the following.

→ The compulerization of the reservation system will reduce a lot of.

paperwork and hence the load on the airline administrative staff.

→ The machine performs all calculations. Hence chances of error are nil.

→ The passenger, reservation, cancellation list can easily be retrieved and any required addition, deletion (or) updation can be performed.

→ The system provides for user-ID validation, hence unauthorized access is prevented.

B. Project functions

Booking agents with varying levels of familiarity with computers will mostly use this system. An important feature of this software is that it be relatively simple to use. The scope of this project encompasses:

→ Search: This function allows the booking agent to search for train that are available between the two travel cities, namely the "Departure city" and "Arrival city" as desired by the traveller. The system initially prompts the agent for the departure and arrival city, the data of departure, preffered time slot and the number of passengers. It then display's a list of train without available with different airlines between the designed cities on the specified date and time.

→ Selection: This allows a train to be selected from the displayed list. All the details of the train are shown:-

- Train Number
- Date, time and place of departure
- Date, time and place of arrival.
- Train Duration.
- Fare per head
- Number of stoppages - 0, 1, 2.....

→ Review: If the seats are available, then the software prompts for the booking of train. The train information is shown. The total free including taxes is shown and flight details are reviewed.

→ Traveller Information: It asks for the details of all passengers supposed to travel including name, address, telephone number and e-mail id.

→ Payment: It asks the agent to enter various credit card details of the person making the reservation.

- Credit card type
- Credit card number
- CVC number of the card
- Expiration date of the card
- The name on the card

→ Cancellation: The system also allows the passengers to cancel an existing reservation. This function registers the information regarding a passenger who has requested for the cancellation of his/her ticket. It includes entries pertaining to the train No., Confirmation No., Name, Date of journey, Fare deducted.

C. User Characteristics:-

→ Educational level:- At least user of the system should be comfortable with English.

→ Technical Expertise:- User should be comfortable using general purpose applications on the computer system.

D. Constraints:-

The system will run under windows 7 (or) higher platforms of operating systems.

C. Assumptions and Dependencies:

- Booking Agents with will be having a valid username and password to access the software.
- The software needs booking agent to have complete Knowledge of railway reservation system.
- Software is dependent on acess to internet.

-: REQUIREMENTS :-

A. Functional Requirements

I. Performance Requirements.

→ User Satification :- The system is such that it stands up to the user exceptions.

→ Response Time :- The response of all the operation is good. This has been made possible by carefull programming.

→ Error handling :- Response to use errors and undesired situations has been taken care of to ensure that the system operates without halting.

→ Safety and Robustness :- The system can avoid (or) tackle disastrous action. In other words, it should be foul proof. The system safeguards aganist undesired events, without human intervention.

→ Portable :- The software should not be architecture specific. It should be easily transferable to other platforms if needed.

Userfriendliness :- The system is easy to learn and understand. A native user can also use the system effectively, without any difficullies.

II. Design Constraints:

There are several factors in the cleint's environment that may restrict the choices of a designer. Such factors include standards that must be followed, resource limits, operating environment, reliability and Security.

III Hardware Requirements:

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 restrictions, cache size, the processor, RAM size etc... those are required for the software to run.

- Minimum Hardware Requirements
- Processor Pentium II
- Hard drive 40GB
- RAM 128MB
- Cache 512KB
- Preffered Hardware Requirements
- Processor Pentium IV
- Hard disk drive 80GB
- RAM 256MB
- Cache 512Kb

IV Software Requirements:

Any window-based or MAC operating system with DOS supporting, are primary requirements for software development. Windows XP, Frontpage and dumps are required. The system must be connected via LAN and connection to internet is mandatory.

V. OTHER Requirements:- Software should satisify following requirements:

- SECURITY
- PORTABILITY
- CORRECTNESS
- EFFICIENCY
- FLEXIBILITY
- TESTABILITY
- REUSABILITY

requirements and policies that may have an impact on the design of the statement of the system. An SRS (Software Requirements Analysis and Specification) should identify and specify all such confraints.

