

Contents

Soccer Management System	1
1. Narrative for the Domain:	1
2. User Groups Defined:	1
User Group 1: Players and Coaches	1
User Group 2: Referees and Financial Management	2
3. Business Questions (Reports) / Operations	2
User Group 1: Players and Coaches	2
User Group 2: Referees and Financial Management	2
4. ERD	2
5. Logic diagram	3
6. DDL - Logical constraints	4
7. INSERTs populating the tables - test data.	6
8. DQL - Queries that provide the reports / answers that the users are looking for WITH RESULTS based on data.	11
9. Python integration.	17

Soccer Management System

1. Narrative for the Domain:

The Soccer Management System project aims to modernize and streamline the operations of a local soccer organization. Currently, the organization faces challenges due to manual and paper-based processes, resulting in inefficiencies and inaccuracies. The goal is to create a comprehensive database system to manage player registrations, training, match scheduling, financial transactions, ticket sales, and fan engagement. This system will improve the overall soccer experience for players, coaches, referees, fans, and the Soccer Organization Director.

2. User Groups Defined:

User Group 1: Players and Coaches

- Players: Soccer players who need to manage their personal information and attendance records.
- Coaches: Soccer coaches who are responsible for training sessions and player progress.

User Group 2: Referees and Financial Management

- Referees: Soccer referees who schedule matches and manage match-related information.
- Financial Management: Handles financial aspects, including player registration fees, sponsorships, and fundraising.

3. Business Questions (Reports) / Operations:

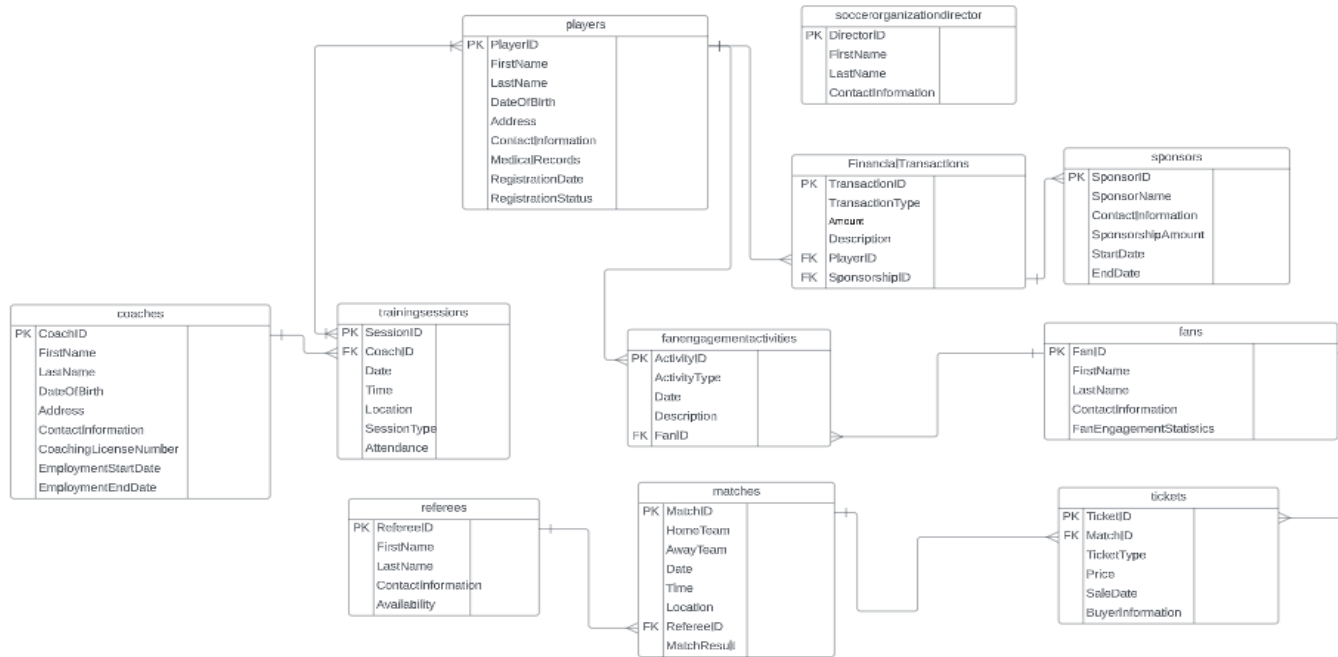
User Group 1: Players and Coaches

- Player Registration and Management:
 - Business Questions/Operations: Players need to register, update, and manage their information, including medical records.
- Training and Progress:
 - Business Questions/Operations: Coaches need to schedule training sessions, assign coaches, and track player attendance. Players require access to their training schedules and progress records.

