Here’s a comprehensive database schema incorporating all the features mentioned for the **Soccer-11** project. It covers user management, turf details, availability, bookings, payments, notifications, and reviews.

**1. tbl\_users**

| **Column Name** | **Data Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| user\_id | INT | PRIMARY KEY, AUTO\_INCREMENT | Unique ID for each user |
| name | VARCHAR(255) | NOT NULL | User's full name |
| email | VARCHAR(255) | UNIQUE, NOT NULL | User's email |
| password | VARCHAR(255) | NOT NULL | User's hashed password |
| role | ENUM('admin', 'player', 'owner') | DEFAULT 'player', NOT NULL | User's role in the system |
| phone | VARCHAR(15) | UNIQUE | User's phone number |

**2. tbl\_turf**

| **Column Name** | **Data Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| turf\_id | INT | PRIMARY KEY, AUTO\_INCREMENT | Unique ID for the turf |
| owner\_id | INT | FOREIGN KEY REFERENCES tbl\_users(user\_id) | Turf owner's user ID |
| name | VARCHAR(255) | NOT NULL | Turf name |
| location | TEXT | NOT NULL | Turf address |
| hourly\_rate | DECIMAL(10,2) | NOT NULL | Cost per hour for booking |
| facilities | TEXT |  | Additional facilities provided |

**3. tbl\_availability**

| **Column Name** | **Data Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| availability\_id | INT | PRIMARY KEY, AUTO\_INCREMENT | Unique ID for each availability slot |
| turf\_id | INT | FOREIGN KEY REFERENCES tbl\_turf(turf\_id) | Turf ID the slot applies to |
| date | DATE | NOT NULL | Date of availability |
| start\_time | TIME | NOT NULL | Start time of the slot |
| end\_time | TIME | NOT NULL | End time of the slot |
| is\_available | BOOLEAN | DEFAULT TRUE, NOT NULL | Indicates if the slot is available |

**4. tbl\_bookings**

| **Column Name** | **Data Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| booking\_id | INT | PRIMARY KEY, AUTO\_INCREMENT | Unique ID for each booking |
| user\_id | INT | FOREIGN KEY REFERENCES tbl\_users(user\_id) | User making the booking |
| turf\_id | INT | FOREIGN KEY REFERENCES tbl\_turf(turf\_id) | Booked turf ID |
| availability\_id | INT | FOREIGN KEY REFERENCES tbl\_availability(availability\_id) | Slot ID booked |
| status | ENUM('pending', 'confirmed', 'cancelled') | DEFAULT 'pending', NOT NULL | Booking status |

**5. tbl\_payments**

| **Column Name** | **Data Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| payment\_id | INT | PRIMARY KEY, AUTO\_INCREMENT | Unique ID for each payment |
| booking\_id | INT | FOREIGN KEY REFERENCES tbl\_bookings(booking\_id) | Associated booking ID |
| amount | DECIMAL(10,2) | NOT NULL | Payment amount |
| payment\_date | TIMESTAMP | DEFAULT CURRENT\_TIMESTAMP, NOT NULL | Payment timestamp |
| payment\_status | ENUM('success', 'failed', 'pending') | DEFAULT 'pending', NOT NULL | Status of the payment |

**6. tbl\_notifications**

| **Column Name** | **Data Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| notification\_id | INT | PRIMARY KEY, AUTO\_INCREMENT | Unique ID for each notification |
| user\_id | INT | FOREIGN KEY REFERENCES tbl\_users(user\_id) | User receiving the notification |
| message | TEXT | NOT NULL | Notification message |
| is\_read | BOOLEAN | DEFAULT FALSE, NOT NULL | Indicates if the notification is read |
| created\_at | TIMESTAMP | DEFAULT CURRENT\_TIMESTAMP, NOT NULL | Timestamp of the notification |

**7. tbl\_reviews**

| **Column Name** | **Data Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| review\_id | INT | PRIMARY KEY, AUTO\_INCREMENT | Unique ID for each review |
| user\_id | INT | FOREIGN KEY REFERENCES tbl\_users(user\_id) | User giving the review |
| turf\_id | INT | FOREIGN KEY REFERENCES tbl\_turf(turf\_id) | Reviewed turf ID |
| rating | INT | CHECK(rating BETWEEN 1 AND 5), NOT NULL | Rating given by the user (1-5) |
| comments | TEXT |  | Additional review comments |
| review\_date | TIMESTAMP | DEFAULT CURRENT\_TIMESTAMP, NOT NULL | Review timestamp |