- Standard Compliance :- This specifies the requirements for the standards the system must follow. The standards may include the report format and specify all accounting properties.
- Hardware Limitations :- The software may have to operate on some existing or predetermined hardware, thus improving restrictions on design. Hardware limitations can include the types of machine, operating system available on the system, languages supported and limits on primary and secondry storage.
- Reliability and Fault tolerence :- Fault tolerance requirements can place a major constraint on how the system is to be designed. Fault tolerance requirements often make the system behaviour in the more complex and expensive. Requirements about system behaviour in the face of certain kinds of faults are specified. Recovery requirements are often an integral part here, detailing what system should I do some failure occurs to ensure certain properties. Reliability requirements are very important for critical applications.
- Security :- Security requirements are particularly significant in defence systems and database systems. They place restrictions on the use of certain commands, control access to data, provide different kinds of access requirements for different people, require the use of passwords and cyptography techniques and maintain a log of activities in thy system.

B. NON-FUNCTIONAL REQUIREMENTS:

1. Security:-

The system uses SSL (secured socket layer) in all transactions that include any confidential customer information. The system must automatically logout all customers after a period of inactivity. The system should not leave any cookies on the customer's computer containing the user's password. The system should not leave any cookies on the customer's computer containing the user's password. The system's backend server's shall only be acessible to authenticated management.

II Maintainability:

