Experion ILP-Batch 1
DBMS ASSIGNMENT - 2
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Case Study

Details
Design a comprehensive database with well-normalized tables for a real-time domain of your choice

Selected Domain:Appointment scheduling system for Doctors

Features:
The appointment scheduling system for hospitals is a comprehensive solution designed to streamline the process of managing patient appointments, doctor schedules, and related information in a healthcare setting. Here's a short overview of its key features:

1.User Management:
-Supports the management of various user roles, including administrators, doctors, and staff.
-Provides secure login and authentication for system users.

2.Employee and Role Management:
-Allows the registration and tracking of hospital employees, assigning them specific roles.
-Defines and manages different roles within the hospital, such as doctors, administrators, etc.

3.Doctor and Speciality Management:
-Maintains details of doctors, including their names and qualifications.
-Associates doctors with specific medical specialities.

4.Patient Registration and Medical History:
-Enables patients to register in the system with their demographic details.
-Captures and maintains the medical history of patients for reference.

5.Appointment Booking:
-Facilitates patients in scheduling appointments with doctors.
-Provides real-time availability of doctors and time slots.

6.Time Slot Management:
-Manages and displays available time slots for scheduling appointments.

7.Status Tracking:
-Tracks the status of appointment requests, helping to monitor the progress of bookings.

8.Feedback and Follow-Up:
-Collects feedback from patients after appointments.
-Supports follow-up actions based on patient feedback.

9.User Authentication and Authorization:
-Ensures secure access to the system with role-based permissions for different users.

10.Multi-Role Access:
-Allows administrators, doctors, and staff to access functionalities relevant to their roles.

11.Notification and Reminder System:
-Sends automated notifications and reminders to patients for upcoming appointments.

12.Integration with External Systems:
-Integrates with electronic medical records (EMR) and billing systems for seamless operations.

13.Telemedicine Support:
-Integrates with telemedicine platforms to support virtual appointments.

14.Reporting and Analytics:
-Generates reports on appointment trends, no-shows, and resource utilization.
-Provides analytics for optimizing appointment schedules and improving patient flow.

15.Accessibility and Language Support:
-Supports multiple languages for a diverse patient population.
-Incorporates accessibility features for users with disabilities.

16.Mobile Accessibility:
Offers a mobile-friendly interface and mobile app for convenient access.

This system enhances the efficiency of hospital operations, improves patient experience, and provides a centralized platform for managing appointments and related information. It is designed to meet the diverse needs of both healthcare providers and patients within a hospital setting.

Tables

EmployeeDetails:

- UserID (Primary Key, VARCHAR(50))
- FirstName (VARCHAR(50))
- LastName (VARCHAR(50))
- MailID (VARCHAR(100))
- PhoneNumber (VARCHAR(20))
- Gender (VARCHAR(10))

EmployeeRoles:

- UserID (Foreign Key referencing EmployeeDetails, VARCHAR(50))
- RoleID (Foreign Key referencing RoleInfo, VARCHAR(50))

RoleInfo:

- RoleID (Primary Key, VARCHAR(50))
- RoleName (VARCHAR(50))

DoctorDetails:

- DoctorID (Primary Key, VARCHAR(50))
- FirstName (VARCHAR(50))
- LastName (VARCHAR(50))

SpecialityInfo:

- SpecialityID (Primary Key, VARCHAR(50))
- SpecialityName (VARCHAR(50))

DoctorSpecialityDetails:

- DoctorID (Foreign Key referencing DoctorDetails, VARCHAR(50))
- SpecialityID (Foreign Key referencing SpecialityInfo, VARCHAR(50))

PatientDetails:

- PatientID (Primary Key, VARCHAR(50))
- FirstName (VARCHAR(50))
- LastName (VARCHAR(50))
- PhoneNumber (VARCHAR(20))

PatientMedicalHistory:

- PatientID (Foreign Key referencing PatientDetails, VARCHAR(50))
- MedHistory (VARCHAR(255))

BookingRequest:

- BookingRequestID (Primary Key, VARCHAR(50))
- PatientID (Foreign Key referencing PatientDetails, VARCHAR(50))
- DoctorID (Foreign Key referencing DoctorDetails, VARCHAR(50))
- Date (DATE)
- TimeID (Foreign Key referencing TimeInfo, VARCHAR(50))
- Comments (VARCHAR(255))

TimeInfo:

- TimeID (Primary Key, VARCHAR(50))
- TimeName (VARCHAR(50))

BookingStatusInfo:

- StatusID (Primary Key, VARCHAR(50))
- Status (VARCHAR(50))

BookingStatusDetails:

- BookingStatusDetailsID (Primary Key, VARCHAR(50))
- RequestID (Foreign Key referencing BookingRequest, VARCHAR(50))
- StatusID (Foreign Key referencing BookingStatusInfo, VARCHAR(50))

Feedback:

- FeedbackID (Primary Key, VARCHAR(50))
- BookingRequestID (Foreign Key referencing BookingRequest, VARCHAR(50))
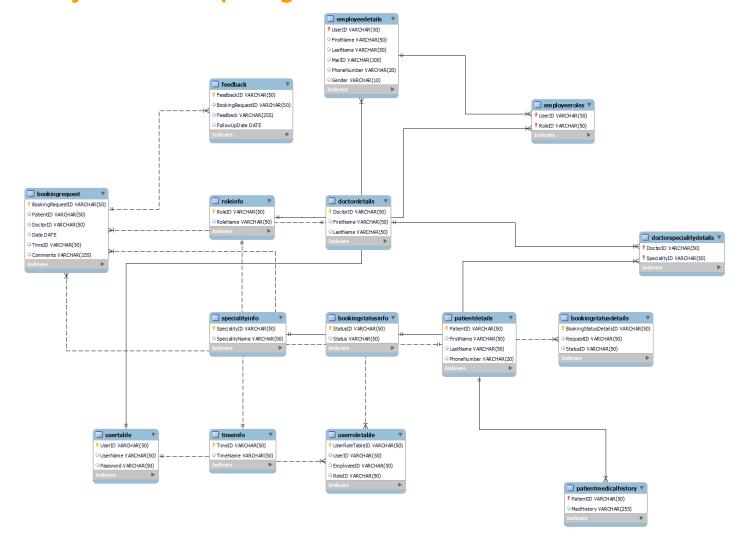- Feedback (VARCHAR(255))
- FollowUpDate (DATE)

UserTable:

- UserID (Primary Key, VARCHAR(50))
- UserName (VARCHAR(50))
- Password (VARCHAR(50))

UserRoleTable:

- UserRoleTableID (Primary Key, VARCHAR(50))
- UserID (Foreign Key referencing UserTable, VARCHAR(50))
- EmployeeID (Foreign Key referencing EmployeeDetails, VARCHAR(50))
- RoleID (Foreign Key referencing RoleInfo, VARCHAR(50))

Entity Relationship Diagram

Entities:

- User Entity: Represents both employees and patients.
- Role Entity: Represents different roles that can be assigned to users.
- Doctor Entity: Represents doctors.
- Speciality Entity: Represents medical specialities.
- Patient Entity: Represents patients.
- Booking Request Entity: Represents requests for appointments.
- Time Slot Entity: Represents available time slots for appointments.

- Booking Status Entity: Represents the status of booking requests.
- Feedback Entity: Represents feedback provided by patients.
- UserRole Entity: Represents the roles assigned to users.

Relationships:

- User-Role Relationship: One user can have multiple roles; a role can be associated with multiple users. (Many-to-Many)
- EmployeeDetails-UserRole Relationship: One employee can have multiple roles over time. (One-to-Many)
- EmployeeRoles-RoleInfo Relationship: One role can be assigned to multiple employees. (One-to-Many)
- DoctorDetails-DoctorSpecialityDetails Relationship: One doctor can have multiple specialities; a speciality can be associated with multiple doctors. (Many-to-Many)
- PatientDetails-PatientMedicalHistory Relationship: One patient can have multiple medical history records. (One-to-Many)
- BookingRequest-DoctorDetails Relationship: One booking request is associated with one doctor. (Many-to-One)
- BookingRequest-TimeInfo Relationship: One booking request is associated with one time slot. (Many-to-One)
- BookingRequest-BookingStatusDetails Relationship: One booking request can have multiple status details; a status detail is associated with one booking request. (One-to-Many)
- BookingStatusDetails-BookingStatusInfo Relationship: One status detail is associated with one status. (Many-to-One)
- Feedback-BookingRequest Relationship: One feedback is associated with one booking request. (One-to-One)

Attributes:

- Each entity has its own set of attributes, such as UserID, FirstName, LastName, MailID, PhoneNumber, Gender, etc.

