Report on

DATABASE MANGEMENT SYSTEM

For

SALON MANAGEMENT AND BOOKING APP

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Content

INTRODUCTION

This is a database system designed for a Salon Store Management and Booking Application using MySQL.

The system supports two types of users — **owners** and **customers**. It enables streamlined booking and easy service delivery for the customers and also facilitates the owners of the salons with easy and efficient staff management , continuous and accurate payment and feedback tracking.

The aim is to automate and optimize the operational flow of salons — from customer booking to service delivery and performance analysis — using a normalized, relational database structure that ensures consistency, scalability, and integrity of data.

Using the concepts of Database Management System this is an attempt to build Database to implement the concepts into a real world problem.

There can be a lot advancements that can be made to apply it to big data, but the current one focuses on the implementation of primary and small scale data manipulations using commonly used SQL commands.

Establishing the concepts of ER – Diagram, Creating Relational Models and then implementing techniques of Normalisation .

Learning Outcomes :

These are some of the key learning outcomes from this project:

- Database Normalization & Design Principles
- Role-Based Data Handling
- Real-Life Business Logic in Schema
- End-to-End Workflow Design
- Complex Query Writing & Reporting
- Scalability & Maintainability Concepts

Problem Statement

In India, **small-scale salons and barbershops** often experience a **significant surge in customer demand during weekends, festivals, and holiday seasons**. Due to limited staff, manual booking systems, and lack of real-time visibility into service availability, these businesses face several operational challenges, such as:

- **Overbooking or time-slot clashes** during peak times.
- **Inefficient staff management**, where owners struggle to track availability and assign services.
- **Customer dissatisfaction** due to long wait times, lack of service clarity, or missed appointments.
- Difficulty in **tracking payments**, especially advance payments and service-wise cost breakdowns.
- No structured system to **evaluate staff performance or capture customer feedback**.
- **Limited digital presence**, making it harder for customers to discover available services and book them with confidence.

This leads to **missed business opportunities**, **revenue loss**, and **lower customer retention** — especially during the most profitable times of the year.

Features

The features included are:

- **User Authentication:** Users register as either salon owners or customers.
- **Shop Management:** Each owner can manage a single shop with unique staff and services.
- **Service Handling:** Shops offer various services, each with customized pricing and duration.
- **Staff Scheduling:** Owners mark available staff daily, including themselves if they provide services.
- **Real-Time Bookings:** Customers view available shops and staff based on service and timing, and make bookings by paying a 30% non-refundable advance.
- **Staff Assignment:** Staff are automatically assigned to bookings and time slots are blocked accordingly.
- **Payments & Salary Calculation:** Based on customer attendance, payments are split between staff and owner.
- **Feedback System:** Customers rate both the service and the staff after completion.
- **Performance Reports:** Owners can view historical booking data, feedback, income, and staff salaries over time.

By these , this system not only **improves operational efficiency** but also **enhances the customer experience**, making it easy for **small-scale Indian salons** where demand fluctuates and manpower is limited.

Entities and Relationships

Assumptions :

To ease out implementation the following assumptions have been made :

- One owner can own atmost 1 Shop.
- One staff member can work at atmost 1 Shop.
- User has to pay 30% of cost for booking which is not refundable.
- Once the complete payment is done 50% of service cost will be given to owner and rest to staff member who has provided that service.
- Once a service is booked the customer turns up for sure i.e cancellation options not been provided.

The design of the database was implemented by first figuring out the various required entities and relationships between them , which are as follows:

1. Users

- **Attributes**: user_id (PK), username, password, full_name, email, phone, role
- **Description**: Represents all people using the system – either as owners or customers.
- **Role**:
  - **Owner** can manage one shop.
  - **Customer** can book services.

2. Shops

- **Attributes**: shop_id (PK), owner_id (FK), shop_name, address
- **Description**: Each shop is owned by one user (owner).
- **Relationships**:

    - One-to-One: Each owner has exactly one shop.
    - One-to-Many: Each shop can have many staff, services, and bookings.