A commercial database is used for maintaining the database and the application server takes care of the site. In case of a failure, a re-initialization of the project is also done. Also the software design is being done with modularity in mind so that maintainability can be done efficiently.

III Reliability:-

The reliability of the overall project depends on the reliability of seperate components. The main pillar of reliability of the system is the backup of the databases which is continuosly maintained and updated to reflect the most recent changes. Also, the system will be functioning inside a container. Thus, the overall stability of the system depends on the stability of con-tainer and its underlying operating system.

IV Availability:

The system should Always be available, meaning that user can access it using a web browser, only restricted by the down time of the server on which the system runs. A customer friendly system which is in access of people around the india should work 24 hours. In case of a hardware failure or database corruption, a replacement page will be shown. Also, in case of a hardware failure or database corruption, backups of the database should be retrived from the server and saved by the organizer. Then the service will be restarted. It means 24x7 availability.

V SSupportability:-

The code and supporting modules of the system will be well documented and easy to undestand. Online User Documentation and. Help System Requirements.

4. -: DIAGRAMS :-

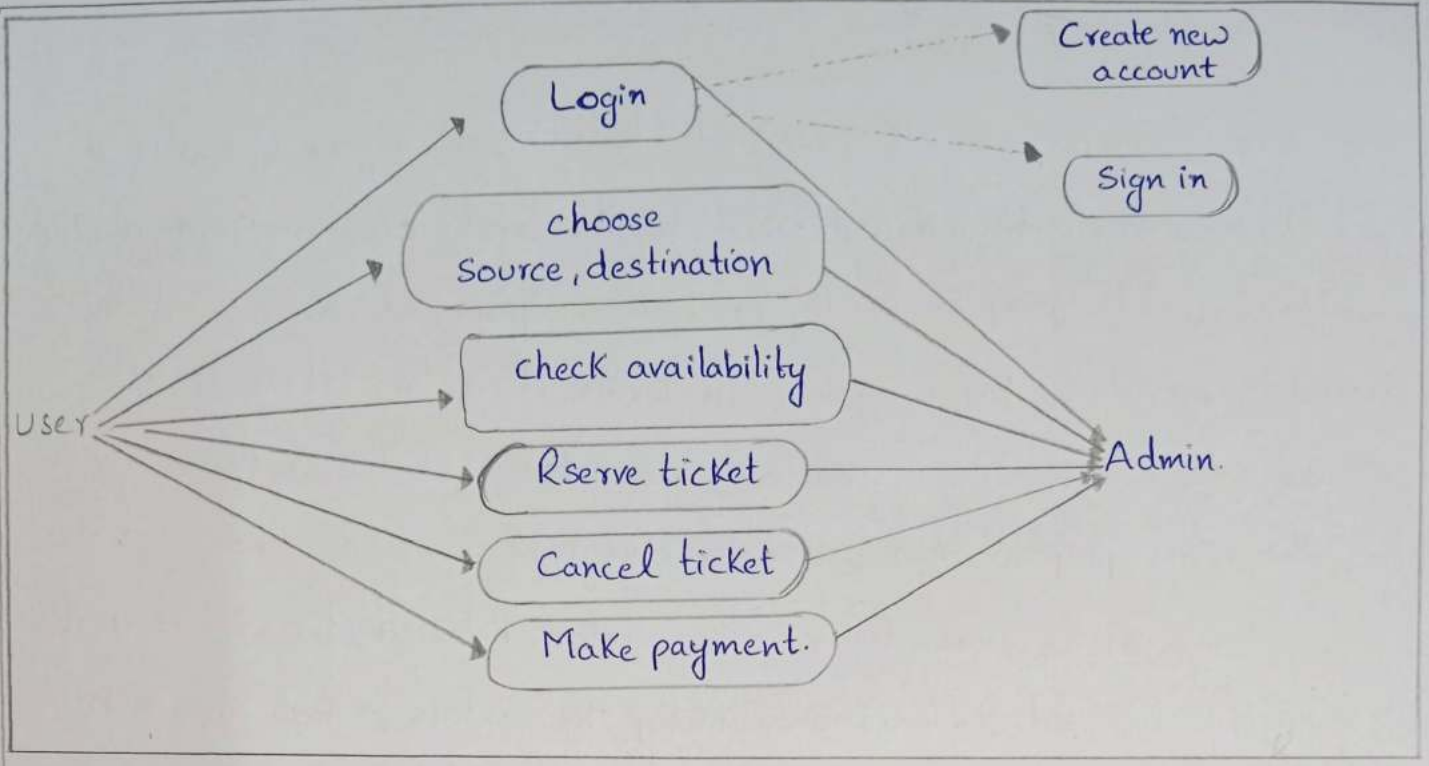
A use case diagram in the Unified Modelling Language (UML) is a type of behavioural diagram defined by the and created from a Use case analysis. Its purpose is to present a graphical overview of the functionality provided by a system in terms of actors, their goals (represented as use cases), and any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