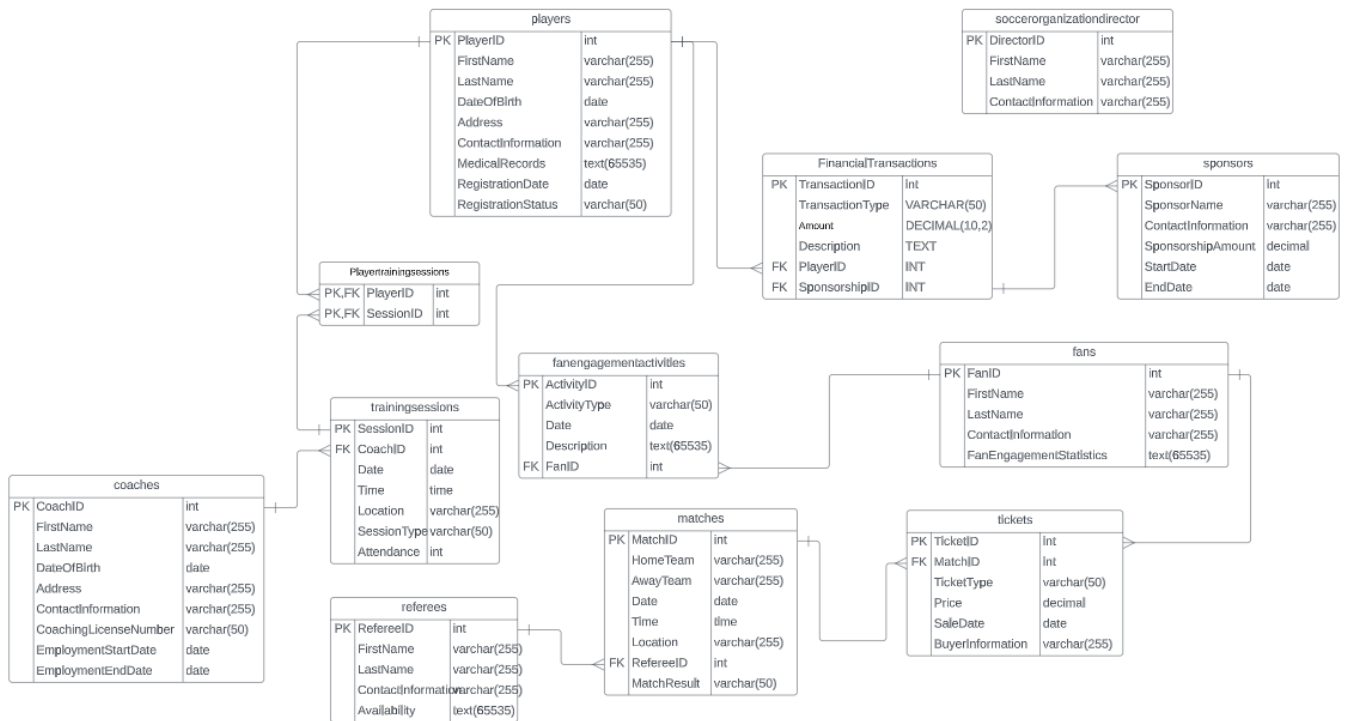
User Group 2: Referees and Financial Management

- Match Scheduling and Referees:
 - Business Questions/Operations: Referees need to schedule matches, assign referees, and update match results. They also need to manage the referee pool and their availability.
- Financial Transactions:
 - Business Questions/Operations: The Financial Management team is responsible for handling financial transactions, including player registration fees, sponsorships, and fundraising. They need to generate monthly financial reports.
- Ticket Sales:
 - Business Questions/Operations: Managing ticket sales for matches, season passes, and special events, including tracking attendance.
- Fan Engagement:
 - Business Questions/Operations: Handling fan engagement activities and maintaining fan databases, including fan engagement statistics.
- Soccer Organization Director:
 - Business Questions/Operations: The Soccer Organization Director oversees the entire organization and requires access to various reports for decision-making, including financial reports, attendance reports, and performance metrics.

4. ERD



5. Logic diagram



6. DDL- Logical constraints

```
-- Enable foreign key support
PRAGMA foreign_keys = ON;

-- Create the Soccer Management System tables
CREATE TABLE IF NOT EXISTS Players (
    PlayerID INTEGER PRIMARY KEY,
    FirstName TEXT NOT NULL,
    LastName TEXT NOT NULL,
    DateOfBirth DATE,
    Address TEXT,
    ContactInformation TEXT,
    MedicalRecords TEXT,
    RegistrationDate DATE,
    RegistrationStatus TEXT
);

CREATE TABLE IF NOT EXISTS Coaches (
    CoachID INTEGER PRIMARY KEY,
    FirstName TEXT NOT NULL,
    LastName TEXT NOT NULL,
    DateOfBirth DATE,
    Address TEXT,
    ContactInformation TEXT,
    CoachingLicenseNumber TEXT,
    EmploymentStartDate DATE,
    EmploymentEndDate DATE
);

CREATE TABLE IF NOT EXISTS TrainingSessions (
    SessionID INTEGER PRIMARY KEY,
    Date DATE NOT NULL,
    Time TIME NOT NULL,
    Location TEXT NOT NULL,
    SessionType TEXT,
    Attendance INTEGER,
    CHECK (Attendance >= 0) -- Assuming attendance cannot be negative
);

CREATE TABLE IF NOT EXISTS PlayersTrainingSessions (
    PlayerID INTEGER,
    SessionID INTEGER,
    PRIMARY KEY (PlayerID, SessionID),
    FOREIGN KEY (PlayerID) REFERENCES Players (PlayerID),
    FOREIGN KEY (SessionID) REFERENCES TrainingSessions (SessionID)
);

CREATE TABLE IF NOT EXISTS Referees (
    RefereeID INTEGER PRIMARY KEY,
    FirstName TEXT NOT NULL,
    LastName TEXT NOT NULL,
    ContactInformation TEXT,
    Availability TEXT
);
```

```

CREATE TABLE IF NOT EXISTS Matches (
    MatchID INTEGER PRIMARY KEY,
    HomeTeam TEXT NOT NULL,
    AwayTeam TEXT NOT NULL,
    Date DATE NOT NULL,
    Time TIME NOT NULL,
    Location TEXT NOT NULL,
    RefereeID INTEGER,
    MatchResult TEXT,
    FOREIGN KEY (RefereeID) REFERENCES Referees (RefereeID)
);

CREATE TABLE IF NOT EXISTS FinancialTransactions (
    TransactionID INTEGER PRIMARY KEY,
    TransactionDate DATE NOT NULL,
    TransactionType TEXT NOT NULL,
    Amount REAL NOT NULL,
    Description TEXT,
    PlayerID INTEGER,
    SponsorshipID INTEGER,
    FOREIGN KEY (PlayerID) REFERENCES Players (PlayerID),
    FOREIGN KEY (SponsorshipID) REFERENCES Sponsors (SponsorID)
);

CREATE TABLE IF NOT EXISTS Sponsors (
    SponsorID INTEGER PRIMARY KEY,
    SponsorName TEXT NOT NULL,
    ContactInformation TEXT,
    SponsorshipAmount REAL NOT NULL,
    StartDate DATE NOT NULL,
    EndDate DATE NOT NULL
);

CREATE TABLE IF NOT EXISTS Tickets (
    TicketID INTEGER PRIMARY KEY,
    MatchID INTEGER,
    TicketType TEXT NOT NULL,
    Price REAL NOT NULL,
    SaleDate DATE NOT NULL,
    BuyerInformation TEXT,
    FOREIGN KEY (MatchID) REFERENCES Matches (MatchID)
);

CREATE TABLE IF NOT EXISTS Fans (
    FanID INTEGER PRIMARY KEY,
    FirstName TEXT NOT NULL,
    LastName TEXT NOT NULL,
    ContactInformation TEXT,
    FanEngagementStatistics TEXT
);

CREATE TABLE IF NOT EXISTS FanEngagementActivities (
    ActivityID INTEGER PRIMARY KEY,
    ActivityType TEXT NOT NULL,
    Date DATE NOT NULL,
    Description TEXT,
    FanID INTEGER,