3. Staff

- **Attributes**: staff_id (PK), shop_id (FK), user_id (FK), skill
- **Description**: Represents employees working at a shop. Their availability and assignments are tracked.
- **Relationships**:
    - Many-to-One: Belongs to one shop.
    - One-to-One: Each staff is a user.
    - One-to-Many: Can be assigned to many bookings.

4. Services

- **Attributes**: service_id (PK), name, description
- **Description**: Represents types of services like haircut, facial, manicure, etc.
- **Note**: Independent service list shared across shops.

5. Shop_Services

- **Attributes**: shop_service_id (PK), shop_id (FK), service_id (FK), price, duration_minutes
- **Description**: Associates services to specific shops with different prices and durations.
- **Relationship**:
    - Many-to-One: Links Shops and Services.

6. Staff_Availability

- **Attributes**: availability_id (PK), staff_id (FK), available_date, available_from, available_to
- **Description**: Tracks daily time availability for each staff member.
- **Relationship**:
    - Many-to-One: Each availability record maps to one staff member.

7. Bookings

- **Attributes**: booking_id (PK), customer_id (FK), shop_service_id (FK), shop_id (FK), service_date, start_time, end_time, status, advance_paid, remaining_paid
- **Description**: Captures service booking by a customer at a shop.
- **Relationship**:
    - Many-to-One: Belongs to a shop, shop_service, and customer.

8. Booking_Assignments

- **Attributes**: assignment_id (PK), booking_id (FK, Unique), staff_id (FK)
- **Description**: Maps which staff member was assigned to a particular booking.
- **Relationship**:
    - One-to-One: One staff per booking (can be expanded for multi-staff support).

9. Payments

- **Attributes**: payment_id (PK), booking_id (FK), total_amount, advance_paid, remaining_paid, paid_at
- **Description**: Records payment details for each booking.
- **Relationship**:
    - One-to-One: Each booking can have one payment.

10. Staff_Salaries

- **Attributes**: salary_id (PK), booking_id (FK), staff_id (FK), amount, reason
- **Description**: Stores salary details per staff member per booking.
- **Relationship**:
    - Many-to-One: Relates to one booking and one staff.