**8. tbl\_user\_preferences (Optional for Notification Preferences)**

| **Column Name** | **Data Type** | **Constraints** | **Description** |
| --- | --- | --- | --- |
| preference\_id | INT | PRIMARY KEY, AUTO\_INCREMENT | Unique ID for each preference |
| user\_id | INT | FOREIGN KEY REFERENCES tbl\_users(user\_id) | User ID linked to the preferences |
| notify\_via\_email | BOOLEAN | DEFAULT TRUE, NOT NULL | Email notification preference |
| notify\_via\_sms | BOOLEAN | DEFAULT FALSE, NOT NULL | SMS notification preference |
| notify\_via\_app | BOOLEAN | DEFAULT TRUE, NOT NULL | In-app notification preference |

**Relationships Overview:**

1. **Users**:
   * Admin manages the platform.
   * Player books turf.
   * Owner manages the turf.
2. **Turf**:
   * Linked to an owner (from tbl\_users).
3. **Availability**:
   * Linked to a specific turf.
   * Tracks available time slots for bookings.
4. **Bookings**:
   * Connected to users and availability slots.
5. **Payments**:
   * Linked to bookings for transaction management.
6. **Notifications**:
   * Delivered to users based on actions (e.g., booking confirmed).
7. **Reviews**:
   * Allows users to rate and review the turf.

This schema ensures all features are covered, modular, and scalable. Let me know if you'd like SQL scripts or further refinements!

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| User |<----------------| Admin |

+--------------------+ +--------------------+

| - user\_id | | - manageSystem() |

| - name | +--------------------+

| - email |

| - password | 1 +--------------------+

| - role |<----------------| Owner |

| - phone | +--------------------+

+--------------------+ | - manageTurf() |

| + login() | +--------------------+

| + logout() |

| + updateProfile() | +--------------------+

+--------------------+ 1 | Player |

|<--------------------+

+--------------------+ +--------------------+

| Turf |<----------------| - bookTurf() |

+--------------------+ 1 | - leaveReview() |

| - turf\_id | +--------------------+

| - owner\_id |

| - name |

| - location | 1 +--------------------+

| - hourly\_rate |<----------------| Availability |

| - facilities | +--------------------+

+--------------------+ | - availability\_id |

| + addAvailability()| | - turf\_id |

| + updateTurf() | | - date |

+--------------------+ | - start\_time |

| - end\_time |

+--------------------+ 1 | - is\_available |

| Booking |<----------------+--------------------+

+--------------------+

| - booking\_id | +--------------------+

| - user\_id |<----------------| Notification |

| - turf\_id | +--------------------+

| - availability\_id | | - notification\_id |

| - status | | - user\_id |

+--------------------+ | - message |

| + confirmBooking() | | - is\_read |

| + cancelBooking() | | - created\_at |

+--------------------+ +--------------------+

| Payment |<----------------| + sendNotification |

+--------------------+ 1 +--------------------+

| - payment\_id |

| - booking\_id | 1

| - amount |<---------------+--------------------+

| - payment\_date | | Review |

| - payment\_status | +--------------------+

+--------------------+ | - review\_id |

| + processPayment() | | - user\_id |

| + refundPayment() | | - turf\_id |

+--------------------+ | - rating |

| - comments |

| - review\_date |

+--------------------+

Use case diagram

+----------------------+

| Soccer-11 |

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+------------------------+---------------------------+

| | |

+------+ +-------+ +-------+

|Admin | | Owner | |Player |

+------+ +-------+ +-------+

| | |

| +--------------------+ | +---------------------+ | +-------------------+

| | Manage System | | | Manage Turf | | | Book Turf |

| +--------------------+ | +---------------------+ | +-------------------+

| +--------------------+ | +---------------------+ | +-------------------+

| | View Reports | | | Add Availability | | | View Turf Details |

| +--------------------+ | +---------------------+ | +-------------------+

| | | +-------------------+

| | | | Leave Review |

| | | +-------------------+

| | | +-------------------+

| | | | Receive Notif. |

| | | +-------------------+

Class Diagram