```

```

        FOREIGN KEY (FanID) REFERENCES Fans (FanID)
    );

CREATE TABLE IF NOT EXISTS SoccerOrganizationDirector (
    DirectorID INTEGER PRIMARY KEY,
    FirstName TEXT NOT NULL,
    LastName TEXT NOT NULL,
    ContactInformation TEXT
);

```

7. INSERTs populating the tables- test data.

```

INSERT INTO Players (PlayerID, FirstName, LastName, DateOfBirth, Address,
ContactInformation, MedicalRecords, RegistrationDate, RegistrationStatus)
VALUES
(1, 'Aakash', 'Gupta', '2002-09-06', '70 Street', '+91-908042960', 'No major
health concerns.', '2022-06-25', 'Active'),
(2, 'Ankit', 'Pandey', '1999-12-15', '73 Street', '+91-645479897', 'No major
health concerns.', '2023-08-09', 'Active'),
(3, 'Aarav', 'Patel', '1998-11-01', '306 Street', '+91-765231295', 'No major
health concerns.', '2022-10-26', 'Active'),
(4, 'Ajay', 'Pandey', '1988-07-08', '491 Avenue', '+91-275775258', 'No major
health concerns.', '2022-03-22', 'Active'),
(5, 'Ajay', 'Singh', '1987-04-19', '870 Road', '+91-519895042', 'No major
health concerns.', '2023-09-17', 'Active'),
(6, 'Ankit', 'Verma', '1986-11-15', '323 Avenue', '+91-902635079', 'No major
health concerns.', '2023-04-16', 'Active'),
(7, 'Akash', 'Verma', '2000-06-25', '26 Road', '+91-674098671', 'No major
health concerns.', '2023-02-23', 'Active'),
(8, 'Abhishek', 'Pandey', '1997-04-13', '469 Road', '+91-748048704', 'No
major health concerns.', '2022-05-19', 'Active'),
(9, 'Aakash', 'Gupta', '1995-06-15', '553 Avenue', '+91-826883333', 'No major
health concerns.', '2022-11-10', 'Active'),
(10, 'Akash', 'Patel', '2003-01-19', '42 Avenue', '+91-749140766', 'No major
health concerns.', '2022-11-19', 'Active'),
(11, 'Aditya', 'Pandey', '2002-07-01', '668 Street', '+91-678066961', 'No
major health concerns.', '2023-03-28', 'Active'),
(12, 'Akshay', 'Patel', '2000-02-19', '134 Road', '+91-906891931', 'No major
health concerns.', '2023-02-25', 'Active'),
(13, 'Ajay', 'Gupta', '1999-05-20', '302 Avenue', '+91-523056681', 'No major
health concerns.', '2022-05-14', 'Active'),
(14, 'Ankit', 'Kumar', '1986-06-27', '665 Avenue', '+91-989599446', 'No major
health concerns.', '2022-04-21', 'Active'),
(15, 'Aditya', 'Patel', '1985-05-12', '971 Street', '+91-939767913', 'No
major health concerns.', '2022-0-22', 'Active');

INSERT INTO Coaches (CoachID, FirstName, LastName, DateOfBirth, Address,
ContactInformation, CoachingLicenseNumber, EmploymentStartDate,
EmploymentEndDate)
VALUES
(1, 'Rahul', 'Sharma', '1980-01-15', '123 Main Street', '+91-9876543210',
'CLN-001', '2015-05-15', NULL),
(2, 'Priya', 'Singh', '1985-07-23', '456 Oak Street', '+91-9543210789', 'CLN-

```

```

002', '2019-03-01', NULL),
(3, 'Amit', 'Kapoor', '1978-09-05', '789 Maple Avenue', '+91-9123456789',
'CLN-003', '2018-02-14', NULL),
(4, 'Anjali', 'Gupta', '1990-11-10', '101 Elm Street', '+91-9987654321',
'CLN-004', '2020-06-20', NULL),
(5, 'Rajeev', 'Patel', '1982-04-25', '234 Pine Street', '+91-9876543201',
'CLN-005', '2016-08-12', NULL),
(6, 'Reena', 'Verma', '1995-02-01', '567 Birch Street', '+91-9543210798',
'CLN-006', '2022-01-05', NULL),
(7, 'Mahesh', 'Kumar', '1988-05-18', '890 Poplar Avenue', '+91-9123456798',
'CLN-007', '2021-07-28', NULL);