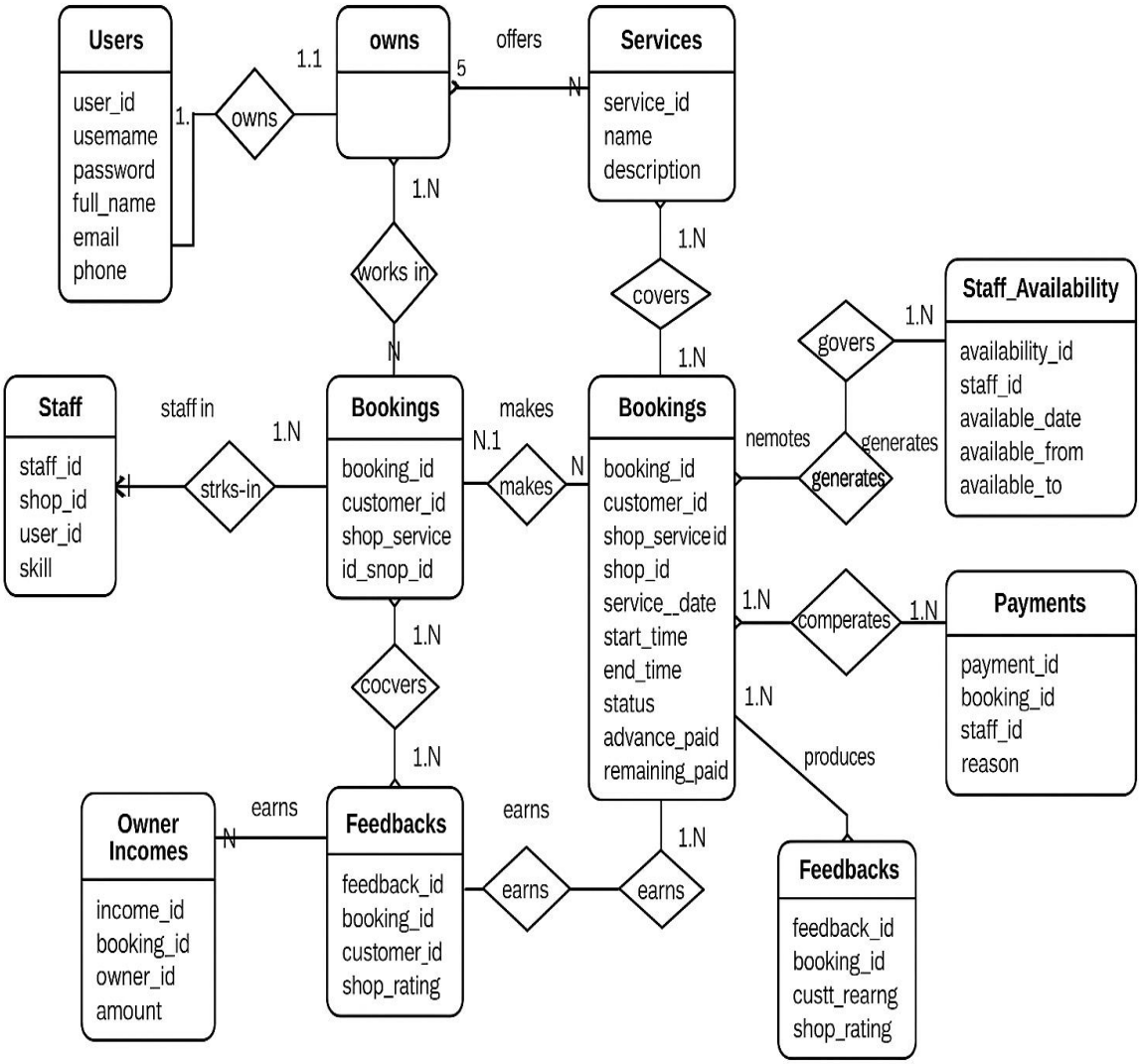
11. Owner_Incomes

- **Attributes**: income_id (PK), booking_id (FK), owner_id (FK), amount

- **Description**: Tracks income per booking for the shop owner.
- **Relationship**:
    - Many-to-One: Relates to one booking and one owner.

12. Feedbacks

- **Attributes**: feedback_id (PK), booking_id (FK), customer_id (FK), staff_rating, shop_rating
- **Description**: Captures customer feedback per booking.
- **Relationship**:
    - One-to-One: One feedback per booking.



Normalisation

Before Normalization :

- Same service info repeated in multiple records (e.g., "Haircut" with description & price repeated in 10 places).
- Staff skill and shop details copied for each booking.
- Payments, feedback, and staff salary all stored in a single large table.

IMPLEMNTATION OF NORMALISATION

1. 1NF (First Normal Form) – Atomicity

- Data is stored in separate columns and atomic units.
- For example, service names, prices, and durations are in the Services and Shop_Services tables, not repeated in Bookings.

2. 2NF (Second Normal Form) – Remove Partial Dependencies

- Shop_Services connects a **shop** to a **service** with a price/duration — avoiding partial dependency.
- Staff_Availability stores date-based data separately instead of embedding it in staff records.

3. 3NF (Third Normal Form) – Remove Transitive Dependencies

- Payment details, salary calculations, owner incomes, and feedback are moved to **separate tables**.
- These are connected only by relevant foreign keys (e.g., booking_id, staff_id) so the data is not repeated and remains consistent.