- Use cases A use case describes a seqvence of actions that provide Something of measurable value to an actor and it 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.

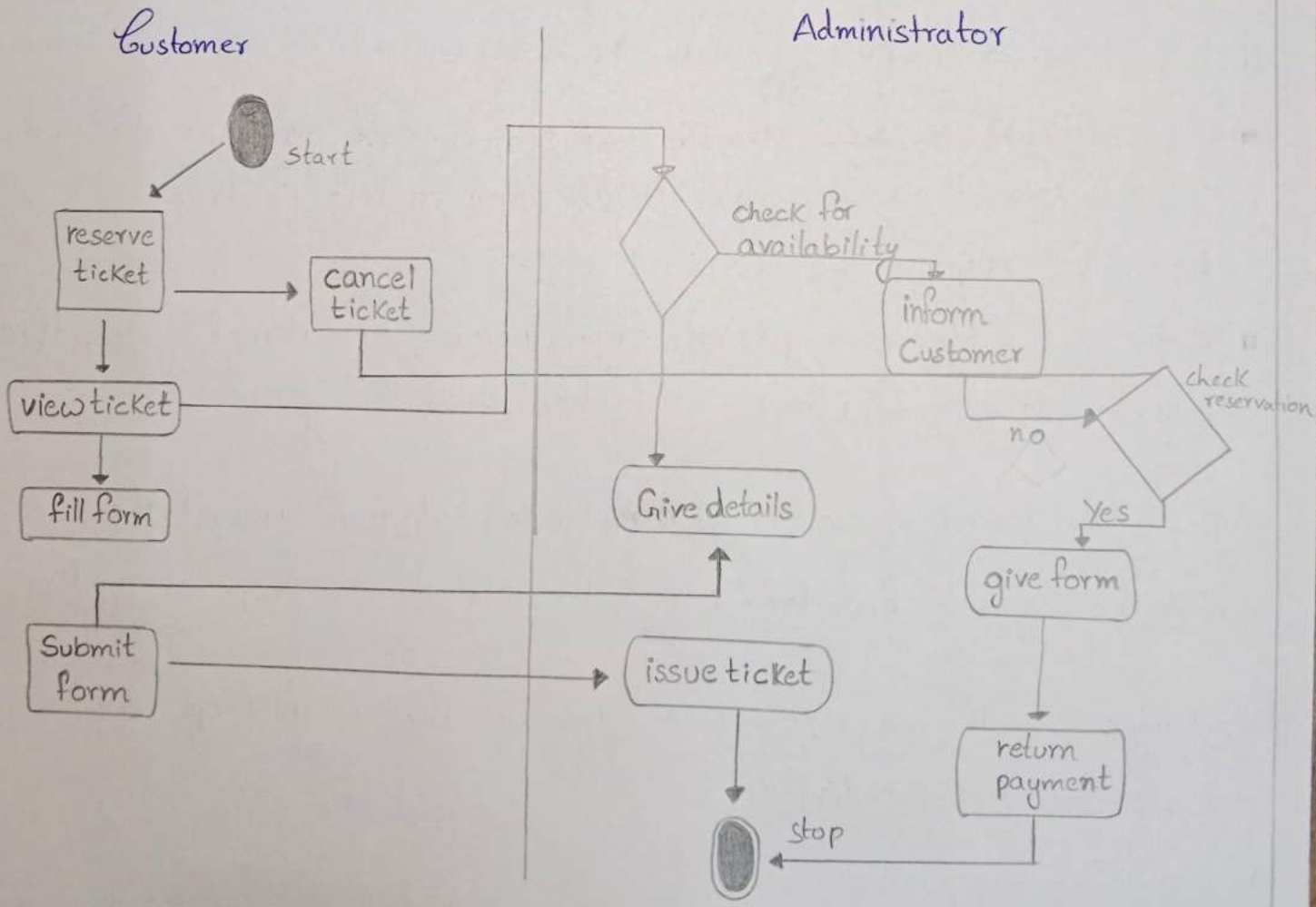
System boundary boxes (optional) A rectangle is drawn around the use Cases, Called the system boundary boxes, to indicate its scope of system.

