

Assignment No. 1

Q. 1) Develop an SRS (Software Requirement Specification) for the following :

- 1) Railway Reservation booking System
- 2) Library Information Management System.

1) Railway Reservation booking System,

Title : Railway Reservation booking System.

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1. Introduction:

An Online railway reservation booking system allows the users to ask access information from anywhere using the software. This application helps users to fulfill all their needs while at their convinience at anytime.

The software allows users to access

railway services from anywhere by online accessing through the software.

- It also allows the users to make their reservations.

• Scope :

- An online Railway Reservation Software which provides railway reservation and other facilities
- It has cut down the time consuming process of going to the station and booking tickets by making the process online.

• Definitions, Acronyms and Abbreviations:

- It is an android application which provides railway services for users.
- Few of the acronyms of the software are UB - Upper Birth, LB - Lower Birth, SC - Second Class, FC - First Class, R - Reserved, Train code no., Station No, etc.

• References :

- Software Engineering A practitioner's approach + Roger. S. Pressman .
- Clean Code : A handbook of agile Software craftsmanship. - Robert. C. Martin

• Overview :

- This software is built in order to replace the traditional railway reservation system.

- This system is supposed to be efficient, easy to use and affordable.

- It can be implemented easily by any traveler or i.e. user.

2. Overall Description:

• Product perspective :

- This product is an i.e. Railway reservation booking system is a stand-alone product / software system.

- As hardware, this software can be accessed with android as an application or through website.

- The software also stores user's data in a

secure database which contains, user info, information, booking information, train details, etc.

- Product functions :

- Avail & Vacant seats availability checking
- Customer information processing
- Booking and billing system .
- Train and station data sys management System.

- User characteristics :

- • little to minimal education about a few technical terms .
- little knowledge about computer / android device .
- No technical experience required .
- Basic knowledge about android device / computer DS .

- Constraints :

- A mobile phone above Android Version 7.0 .
- An active internet connection for data to be received and sent by the user .
- A proper operating system and an updated and compatible web browser browser for users accessing website , e.g. chrome , firefox , brave , etc .

• Assumptions and Dependencies :

- The generated e-bills should be stored in the database for future transactions and purposes.
- All the critical / personal information of the person is not necessary to be stored in the database.

3: Specific Requirements :

• External Interfaces :

- It uses resources from hardware components which include RAM, Hard Disk, network card (for network connectivity), etc.
- It also requires the appropriate JDK version as well as MySQL database as software components.

• Functions :

- Searching for availability of seats in train at required / preferred date and time, as per the need of the user.
- Information of the customer / train on the ticket.

- Online payment method through payment portals.
- Ticket cancellation, FAQ's, etc.

• Performance Requirements:

- For desktop computer users:
 - Processor should be intel core two or greater.
 - Minimum 512 MB of RAM
 - A minimum screen resolution of 800 * 600 of the monitor. (1600 * 900 recommended).

• Logical Database requirement:

- For android users:
 - Minimum Android version should be Android 7.0 or higher.
 - Minimum memory space of 25 MB (App size) should be available for installation.
 - A processor of MediaTek MT6589M. or higher.

• Logical Database Requirements:

- This software must have the appropriate permissions to access the computer's / mobile's storages to use the data stored locally.
- If there is an external storage, such as a database, the user should have access to the information from the database.

• Design Constraints:

- As this software is web-based i.e. a website as well as app-based i.e. an android app. There are constraints on the android app such as the hardware constraints and OS versions to be used, but there are no constraints on the web versions of the software as it can be accessed directly through browsers.

• Software system quality attributes:

- Maintainability :

The client of the app will have some time after the software system is delivered to them. This time period is

also known as warranty period. If anything happens to the software in the warranty period, the software will be updated after without any extra charges.

- Availability :

This software system would be made available for direct access by our team to the user. i.e. the website hosting and publishing the application will be done by the developers.

- Flexibility :

The software system should be flexible and any changes that the user needs after the software system is delivered shall be made to the software at a decided cost by the client and firm in the contract.

• Object Oriented Models:

The online Railway Reservation Management System can be easily understood by studying the database model and relationship between classes used in the software.