Data Set

Inorder to apply queries , the following structure was implemented

- **Total Shops Created**: 3
- **Roles in System**: Owners, Staff (Employees), Customers
- **Total Users**:
  - **Owners**: 3
  - **Customers**: 6 (3 customers + 9 staff added as users with role customer)
  - **Staff Entries**: 12 mapped to shops with skills (via Staff table)

Shops Overview

Shop 1: Ramesh Salon & Spa

- **Owner**: Ramesh Verma (ramesh123)
- **Address**: Banjara Hills, Hyderabad
- **Staff Employed**:

Staff Name	Skills
Kiran Rao	Haircut, Shaving, Hair Coloring, Spa
Simran	Haircut, Shaving, Facial
Kushal	Shaving, Facial, Hair Coloring

- **Services Offered**:
  - Haircut, Shaving, Facial, Spa, Hair Coloring
  - Prices range from ₹50 to ₹600

Shop 2: Sita Beauty Lounge

- **Owner**: Sita Iyer (sita456)
- **Address**: Hitech City, Hyderabad
- **Staff Employed**:

Staff Name	Skills
Meena Kumari	Facial, Hair Coloring, Haircut
Rajneesh	Haircut, Shaving, Facial
Neha Kapoor	Manicure, Pedicure, Spa
Divya Singh	Spa, Massage
Amit Chauhan	Haircut, Manicure, Hair Coloring

- **Services Offered**:
  - Full list including Facial, Manicure, Pedicure, Spa, Massage
  - Prices range from ₹350 to ₹1500

Shop 3: Style up Hub

- **Owner**: Karthik Kumar (karthik892)
- **Address**: Madhapur, Hyderabad
- **Staff Employed**:

Staff Name	Skills
Sunil Joshi	Facial, Spa
Rajesh (staff11)	Haircut, Shaving, Massage
Arjun (staff16)	Haircut, Shaving, Facial, Hair Coloring
Rahul (staff17)	Shaving, Hair Coloring

- **Services Offered**:

- Similar to other shops with Spa, Massage, Facial, Haircut
- Prices range from ₹70 to ₹1000

Other Users (Customers Only)

Customer Name	Username	Role
Rahul Mehta	rahul89	customer
Anita Desai	anita92	customer
Rajesh Kumar	rajesh77	customer
Priya Sharma	priya001	customer
Arjun Reddy	arjun002	customer

These customers have been inserted as users and some have made bookings in the system.

Service Details Summary

- **Total Services Inserted**: 8
- **Services**: Haircut, Shaving,Facial, Spa, Hair Coloring, Massage, Manicure, Pedicure
- Each shop provides a customized subset of these with price/duration configured in Shop_Services.

- Availability and Booking/Assignment are handled in separate normalized tables.

Queries

Many queries can be implemented but here only important ones performing the key features are implemented and their results are as follows :

1. Implementing a complete Booking Cycle :
    - Customer searches for a service ex. Massage and gets a list of available shops providing the particular service.

shop_name	address	service_name	price	duration_minutes	staff_name	skill	available_from	available_to
Sita Beauty Lounge	Hitech City, Hyderabad	Massage	1500.00	180	Neha Kapoor	Spa,Massage	09:00:00	17:00:00
Style up Hub	Madhapur, Hyderabad	Massage	1000.00	180	Sunil Joshi	Haircut,Shaving,Massage	09:00:00	19:00:00

    - Customer makes a booking by paying 30%(not returnable) of price of service for a particular timeslot at particular shop a Booking will be made and also a staff at that shop will be assigned at that shop.

Ex. Priya books a massage at Sita Beauty Lounge

booking_id	customer_name	service	shop_name	start_time	end_time	assigned_skill	staff_assigned
5	Priya Sharma	Massage	Sita Beauty Lounge	14:00:00	17:00:00	Spa,Massage	Neha Kapoor

    - After service has been delivered and rest 70% payment is done the bookings table will be updated and also the staff salaries and owner income table will be updated with 50% of net service cost each.