```

```

INSERT INTO TrainingSessions (SessionID, Date, Time, Location, SessionType,
Attendance)

```

```

VALUES

```

```

(1, '2023-12-01', '10:00:00', 'North Field', 'Fitness Training', 15),
(2, '2023-12-02', '16:00:00', 'South Gym', 'Tactics Training', 12),
(3, '2023-12-03', '10:00:00', 'West Pitch', 'Game Simulation', 20),
(4, '2023-12-04', '14:00:00', 'North Field', 'Recovery Session', 18),
(5, '2023-12-05', '10:00:00', 'South Gym', 'Strength Training', 14),
(6, '2023-12-06', '16:00:00', 'East Pitch', 'Shooting Practice', 17),
(7, '2023-12-07', '10:00:00', 'North Field', 'Set Piece Practice', 16),
(8, '2023-12-08', '14:00:00', 'South Gym', 'Video Analysis', 21),
(9, '2023-12-09', '16:00:00', 'Stadium', 'Match Day Preparation', 22),
(10, '2023-12-10', '10:00:00', 'North Field', 'Recovery Session', 19);

```

```

INSERT INTO PlayersTrainingSessions (PlayerID, SessionID)

```

```

VALUES

```

```

(1, 1),
(1, 4),
(12, 10),
(2, 2),
(1, 3),
(7, 4),
(6, 1),
(9, 5),
(4, 2),
(3, 4),
(5, 5),
(6, 6),
(8, 7),
(9, 8);

```

```

INSERT INTO Referees (RefereeID, FirstName, LastName, ContactInformation,
Availability)

```

```

VALUES

```

```

(1, 'Rohan', 'Sharma', '+91-9876543210', 'Weekends and evenings'),
(2, 'Priya', 'Singh', '+91-9543210789', 'Weekdays'),
(3, 'Ajay', 'Gupta', '+91-9123456789', 'Weekends'),
(4, 'Anjali', 'Patel', '+91-9987654321', 'Evenings'),
(5, 'Rajeev', 'Kumar', '+91-9876543201', 'Available on call');

```

```

INSERT INTO Matches (MatchID, HomeTeam, AwayTeam, Date, Time, Location,
RefereeID, MatchResult)