Table overview

```
mysql> DESC EmployeeDetails;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| UserID      | varchar(50)  | NO   | PRI | NULL    |       |
| FirstName   | varchar(50)  | YES  |     | NULL    |       |
| LastName    | varchar(50)  | YES  |     | NULL    |       |
| MailID      | varchar(100) | YES  |     | NULL    |       |
| PhoneNumber | varchar(20)  | YES  |     | NULL    |       |
| Gender      | varchar(10)  | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of EmployeeRoles table
mysql> DESC EmployeeRoles;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| UserID | varchar(50) | NO   | PRI | NULL    |       |
| RoleID | varchar(50) | NO   | PRI | NULL    |       |
+--------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of RoleInfo table
mysql> DESC RoleInfo;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| RoleID   | varchar(50) | NO   | PRI | NULL    |       |
| RoleName | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
```

```
mysql> DESC DoctorDetails;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| DoctorID  | varchar(50) | NO   | PRI | NULL    |       |
| FirstName | varchar(50) | YES  |     | NULL    |       |
| LastName  | varchar(50) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of SpecialityInfo table
mysql> DESC SpecialityInfo;
+----------------+-------------+------+-----+---------+--------
| Field          | Type        | Null | Key | Default | Extra
+----------------+-------------+------+-----+---------+--------
| SpecialityID   | varchar(50) | NO   | PRI | NULL    |
| SpecialityName | varchar(50) | YES  |     | NULL    |
+----------------+-------------+------+-----+---------+--------
2 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of DoctorSpecialityDetails table
mysql> DESC DoctorSpecialityDetails;
+--------------+-------------+------+-----+---------+-------+
| Field        | Type        | Null | Key | Default | Extra |
+--------------+-------------+------+-----+---------+-------+
| DoctorID     | varchar(50) | NO   | PRI | NULL    |       |
| SpecialityID | varchar(50) | NO   | PRI | NULL    |       |
+--------------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> DESC PatientDetails;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| PatientID   | varchar(50)  | NO   | PRI | NULL    |       |
| FirstName   | varchar(50)  | YES  |     | NULL    |       |
| LastName    | varchar(50)  | YES  |     | NULL    |       |
| PhoneNumber | varchar(20)  | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of PatientMedicalHistory table
mysql> DESC PatientMedicalHistory;
+-------------+--------------+------+-----+---------+-------+
| Field       | Type         | Null | Key | Default | Extra |
+-------------+--------------+------+-----+---------+-------+
| PatientID   | varchar(50)  | NO   | PRI | NULL    |       |
| MedHistory  | varchar(255) | YES  |     | NULL    |       |
+-------------+--------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> DESC BookingRequest;
+-----------------+--------------+------+-----+---------+-------+
| Field           | Type         | Null | Key | Default | Extra |
+-----------------+--------------+------+-----+---------+-------+
| BookingRequestID | varchar(50)  | NO   | PRI | NULL    |       |
| PatientID       | varchar(50)  | YES  | MUL | NULL    |       |
| DoctorID        | varchar(50)  | YES  | MUL | NULL    |       |
| Date            | date         | YES  |     | NULL    |       |
| TimeID          | varchar(50)  | YES  | MUL | NULL    |       |
| Comments        | varchar(255) | YES  |     | NULL    |       |
+-----------------+--------------+------+-----+---------+-------+
6 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of TimeInfo table
mysql> DESC TimeInfo;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| TimeID   | varchar(50) | NO   | PRI | NULL    |       |
| TimeName | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of BookingStatusInfo table
mysql> DESC BookingStatusInfo;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| StatusID | varchar(50) | NO   | PRI | NULL    |       |
| Status   | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.00 sec)
```

```
mysql> DESC BookingStatusDetails;
+-----------------------+-------------+------+-----+---------+-------+
| Field                 | Type        | Null | Key | Default | Extra |
+-----------------------+-------------+------+-----+---------+-------+
| BookingStatusDetailsID | varchar(50) | NO   | PRI | NULL    |       |
| RequestID             | varchar(50) | YES  |     | NULL    |       |
| StatusID              | varchar(50) | YES  | MUL | NULL    |       |
+-----------------------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of Feedback table
mysql> DESC Feedback;
+-----------------+--------------+------+-----+---------+-------+
| Field           | Type         | Null | Key | Default | Extra |
+-----------------+--------------+------+-----+---------+-------+
| FeedbackID      | varchar(50)  | NO   | PRI | NULL    |       |
| BookingRequestID | varchar(50) | YES  | MUL | NULL    |       |
| Feedback        | varchar(255) | YES  |     | NULL    |       |
| FollowUpDate    | date         | YES  |     | NULL    |       |
+-----------------+--------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql>
mysql> -- Show the structure of UserTable table
mysql> DESC UserTable;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| UserID   | varchar(50) | NO   | PRI | NULL    |       |
| UserName | varchar(50) | YES  |     | NULL    |       |
| Password | varchar(50) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
```
```
mysql> DESC UserRoleTable;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| UserRoleTableID | varchar(50) | NO   | PRI | NULL    |       |
| UserID         | varchar(50) | YES  | MUL | NULL    |       |
| EmployeeID     | varchar(50) | YES  |     | NULL    |       |
| RoleID         | varchar(50) | YES  | MUL | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```