Anything within the box represents functionality that is in scope and outside the box is out(not).

A. Use-Case Diagram :-



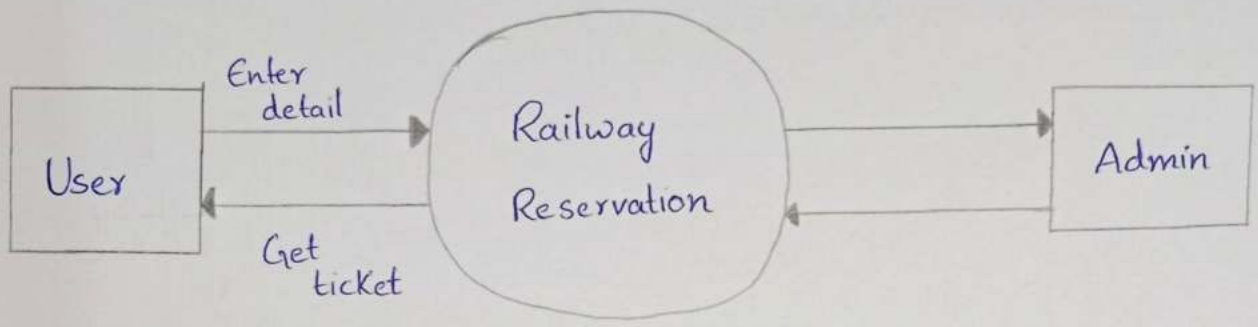
C. State Diagram :-



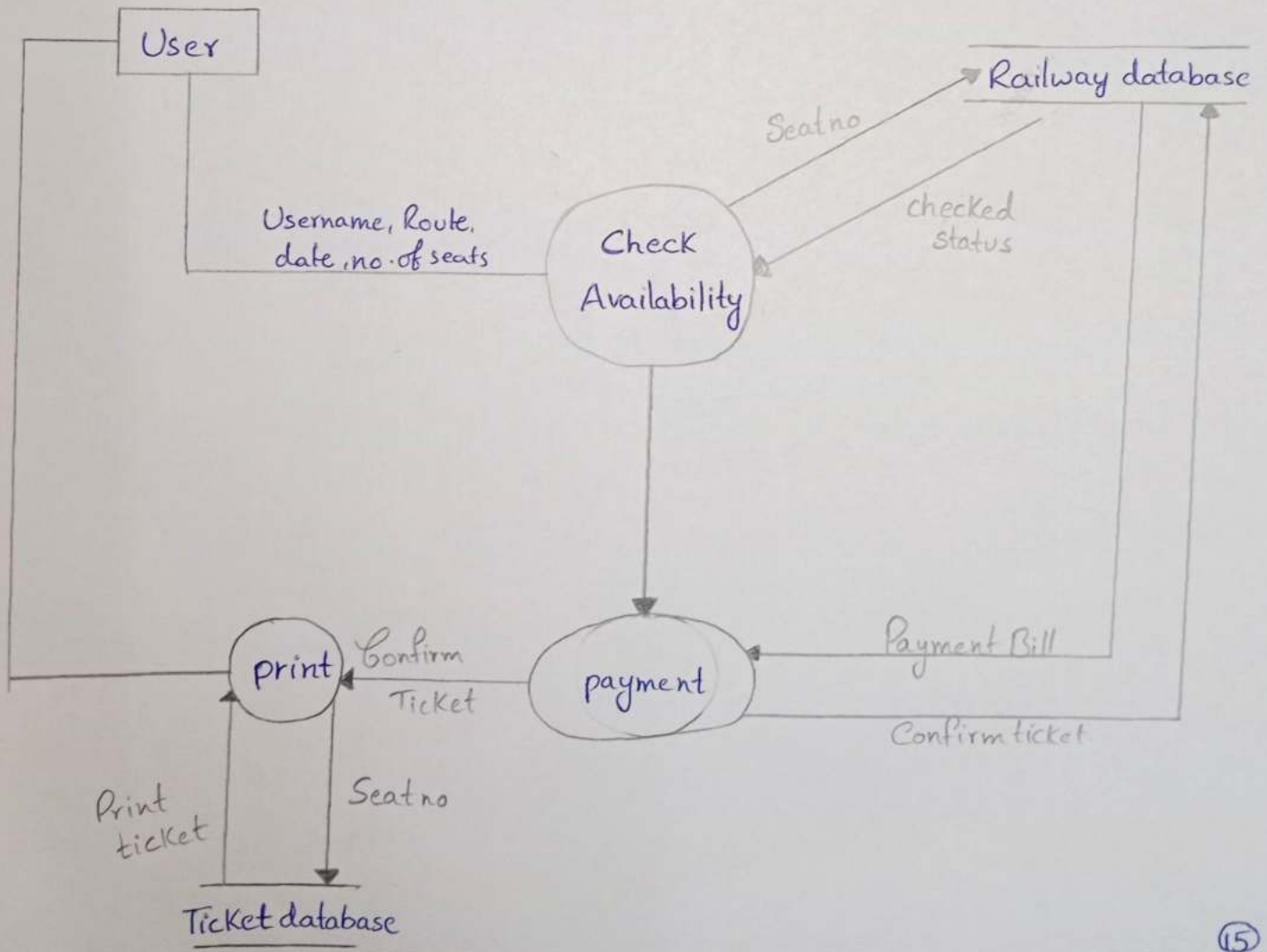
E. Data flow Diagram :-

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system. DFD's can also be used for the visualization of data processing (structured design). On, a DFD, data items to an internal data store or an external data sink, via an internal process, or about whether process will operate in sequence or in parallel.