```

```
VALUES
(1, 'Red Dragons', 'Blue Eagles', '2023-12-15', '10:00:00', 'Stadium 1', 1,
'Red Dragons 3 - 1 Blue Eagles'),
(2, 'Green Warriors', 'Yellow Tigers', '2023-12-15', '14:00:00', 'Stadium 2',
2, 'Green Warriors 2 - 0 Yellow Tigers'),
(3, 'Black Panthers', 'White Wolves', '2023-12-16', '10:00:00', 'Stadium 3',
3, 'Black Panthers 1 - 1 White Wolves'),
(4, 'Orange Lions', 'Purple Phoenix', '2023-12-16', '14:00:00', 'Stadium 4',
4, 'Orange Lions 0 - 3 Purple Phoenix'),
(5, 'Silver Sharks', 'Golden Bears', '2023-12-17', '10:00:00', 'Stadium 5',
5, 'Silver Sharks 2 - 2 Golden Bears'),
(6, 'Black Pathers', 'red Wolves', '2023-12-16', '12:00:00', 'Stadium 3', 3,
'Black Pathers 4 -4 red Wolves'),
(7, 'red Lions', 'Purpe Phoenix', '2023-12-16', '18:00:00', 'Stadium 4', 4,
'red Lions 0 - 3 Purpe Phoenix'),
(8, 'Silver parks', 'Golden spears', '2023-12-17', '06:00:00', 'Stadium 5',
5, 'Silver parks 2 - 2 Golden spears'),
(9, 'Silver Sharks', 'Golden Bears', '2024-12-17', '10:00:00', 'Stadium 5',
5, NULL),
(10, 'Black Pathers', 'red Wolves', '2024-01-16', '12:00:00', 'Stadium 3',
NULL, NULL),
(11, 'red Lions', 'Purpe Phoenix', '2024-02-16', '18:00:00', 'Stadium 4',
NULL, NULL),
(12, 'Silver parks', 'Golden spears', '2024-02-17', '06:00:00', 'Stadium
5', NULL, NULL);
select * from Matches;
```

```
INSERT INTO FinancialTransactions (TransactionID, TransactionDate,
TransactionType, Amount, Description, PlayerID, SponsorshipID)
VALUES
(1, '2023-12-01', 'Income', 500.00, 'Player registration fee', 1, 3),
(2, '2023-12-02', 'Expense', 250.00, 'Equipment purchase', 2, 1),
(3, '2023-12-03', 'Income', 1000.00, 'Matchday revenue', 5, 2),
(4, '2023-12-04', 'Expense', 75.00, 'Administrative expenses', 4, 4),
(5, '2023-11-05', 'Income', 350.00, 'Marketing expenses', 10, 3),
(6, '2023-11-06', 'Expense', 450.00, 'Travel expenses', 8, 5),
(7, '2023-12-07', 'Expense', 150.00, 'Medical expenses', 6, 1),
(8, '2023-12-08', 'Income', 200.00, 'Training facility rental', 12, 2),
(9, '2023-12-09', 'Expense', 600.00, 'Equipment purchase', 11, 4),
(10, '2023-11-10', 'Income', 850.00, 'Sponsorship payment', 7, 5),
(11, '2023-12-01', 'Income', 500.00, 'Player registration fee', 1, 3),
(12, '2023-12-02', 'Expense', 250.00, 'Equipment purchase', 2, 1),
(13, '2023-11-03', 'Income', 1000.00, 'Matchday revenue', 5, 2),
(14, '2023-12-04', 'Expense', 75.00, 'Administrative expenses', 4, 4),
(15, '2023-12-05', 'Income', 350.00, 'Marketing expenses', 10, 3),
(16, '2023-12-06', 'Expense', 450.00, 'Travel expenses', 8, 5),
(17, '2023-10-07', 'Expense', 150.00, 'Medical expenses', 6, 1),
(18, '2023-10-08', 'Income', 200.00, 'Training facility rental', 12, 2),
(19, '2023-10-09', 'Expense', 600.00, 'Equipment purchase', 11, 4),
(20, '2023-09-10', 'Income', 850.00, 'Sponsorship payment', 7, 5),
(21, '2023-09-01', 'Income', 500.00, 'Player registration fee', 1, 3),
(22, '2023-09-02', 'Expense', 250.00, 'Equipment purchase', 2, 1),
(23, '2023-12-03', 'Income', 1000.00, 'Matchday revenue', 5, 2),
(24, '2023-09-04', 'Expense', 75.00, 'Administrative expenses', 4, 4),
(25, '2023-12-05', 'Income', 350.00, 'Marketing expenses', 10, 3),
(26, '2023-09-06', 'Expense', 450.00, 'Travel expenses', 8, 5),
```



```

(27, '2023-12-07', 'Expense', 150.00, 'Medical expenses', 6, 1),
(28, '2023-08-08', 'Income', 200.00, 'Training facility rental', 12, 2),
(29, '2023-08-09', 'Expense', 600.00, 'Equipment purchase', 11, 4),
(30, '2023-08-10', 'Income', 850.00, 'Sponsorship payment', 7, 5);

INSERT INTO Sponsors (SponsorID, SponsorName, ContactInformation,
SponsorshipAmount, StartDate, EndDate)
VALUES
(1, 'Acme Sports', '+91-7710446575', 100000.00, '2023-12-01', '2024-12-31'),
(2, 'Big Bank', '+91-8306824961', 50000.00, '2023-12-15', '2025-01-15'),
(3, 'Tech Giant', '+91-9876543210', 75000.00, '2023-10-20', '2024-12-05'),
(4, 'Healthy Foods', '+91-7654321098', 25000.00, '2023-11-01', '2024-11-01'),
(5, 'Fashion Brand', '+91-9543210789', 60000.00, '2023-12-02', '2024-12-30');

INSERT INTO Tickets (TicketID, MatchID, TicketType, Price, SaleDate,
BuyerInformation)
VALUES
(1, 1, 'General Admission', 15.00, '2023-12-05', 'John Smith,
john.smith@email.com'),
(2, 1, 'VIP Seating', 30.00, '2023-12-07', 'Jane Doe, jane.doe@email.com'),
(3, 2, 'General Admission', 20.00, '2023-12-06', 'Michael Jones,
michael.jones@email.com'),
(4, 2, 'VIP Seating', 40.00, '2023-12-08', 'Sarah Williams,
sarah.williams@email.com'),
(5, 3, 'General Admission', 25.00, '2023-12-10', 'David Miller,
david.miller@email.com'),
(6, 3, 'VIP Seating', 50.00, '2023-12-12', 'Maria Garcia,
maria.garcia@email.com'),
(7, 4, 'General Admission', 30.00, '2023-12-14', 'Thomas Rodriguez,
thomas.rodriguez@email.com'),
(8, 4, 'VIP Seating', 60.00, '2023-12-16', 'Peter Brown,
peter.brown@email.com'),
(9, 5, 'General Admission', 35.00, '2023-12-18', 'Susan Miller,
susan.miller@email.com'),
(10, 5, 'VIP Seating', 70.00, '2023-12-20', 'Daniel Garcia,
daniel.garcia@email.com'),
(11, 6, 'General Admission', 15.00, '2023-12-05', 'John Smith,
john.smith@email.com'),
(12, 1, 'VIP Seating', 30.00, '2023-12-07', 'Jane Doe, jane.doe@email.com'),
(13, 2, 'General Admission', 20.00, '2023-12-06', 'Michael Jones,
michael.jones@email.com'),
(14, 2, 'VIP Seating', 40.00, '2023-12-08', 'Sarah Williams,
sarah.williams@email.com'),
(15, 9, 'General Admission', 25.00, '2023-12-10', 'David Miller,
david.miller@email.com'),
(16, 3, 'VIP Seating', 50.00, '2023-12-12', 'Maria Garcia,
maria.garcia@email.com'),
(17, 4, 'General Admission', 30.00, '2023-12-14', 'Thomas Rodriguez,
thomas.rodriguez@email.com'),
(18, 4, 'VIP Seating', 60.00, '2023-12-16', 'Peter Brown,
peter.brown@email.com'),
(19, 5, 'General Admission', 35.00, '2023-12-18', 'Susan Miller,
susan.miller@email.com'),
(20, 5, 'VIP Seating', 70.00, '2023-12-20', 'Daniel Garcia,
daniel.garcia@email.com'),
(21, 1, 'General Admission', 15.00, '2023-12-05', 'John Smith,
john.smith@email.com'),

