Cairo University **SEM– team 10**

Faculty of Engineering

Computer Engineering Department

CMP 202

Introduction to Database Systems

Project Proposal

Report

Team Number: 10

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**Project 1**

**Railway Management System**

Project Description

This project is about creating the database about Railway Management System.

The railway management system facilitates the passengers to enquire about the trains available on the basis of source and destination, booking and cancellation of tickets, enquire about the status of the booked ticket, etc. The aim of case study is to design and develop a database maintaining the records of different trains, train status, and passengers. The record of train includes its number, name, source, destination, and days on which it is available, whereas record of train status includes dates for which tickets can be booked, total number of seats available, and number of seats already booked.

Passengers can book their tickets for the train in which seats are available. For this, passenger has to provide the desired train number and the date for which ticket is to be booked. Before booking a ticket for a passenger, the validity of train number and booking date is checked. Once the train number and booking date are validated, it is checked whether the seat is available. If yes, the ticket is booked with confirm status and corresponding ticket ID is generated which is stored along with other details of the passenger. The ticket once booked can be cancelled at any time. For this, the passenger has to provide the ticket ID (the unique key). The ticket ID is searched and the corresponding record is deleted. With this, the first ticket with waiting status also gets confirmed.

Functionalities & Entities

* List of System Users:

1. Manager
2. Station Manager
3. Booking Clerk
4. Manager Functionalities:
   1. Hire/Fire Station Manager
   2. Buy / Sell trains
   3. Review Changes
   4. Open a new station
   5. Increase station manager salaries
   6. Manage routes.
   7. Stop a station
   8. Add Constrains to station Manager
   9. Review Train Graph
5. Station Manager:
   1. Hire / Fire employee
   2. Upgrade Station
   3. Manage Roundhouses
   4. Stop a station
   5. Route train cars (repair or couch).
   6. Determine the price of the ticket
   7. Manage Trips
6. Booking Clerk:
   1. Checks the availability of trains
   2. Checks the availability of tickets
   3. Book a seat
   4. Cancel a ticket
   5. Edit passenger data
   6. Edit trip data

**Entities:**

1. **Users**
2. **Employee**
3. **Train**
4. **Route**
5. **Subscription**
6. **Manager**
7. **Passenger**
8. **Trip**
9. **Station**
10. **Sponsor**
11. **Ticket**
12. **Contact**
13. **Repair yard**
14. **Railway Roundhouse**
15. **Coach yard**

**Project 2**

**library Management System**

Project Description

This is a university library database system.

With this application undergraduate students, graduated students and

library guests can borrow, review, rate books and read other students reviews. The books are distributed among sections eg. Physics, Mathematics, Literature. Also they can make a reading list of the books they are intending to read in the future. There are more than one reading list for each user as each list is for a specific section and there is one big list contains all of the books that user intend to read in all fields .

There is a librarian who can add and remove books, add and remove users and write a description for a book. He can make a list for recommended books in each topic or science field. Each type of users can borrow a specific number of books depending on his or her user type. Borrow requests are accepted automatically by the system not by the librarian.

Functionalities & Entities

* List of system users:

1- Librarian.

2- Undergraduate Student.

3- Graduate Student.

4- guest.

1. Librarian:

    a. Add books.

    b. Add users and specify their types.

    c. Remove Books.

    d. Remove users.

    e. Write a description for a book.

1. Guest:

    a. Create a reading list and update it.

    b. request for borrowing only one book.

    c. view books list.

    d. Write reviews for books.

    e. Report a problem to admin.

* 1. Rate a Book.

1. Undergraduate Student.
   1. Create a reading list and update it.
   2. request borrowing up to three books.
   3. view books list.
   4. Write reviews for books.
   5. Report a problem to admin.
   6. Rate a Book

1. Graduate Student.
2. Create a reading list and update it.
3. Request borrowing up to three books.
4. View books list.
5. Write reviews for books.
6. Report a problem to admin.
7. Rate a book.
8. Download a scientific paper in PDF format for free

**Entities:**

1. Librarian.
2. Undergraduate student.
3. graduated student.
4. Book.
5. Guest.
6. Borrow Request.
7. Review.
8. Journal.
9. Scientific paper.
10. Reading list.
11. Recommended books.
12. Section
13. Users