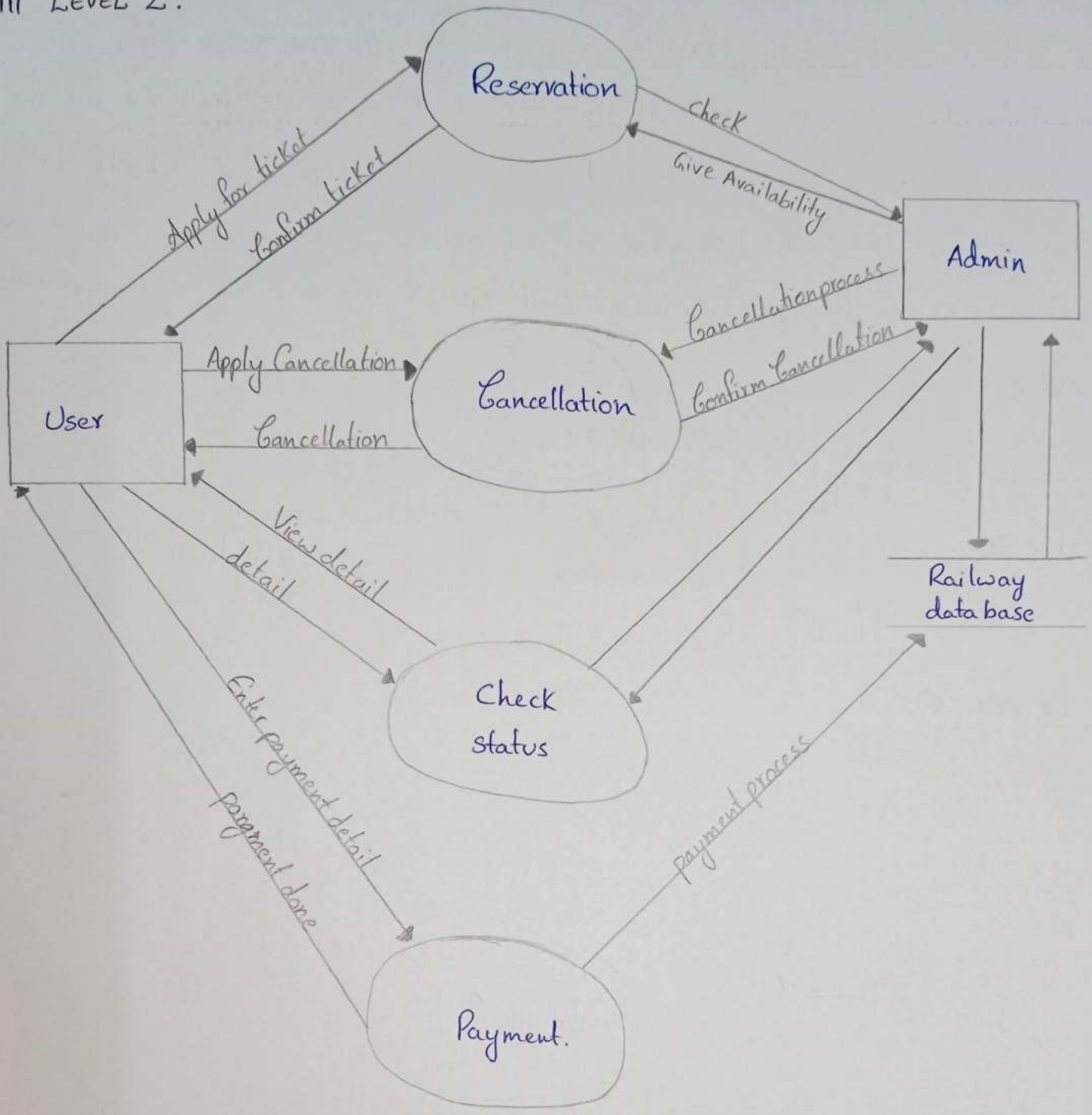
I. LEVEL(0):



II. LEVEL (1):



III Level 2:



F. TEST CASES:

Test Scenario	Test Objective	Test Case	Description	Input	Expected Result
Successful launching of application	To verify for the Successful launching of the application	TC_001	→ Open the Browser → Enter the tes URL → Click on 'GO'	Test URL http://www.irdc.co.in	Login page should be displayal.
Successful login of the user	To verify for the Successful login of the user	TC_002	. Open the Browser . Enter the test URL . Click on "GO" . Enter valid username edit field . Enter valid password. . Click on login	Tes URL http://www.irctc.co.in UN: test. Pswd: test	Homepage should be displayed and the left navigation bar must contain "Plan my ticket" link.
Leave the "From edit field" without entering any data & enter valid datain remaining fields.	To verify for the "From editfield" not to accept an empty field.	TC_003	Open the Browser . Enter the test URL . Click on 'GO' . Enter the valid 'username' . Enter valid "pass-word". . Click on "login" . Click on the "plan my travel" link at the lef navigation bar . Leave the from edit bar, without entering any data . Enter valid city name in "To edit field" . Enter date . Enter class and Ticket . Click on "Find train"	Test URL http://www.irctc.co.in UN: test Pwd: test	It should pop up an error message "Enter value for train from".

Successful payment and ticket Confirmation	To see the payment status and ticket Confirmation.	TC_004	Open the browser. . Click on the selected train. . Select 'Seats'. . Book And 'pay' . Click on 'UPI' (or) Credit (or) debit Card. . Then 'card number' enter it. . 'Expiry of Card' . Enter CVV of Card. . Enter valid "Name of owner." . Select 'pay'. . Enter valid "pswd." . Click on "pay"	TestURL http://www.irctc.co.in UN: test PWD: test	It should pop that "payment Successful" and. "Ticket is Confirmed"