4. Appendices:

MySQL - For storing data in the database

JDK - Java Developmental Kit .

RAM - Random Access Memory

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= 2) Library Information Management System .

Title : Library Information Management System

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1. Introduction :

The 'Library Information Management System' allows the users to access the information from anywhere using the software.

This application helps the user ^{much} by fulfilling his needs at a ^{much} faster speed.

~~advantages~~ • Purpose - The software allows the user to access information from anywhere using the software.

- It also allows the users to check the records, availability of books, etc. of the library.

2. Scope :

- An online Library Information Management system which provides access to library data, book-borrow information, etc.

- It has cut-down the tiring and time consuming process of checking the written records for data by

making the data available digitally in the software.

- Definitions, Acronyms and Abbreviations:

- It is an desktop application which provides library services for the users.
- Few of the acronyms of the software are:
LS - Late Submission, B - Borrowed, R - Returned,
LP - Late Penalty, OOS - Out-of-Stock, Book No., etc.

- References:

- Software Engineering: A Practitioner's approach - Roger S. Pressman
- Clean code : A handbook of agile software craftsmanship. - Robert C. Martin

- Overview:

- This software system is built in order to replace the traditional system and making the process of library management easier.
- This system is meant to be efficient, affordable and easy to use.

- It can be implemented easily by the librarian or library incharge.

2. Overall Description:

• Product perspective :

- This product, i.e. 'Library Information Management system' is a stand-alone product / software system.
- As far as hardware is considered, this software system will be accessed through a computer system with a proper OS.
- The software stores user's data locally, i.e. on the computer system as well as on a secure database for remote access.
- The database contains a variety of data such as student/user information, enrolment no., book name, book no, available books, borrowed books, due date, etc.

• Product functions :

- Borrowed book's due date checking
- Borrower's student's detail checking
- Student information Processing
- Book allotment and collecting System.
- Available books and borrowed books management system.

• User characteristics :

- Little to minimal knowledge about technical terms.
- Basic knowledge about computer systems.
- No technical knowledge required.
- Basic knowledge of computer operating system.

• Constraints :

- A computer system with windows Vista or above operating system.
- An active internet connection for uploading data-backup to the ^{database} server. (optional)
- A proper operating system and an updating at least 500 MB storage space for application and writing data locally.

• Assumptions and Dependencies:

- The record of the borrowing and return of books/penalties shall be stored in the database for future reuse purposes.
- Personal information of the students should be hidden from the and not directly accessible without administrator privileges.

3. Specific Requirements:

• External Interfaces:

- It The software uses resources from hardware components which include RAM and hard disk (for storing data locally).
- It also requires the appropriate JDK version and MySQL installed, on the system.

• Functions:

- Searching for availability and stocks of certain books.
- Information of student, book they borrowed, return date.

- Pa Penality payment method through payment portals.
- Book return procedure.
- Library card generation.

• Performance Requirements:

- Processor should be intel core i3 or higher
- Minimum RAM of size 512 mb should be present.
- A minimum screen resolution of 800 * 600 of the monitor is required.

• Logical Database Requirements:

- The software must have the appropriate permission to access the computer's hard disk storage, to store the data locally.
- If there is an external storage, such as a database, the user should have read/write permissions to their the data from the database.

• Design Constraints:

- There are constraints on this application, such as hardware constraints, for RAM and storage and Software constraints for the required Operating System.

Software System Quality Attribute:

- Maintainability:

The client of the app will have some time after the software system is delivered to them. This time period is also known as warranty period. If anything happens to the software in the warranty period, the software is updated without any extra costs/charges.

- Availability:

This software system would be made available for direct access to lay our team to the user, i.e. the software application setup file and installation guide will be provided by our team.

- Flexibility:

The software system should be flexible and any changes that the user needs after the software system is delivered shall be made at a predecided cost as decided in the contract by the client and the organisation.

*Object Oriented Models:

- The code should be made more easily readable by separating the UI from the logic, for this object oriented data models i.e. classes should be made.
- The 'Library Information Management System' can be easily understood by studying the database model, object oriented data model and the relation between them.

4. Appendices :

MySQL - To store the data of the users into database and for also retrieving the data.

JDK - Java Development Kit

RAM - Random Access Memory

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