```

```

(22, 1, 'VIP Seating', 30.00, '2023-12-07', 'Jane Doe, jane.doe@email.com'),
(23, 2, 'General Admission', 20.00, '2023-12-06', 'Michael Jones, michael.jones@email.com'),
(24, 2, 'VIP Seating', 40.00, '2023-12-08', 'Sarah Williams, sarah.williams@email.com'),
(25, 3, 'General Admission', 25.00, '2023-12-10', 'David Miller, david.miller@email.com'),
(26, 3, 'VIP Seating', 50.00, '2023-12-12', 'Maria Garcia, maria.garcia@email.com'),
(27, 4, 'General Admission', 30.00, '2023-12-14', 'Thomas Rodriguez, thomas.rodriguez@email.com'),
(28, 4, 'VIP Seating', 60.00, '2023-12-16', 'Peter Brown, peter.brown@email.com'),
(29, 5, 'General Admission', 35.00, '2023-12-18', 'Susan Miller, susan.miller@email.com'),
(30, 5, 'VIP Seating', 70.00, '2023-12-20', 'Daniel Garcia, daniel.garcia@email.com');

INSERT INTO Fans (FanID, FirstName, LastName, ContactInformation, FanEngagementStatistics)
VALUES
(1, 'Rohan', 'Sharma', '+91-9876543210', 'Likes: 250, Comments: 100, Shares: 50'),
(2, 'Priya', 'Singh', '+91-9543210789', 'Likes: 380, Comments: 150, Shares: 75'),
(3, 'Ajay', 'Gupta', '+91-9123456789', 'Likes: 180, Comments: 80, Shares: 40'),
(4, 'Anjali', 'Patel', '+91-9987654321', 'Likes: 420, Comments: 180, Shares: 90'),
(5, 'Rajeev', 'Kumar', '+91-9876543201', 'Likes: 280, Comments: 120, Shares: 60'),
(6, 'Reena', 'Verma', '+91-9543210798', 'Likes: 350, Comments: 130, Shares: 65'),
(7, 'Mahesh', 'Jain', '+91-9123456798', 'Likes: 220, Comments: 90, Shares: 45'),
(8, 'Suresh', 'Desai', '+91-9987654321', 'Likes: 320, Comments: 140, Shares: 70'),
(9, 'Sunita', 'Kapoor', '+91-9876543201', 'Likes: 210, Comments: 100, Shares: 50'),
(10, 'Deepak', 'Mehta', '+91-9543210798', 'Likes: 300, Comments: 125, Shares: 62');

INSERT INTO FanEngagementActivities (ActivityID, ActivityType, Date, Description, FanID)
VALUES
(1, 'Post Like', '2023-12-01', 'Liked team photo on social media', 1),
(2, 'Comment on Post', '2023-12-02', 'Commented on match highlights video', 2),
(3, 'Share Article', '2023-12-03', 'Shared news article about player signing', 3),
(4, 'Attend Match', '2023-12-04', 'Attended live match at the stadium', 4),
(5, 'Purchase Merchandise', '2023-12-05', 'Bought team jersey online', 5),
(6, 'Follow Social Media', '2023-12-06', 'Started following team on

```

```

Instagram', 6),
(7, 'Join Fan Club', '2023-12-07', 'Signed up for official fan club
membership', 7),
(8, 'Rate Mobile App', '2023-12-08', 'Gave a 5-star rating on the team app',
8),
(9, 'Participate in Online Contest', '2023-12-09', 'Submitted entry for a
fan-art competition', 9),
(10, 'Volunteer for Team Event', '2023-12-10', 'Helped out at the teams
community outreach program', 10),
(11, 'Post Like', '2023-11-01', 'Liked team photo on social media', 1),
(12, 'Comment on Post', '2023-11-02', 'Commented on match highlights video',
2),
(13, 'Share Article', '2023-11-03', 'Shared news article about player
signing', 3),
(14, 'Attend Match', '2023-11-04', 'Attended live match at the stadium', 4),
(15, 'Purchase Merchandise', '2023-11-05', 'Bought team jersey online', 5),
(16, 'Follow Social Media', '2023-11-06', 'Started following team on
Instagram', 6),
(17, 'Join Fan Club', '2023-11-07', 'Signed up for official fan club
membership', 7),
(18, 'Rate Mobile App', '2023-11-08', 'Gave a 5-star rating on the team app',
8),
(19, 'Participate in Online Contest', '2023-11-09', 'Submitted entry for a
fan-art competition', 9),
(20, 'Volunteer for Team Event', '2023-11-10', 'Helped out at the teams
community outreach program', 10),
(21, 'Post Like', '2023-10-01', 'Liked team photo on social media', 1),
(22, 'Comment on Post', '2023-10-02', 'Commented on match highlights video',
2),
(23, 'Share Article', '2023-10-03', 'Shared news article about player
signing', 3);

INSERT INTO SoccerOrganizationDirector (DirectorID, FirstName, LastName,
ContactInformation)
VALUES (1, 'Prudhvi', 'Krishna', '+91-9876543210');

```

8. DQL- Queries that provide the reports / answers that the users are looking for WITH RESULTS based on data.

```

-- Player Registration and Management:
-- How many players are currently registered in the system?
SELECT COUNT(*) AS TotalPlayers
FROM Players;

```

	TotalPlayers
1	15

```

-- Can we get a list of players who have registered in the last year?

```

```
SELECT *
FROM Players
WHERE RegistrationDate >= date('now', '-1 year');
```

	PlayerID	FirstName	LastName	DateOfBirth	Address	ContactInformation
1	2	Ankit	Pandey	1999-12-15	73 Street	+91-645479897
2	5	Ajay	Singh	1987-04-19	870 Road	+91-519895042
3	6	Ankit	Verma	1986-11-15	323 Avenue	+91-902635079
	7	Akash	Verma	2000-06-25	26 Road	+91-674098671
5	11	Aditya	Pandey	2002-07-01	668 Street	+91-678066961
6	12	Akshay	Patel	2000-02-19	134 Road	+91-906891931

```
-- Match Scheduling and Referees:
-- Which referees have officiated the most matches this season?
```

```
SELECT
    r.RefereeID,
    r.FirstName,
    r.LastName,
    COUNT(m.MatchID) AS MatchesOfficiated
FROM Referees r
JOIN Matches m ON r.RefereeID = m.RefereeID
WHERE m.Date >= date('now', '-1 year')
GROUP BY r.RefereeID
ORDER BY MatchesOfficiated DESC;
```

