

RAILWAY MANAGEMENT SYSTEM

DATABASE MANAGEMENT SYSTEM



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**INTRODUCTION:**

Railway is the cheapest source of transport. Thousands of people use railway on daily bases to travel from one place to another and hundred of employees are working in one station. Passengers reserve ticket on the bases of ‘station to’ to ‘station from’.

As it is difficult to store and maintain old and new records manually so we are designing database to make our work of holding records more convenient and maintain records with more accuracy.

There are lot of conflicts which are reduced by maintaining database as it provides many facilities

* by maintaining safe records
* searching of data would be much easier by this
* By entering the data faster

Through this error of the information recorded in the system will be minimized while entering to system and database is also user friendly.

**Our Aim:**

The aim of case study is to design and develop a database maintaining the records of different trains, train status, employees and passengers. This collection of data is typically organized to model aspects of reality in a way that supports processes requiring information.

**Business Function:**

**For Passengers details:**

* Firstly, the passenger will reserve his ticket for travelling through ticket through ticket boot.
* Passenger can control his ticket if he doesn’t want to travel but if he cancel his ticket a day before then half of the prize will be returned to him/her. but if he miss his train then no prize will be returned.

**Ticket Booking:**

According to passenger choice following process will carry on in booking ticket.

* Check seat availability in certain status of train.
* Status of train will be recorded.
* Arrival and departure of train will be managed.
* Each passenger will give a unique id for traveling through certain train.
* Schedule of train access different cities.

**Ticket cancellation:**

If passenger cancel his booking because of any issue certain things will be handled.

* Station route of him will be recorded.
* Record seat no of passenger who cancel his booking station.

**Routes Detail:**

* Station information of passenger.
* Record the source and destination of specific station.

**Fare detail:**

* According to selected station of passenger fares will calculated.

Fares may vary as passenger book the class of train such as economy, business class and first class.

**RULES:**

1. Your luggage should wait under following terms.

* Economy= 40kg
* First= 50,100
* Business= 70kg for free and maximum of 150kg (if he pays extra).

(If you want to exceed the limit then you must pay 200 per kg)

1. Half fare will be applied to kids between 3 to 10 years of age and old citizens of age 65 and above.
2. A railway record system must maintain a list of employees who are qualified for the employee occupation category
3. People who belong to navy, military, air force will have an 80% discount on their tickets.
4. Time must be managed in a way that number of arriving trains must be less than or equal to number of tracks.
5. The in between stoppage station and their reservation are not considered.
6. Only three categories of tickets can be reserved i.e. first class, business class, economy.
7. Every employee will have a duty for 12 hours per day. (night shift, day shift)
8. Route details will be shown on large led on the station.
9. Arrival and departure timings of train are normally announced as:

* 10 minutes before
* 5 minutes before
* 1 minute before

**User and roles:**

**Users:**

* Station master
* Sub-station master
* Booking clerk
* Phone enquiry clerk
* Controller

**Roles**

* **Station master:** he can view or edit all data of passengers, trains, tickets, employees, station and other entities because he manages all the activates of the station and also assign jobs to employees.
* **Sub-station master:** he can view or edit all data of passengers, trains, tickets, employees, station and other entities expect for his own data because he works as you can say right hand or station master.
* **Booking clerk:** He can get to reserve or cancel seat in a train for passengers and print ticket for them on booth. But he cannot edit or view data of old passengers and employees.
* **Phone enquiry clerk:** he can view data of trains (arrival or departure of train) because he accepts the calls of the peoples who want to know the timings of train for any reason.
* **Controller:** he can edit and view details of trains and stations because **he** allot time to trains that manage for each of the arrival of train that number of trains at one station must be equal to tracks on trains so nobody faces any inconvenience.