Staff Salary table (updated):

salary_id	booking_id	staff_id	amount	reason
1	1	2	50.00	completed
2	2	5	175.00	completed
3	3	9	500.00	completed
5	5	7	750.00	completed
NULL	NULL	NULL	NULL	NULL

Owner Income Table

income_id	booking_id	owner_id	amount
1	1	1	50.00
2	2	2	175.00
3	3	3	500.00
5	5	2	750.00
NULL	NULL	NULL	NULL

Bookings Table (updated):

booking_id	customer_id	shop_service_id	shop_id	service_date	start_time	end_time	status	advance_paid	remaining_paid
1	4	1	1	2025-06-21	09:00:00	09:45:00	completed	50.00	50.00
2	5	9	2	2025-06-21	10:00:00	11:00:00	completed	105.00	245.00
3	8	17	3	2025-06-21	11:00:00	14:00:00	completed	300.00	700.00
5	7	11	2	2025-06-21	14:00:00	17:00:00	completed	450.00	1050.00
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

- The customer can now give feedback to staff and also to the shop on a rating scale of 5.

feedback_id	booking_id	customer_id	staff_rating	shop_rating
1	1	4	4.5	3.7
2	2	5	3.9	4.5
3	3	8	4.0	4.0
4	5	7	4.5	4.0
NULL	NULL	NULL	NULL	NULL

2. Query to show booking details (incl feedback) for the day of a particular shop

   Booking details of Sita Beauty Lounge on 21-06-2025

booking_id	customer_name	service_name	staff_name	start_time	end_time	status	staff_rating	shop_rating
2	Anita Desai	Pedicure	Meena Kumari	10:00:00	11:00:00	completed	3.9	4.5
5	Priya Sharma	Massage	Neha Kapoor	14:00:00	17:00:00	completed	4.5	4.0

3. Query to show net sales of a shop during a particular date range

   Net Sales of Sita Beauty Lounge in June,2025

shop_id	shop_name	net_sales	total_bookings
2	Sita Beauty Lounge	1850.00	2

4. Query to show salary details of a particular staff member in a particular shop during a particular date range :

   Salary of Neha Kapoor working in Sita Beauty Lounge in June 2025

salary_id	staff_name	shop_name	booking_id	service_date	salary_amount	reason
5	Neha Kapoor	Sita Beauty Lounge	5	2025-06-21	750.00	completed

5. Query to show earning of owner (this includes earning of owner by his own service and also by service of other staff) of particular shop during a particular date range :

   Income of Sita in June 2025

owner_name	owner_id	shop_name	income_from_others	income_from_self_services	total_income
Sita Iyer	2	Sita Beauty Lounge	925.00	0.00	925.00

Challenges faced

The challenges faced while building the project are as follows:

- After establishing relationships, it was difficult to implement insertions following all the referential constraints, tried to implement normalisation techniques and increased number of tables to solve the same.
- **Data Set Creations**: It was difficult to create the sample dataset (although a small one) following all the constraints established.
- **Implementation of Booking cycle** :Ensuring the booking process was difficult as it involved CRUD operations to be done in multiple tables while ensuring all the referential constraints.
- **Calculation of Salaries** : Ensuring that right salaries along with booking scheduling were entered in appropriate places was a challenge , tried implement queries using **JOINS** and **Sub-queries** to implement the same.

Future Developments:

This is very basic database implementing key features. It doesnot handle some important Real-life scenarios like :

- Payment Integrity Issues
- Customer Turndown (if customer doesn’t turn up for booked service).
- It doesnot provide Customer Service and Care.
- It doesnot include many technical features for various filtering options for the customer.
- It also doesnot gives a lot flexibility to thw owners for setting what commission they would like to receive and also set prices for services depending on the staff who provides the service.

There can be many more such developments in this project.