	RefereeID	FirstName	LastName	MatchesOfficiated
1	5	Rajeev	Kumar	3
2	4	Anjali	Patel	2
3	3	Ajay	Gupta	2
4	2	Priya	Singh	1
5	1	Rohan	Sharma	1

```
-- What is the distribution of player registrations based on age groups?
```

```
SELECT
    CASE
        WHEN strftime('%Y', DateOfBirth) > strftime('%Y', date('now', '-18
years')) THEN 'Under 18'
        WHEN strftime('%Y', DateOfBirth) BETWEEN strftime('%Y', date('now', '-25
years')) AND strftime('%Y', date('now', '-18 years')) THEN '18-25'
        ELSE 'Over 25'
    END AS AgeGroup,
    COUNT(*) AS PlayerCount
FROM Players
GROUP BY AgeGroup;
```

	AgeGroup	PlayerCount
1	18-25	8
2	Over 25	7

```
-- Training and Progress:
-- Which players attended the most training sessions in the last quarter?
```

```
SELECT
  p.PlayerID,
  p.FirstName,
  p.LastName,
  COUNT(pts.SessionID) AS TrainingSessionsAttended
FROM Players p
INNER JOIN PlayersTrainingSessions pts ON p.PlayerID = pts.PlayerID
INNER JOIN TrainingSessions ts ON pts.SessionID = ts.SessionID
WHERE ts.Date >= date('now', '-3 months')
GROUP BY p.PlayerID
ORDER BY TrainingSessionsAttended DESC;
```

	PlayerID	FirstName	LastName	TrainingSessionsAttended
1	1	Aakash	Gupta	3
2	9	Aakash	Gupta	2
3	6	Ankit	Verma	2
4	12	Akshay	Patel	1
5	8	Abhishek	Pandey	1
6	7	Akash	Verma	1
7	5	Ajay	Singh	1
8	4	Ajay	Pandey	1

```
-- Are there any upcoming matches without assigned referees
```

```
SELECT
  MatchID,
  HomeTeam,
  AwayTeam,
  Date,
  Time
FROM Matches
WHERE Date > CURRENT_DATE AND RefereeID IS NULL;
```

	MatchID	HomeTeam	AwayTeam	Date	Time
1	10	Black Pathers	red Wolves	2024-01-16	12:00:00
2	11	red Lions	Purpe Phoenix	2024-02-16	18:00:00
3	12	Silver parks	Golden spears	2024-02-17	06:00:00

```
-- Can we get a report on match schedules for the next month?
```

```
SELECT *
FROM Matches
WHERE Date BETWEEN CURRENT_DATE AND DATE(CURRENT_DATE, '+1 month');
```

	MatchID	HomeTeam	AwayTeam	Date	Time	Location	RefereeID	M
1	1	Red Dragons	Blue Eagles	2023-12-15	10:00:00	Stadium 1	1 Red	
2	2	Green Warriors	Yellow Tigers	2023-12-15	14:00:00	Stadium 2	2 Gree	
3	3	Black Panthers	White Wolves	2023-12-16	10:00:00	Stadium 3	3 Blac	
4	4	Orange Lions	Purple Phoenix	2023-12-16	14:00:00	Stadium 4	4 Oran	
5	5	Silver Sharks	Golden Bears	2023-12-17	10:00:00	Stadium 5	5 Silv	
	6	Black Pathers	red Wolves	2023-12-16	12:00:00	Stadium 3	3 Blac	
7	7	red Lions	Purpe Phoenix	2023-12-16	18:00:00	Stadium 4	4 red	
8	8	Silver parks	Golden spears	2023-12-17	06:00:00	Stadium 5	5 Silv	

```
-- Financial Transactions:
-- What is the total revenue generated from ticket sales in the last fiscal
year?
```

```
SELECT
    SUM(t.Price) AS TotalRevenue
FROM Tickets t
JOIN Matches m ON t.MatchID = m.MatchID
WHERE m.Date >= DATE(CURRENT_DATE, '-1 month');
```

	TotalRevenue
1	1125

```
-- How much sponsorship revenue has been generated so far this year?
```

```
SELECT
    SUM(s.SponsorshipAmount) AS TotalSponsorshipRevenue
FROM Sponsors s
JOIN FinancialTransactions ft ON s.SponsorID = ft.SponsorshipID
WHERE ft.TransactionDate >= DATE(CURRENT_DATE, '-1 year');
```

	TotalSponsorshipRevenue
1	1860000

```
-- Can we get a breakdown of financial transactions for a specific time
period?
```

```
SELECT
    TransactionType,
    SUM(Amount) AS TotalAmount
FROM FinancialTransactions
WHERE TransactionDate BETWEEN '2023-10-01' AND '2023-12-10' -- Replace with
your desired time period
GROUP BY TransactionType;
```

	TransactionType	TotalAmount
1	Expense	3200
2	Income	6300

```
-- Ticket Sales:
-- Which type of ticket (e.g., regular, VIP) has the highest sales volume?
```

```
SELECT
    TicketType,
    COUNT(*) AS TicketSales
FROM Tickets
GROUP BY TicketType
ORDER BY TicketSales DESC
LIMIT 2;
```

	TicketType	TicketSales
1	VIP Seating	15
2	General Admission	15

```
-- Are there any trends or patterns in ticket sales for special events?
```

```
SELECT
    strftime('%Y-%m', SaleDate) AS SaleMonth,
    TicketType,
    COUNT(*) AS TicketSales
FROM Tickets
WHERE SaleDate BETWEEN '2023-12-01' AND '2023-12-18'
GROUP BY SaleMonth, TicketType;
```

	SaleMonth	TicketType	TicketSales
1	2023-12	General Admission	15
2	2023-12	VIP Seating	12

```
-- Handling Fan Engagement Activities:
-- What fan engagement activities have been most successful in terms of participation?
```

```
SELECT
    fe.ActivityType,
    COUNT(*) AS ParticipationCount
FROM FanEngagementActivities fe
GROUP BY fe.ActivityType
ORDER BY ParticipationCount DESC;
```