**DATA FLOW:**

**Entity:**

1. passenger
2. employee
3. train
4. station
5. ticket

**Attributes:**

1. PASSENGER:
2. Full name
3. Mobile number
4. CNIC
5. Gender
6. Seat number
7. Age
8. EMPLOYEE:
9. First name
10. Last name
11. ID
12. Password
13. CNIC
14. Gender
15. Age
16. email
17. address
18. mobile number
19. city, state
20. qualification
21. TRAIN:
22. Train name
23. From station
24. To station
25. Arrival time
26. Departure time
27. Seats
28. Tarin id
29. routes
30. STATION:
31. Name
32. Number
33. Number of trains
34. Halting trains
35. Arrival time
36. Number of employees
37. Number of canteens
38. Number of washrooms
39. Number of booths
40. TICKET:
41. Train number
42. Seat number
43. Passenger name
44. From station
45. To station
46. class

**Relationship:**

1. **passengers** reserve **tickets**
2. **train** stops at certain **station.**
3. **Passenger** cancels the **ticket.**
4. **Train** starts from source **station** and ends at destination **station.**
5. **Employee** confirms **passenger**’s reserved **ticket.**
6. **Passenger** travels in **train.**
7. **Employee** works at **station**.
8. **Employee** manage **train** activity.

**Constraints:**

1. Your luggage should wait under following terms.

* Economy= 40kg
* First= 50,100
* Business= 70kg for free and maximum of 150kg (if he pays extra).

(If you want to exceed the limit then you must pay 200 per kg)

**Entity:** passenger

**Event:** insert

**Condition:** should not exceed limit

**Action:** will check and if exceed limits then passenger should remove some or pays extra as per kg.

1. Half fare will be applied to kids between 3 to 10 years of age and old citizens of age 65 and above.

**Entity:** passenger

**Event:** insert

**Condition:** age conformation will be done through ID.

**Action:** Fine will be charged else ticket will be canceled (if he is on the moving train then he had to hault on next station).

1. People who belong to navy, military, air force will have an 80% discount on their tickets.

**Entity:** passenger

**Event:** update if travelled before in train else insertion

**Condition:** conformation of person status in forces through charge card (specific card for forces)

**Action:** if he fails to prove his identity in forces then he will be charged a full fare.

1. A railway record system must maintain a list of employees who are qualified for the employee occupation category

**ENTITY:** employee

**EVENTS:** insert

**CONDITION:** every employee’s qualification should met the criteria.

**ACTION:** a candidate would not be hired for specified job.

1. Time must be managed in a way that number of arriving trains must be less than or equal to number of tracks.

**ENTITY:** employee.

**EVENTS:** update.

**CONDITION:** one track will be managed for a single train at a time.

**ACTION:** if controller fails to manage train timings then there will be no route to park the train and it will result in an accident.

1. The in between stoppage station and their reservation are not considered.

**ENTITY:** station, ticket, passenger.

**EVENT:** insert.

**CONDITION:** passenger has no concern of in between stations and their reservations.

**ACTION:** if a passenger leaves the train before its destination station no refund will be there.

1. Only three categories of tickets can be reserved. i.e. first class, business class, economy

**EVENT:** update

**ENTITY:** ticket, train.

**CONDITION:** confirmation of ticket class at the time of being reserved.

**ACTION:** If a person wants to change class then it can be updated with a 5% charge / interest.

1. Every employee will have a duty for 12 hours per day. (night shift, day shift)

**ENTITY:** employee

**EVENTS:** update

**CONDITION:** if an employee done 12 hours duty then he must be free.

**ACTION:** if not done his duty without leave deduction of pay or given threat.

1. Route details will be shown on large led on the station

**ENTITY:** station, train.

**EVENT:** update, delete.

**CONDITION:** current route details should be updated after 12 hours and previous data is deleted.

**ACTION:** backup plan should be there if led got damaged.

1. Arrival and departure timings of train are normally announced as :
2. 10 minutes before
3. 5 minutes before
4. 1 minute before

**ENTITY:** station, employee.

**EVENT:** update

**CONDITION:** announcements should be on time.

**ACTION:** the employee should avoid delay or manage some other person on his place if he is not able to fulfil his task of arrival and departure announcements.