	ActivityType	ParticipationCount
1	Share Article	3
2	Post Like	3
3	Comment on Post	3
4	Volunteer for Team Event	2
5	Rate Mobile App	2
6	Purchase Merchandise	2
7	Participate in Online Contest	2
8	Join Fan Club	2

-- Can we identify fans who are actively engaging with the organization's activities?

```
SELECT
    f.FanID,
    f.FirstName,
    f.LastName,
    COUNT(fe.ActivityID) AS ActivitiesParticipated
FROM Fans f
JOIN FanEngagementActivities fe ON f.FanID = fe.FanID
GROUP BY f.FanID
ORDER BY ActivitiesParticipated DESC;
```

	FanID	FirstName	LastName	ActivitiesParticipated
1	3	Ajay	Gupta	3
2	2	Priya	Singh	3
3	1	Rohan	Sharma	3
4	10	Deepak	Mehta	2
5	9	Sunita	Kapoor	2
6	8	Suresh	Desai	2
7	7	Mahesh	Jain	2
8	6	Reena	Verma	2

-- How has fan engagement changed over the past year?

```
SELECT
    strftime('%Y-%m', fe.Date) AS EngagementMonth,
    COUNT(*) AS EngagementCount
FROM FanEngagementActivities fe
WHERE fe.Date BETWEEN DATE(CURRENT_DATE, '-1 year') AND CURRENT_DATE
GROUP BY EngagementMonth;
```


	EngagementMonth	EngagementCount
1	2023-10	3
2	2023-11	10
3	2023-12	10


```
--Director Oversight:
-- What is the overall financial health of the organization?

SELECT
  (SELECT SUM(Amount) FROM FinancialTransactions) AS TotalRevenue,
  (SELECT SUM(SponsorshipAmount) FROM Sponsors) AS TotalSponsor
```

	TotalRevenue	TotalSponsor
1	13275	310000

9. Python integration.

The script begins by importing the **sqlite3** module, which facilitates the interaction with SQLite databases. The **execute_query** function is defined to handle the execution of SQL queries. It establishes a connection to the database, executes the query, fetches the results, and then closes the connection.

```
import sqlite3

1 usage
def execute_query(query):
    conn = sqlite3.connect('soccer.db')
    cursor = conn.cursor()
    cursor.execute(query)
    result = cursor.fetchall()
    conn.close()
    return result
```

Business Questions:

The script then proceeds to address various business questions related to player registration, match scheduling, financial transactions, ticket sales, fan engagement activities, and director oversight. Each business question is translated into a SQL query that extracts relevant information from the database.

Integration with Python:

The queries are incorporated into the script within functions like **execute_user_query** and are organized based on user interaction. The script makes use of user input to select a specific business question to answer. The **display_menu** function provides an interactive menu where users can choose a question to be executed.

```
1 usage
def display_menu():
    print("\nChoose an option:")
    print("1. Total number of players")
    print("2. Players registered in the this year")
    print("3. Referees who officiated the most matches this season")
    print("4. Distribution of player registrations based on age groups")
    print("5. Players who attended the most training sessions in the last quarter")
    print("6. Upcoming matches without assigned referees")
    print("7. Report on match schedules for the next month")
    print("8. Total revenue generated from ticket sales in the last fiscal year")
    print("9. Total sponsorship revenue generated so far this year")
    print("10. Breakdown of financial transactions for a specific time period")
    print("11. Ticket type with the highest sales volume")
    print("12. Trends or patterns in ticket sales for special events")
    print("13. Most successful fan engagement activities in terms of participation")
    print("14. Fans who are actively engaging with the organization's activities")
    print("15. How has fan engagement changed over the past year?")
    print("16. What is the overall financial health of the organization?")
    print("0. Exit")

    option = int(input("Enter the option number: "))
    return option
```

User Interaction:

The script creates an interactive environment where users can input their choice of business question through the menu. The chosen query is then executed, and the results are displayed.

Example:

```
1. Total number of players
2. Players registered in the this year
3. Referees who officiated the most matches this season
4. Distribution of player registrations based on age groups
5. Players who attended the most training sessions in the last quarter
6. Upcoming matches without assigned referees
7. Report on match schedules for the next month
8. Total revenue generated from ticket sales in the last fiscal year
9. Total sponsorship revenue generated so far this year
10. Breakdown of financial transactions for a specific time period
11. Ticket type with the highest sales volume
12. Trends or patterns in ticket sales for special events
13. Most successful fan engagement activities in terms of participation
14. Fans who are actively engaging with the organization's activities
15. How has fan engagement changed over the past year?
16. What is the overall financial health of the organization?
0. Exit
Enter the option number: 2
```

Query Result:

```
(2, 'Ankit', 'Pandey', '1999-12-15', '73 Street', '+91-645479897', 'No major health concerns.', '2023-08-09', 'Active')
(5, 'Ajay', 'Singh', '1987-04-19', '870 Road', '+91-519895042', 'No major health concerns.', '2023-09-17', 'Active')
(6, 'Ankit', 'Verma', '1986-11-15', '323 Avenue', '+91-902635079', 'No major health concerns.', '2023-04-16', 'Active')
(7, 'Akash', 'Verma', '2000-06-25', '26 Road', '+91-674098671', 'No major health concerns.', '2023-02-23', 'Active')
(11, 'Aditya', 'Pandey', '2002-07-01', '668 Street', '+91-678066961', 'No major health concerns.', '2023-03-28', 'Active')
(12, 'Akshay', 'Patel', '2000-02-19', '134 Road', '+91-906891931', 'No major health concerns.', '2023-02-25', 'Active')
```