Efficient Football Team Management System

DAMG 6210

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Under the Guidance of

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Group Number: Group 2

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Topic: Efficient Football Team Management System

GitHub Link:

|  |  |  |
| --- | --- | --- |
| **Object Type** | **Quantity or Yes/No** | **Comments** |
| Tables | 11 |  |
| Views | 3 |  |
| Table Level Check Constraint | 3 |  |
| Computed Column based on UDF | 2 |  |
| Non-Clustered Indexes | 3 |  |
| Stored Procedures | 4 |  |
| User Defined Functions (UDF) | 2 |  |
| DML Triggers | 11 |  |
| Column Data Encryption | 1 |  |
| BI Data Visualization | Yes |  |
| GUI for CRUD Operations | Yes |  |
|  |  |  |

**Order of executing Query**

1.Dll

2.Triggers

3.Dml

4.Non clustered indexes

5.Procedures

6.Views

7.Udf

8.Encryption

# P4. Database Implementation

A diagram of a football club

Description automatically generated

<https://drive.google.com/file/d/1hDCycjZYOWiJQB5YT6HPUNfe7SpC9tTn/view?usp=sharing>

**Club**

Attributes: Club ID (PK), ManagerID (FK), Club Name, Location, Levels of team (Age Category)

Relationships and Cardinality:

One Club can have multiple Teams (1:N).

One Club can have multiple Fixtures as a Home Team (1:N).

**Player**

Attributes: Player ID (PK), Player Name, Player Email, Phone Number, Date of Birth, TeamID (FK),

Contract ID (FK)

Relationships and Cardinality:

One Player can have one Health Care record (1:1).

One Player can have one Contract (1:1).

**Team**

Attributes: Team ID (PK), Team Name, Team Location, CoachID (FK), ClubID (FK)

Relationships and Cardinality:

One Team can have multiple Players (1:N).

One Team can have multiple Fixtures (1:N).

One Team can have multiple Inventories (1:N).

**Health Care**

Attributes: HealthCareID (PK), Player\_ID (FK), Injury Type, Recovery Days, Physical Status,

Number of Visits, Doctor Name

**Contract**

Attributes: ContractID (PK), Start Date, End Date, Contract Terms

**Coach**

Attributes: CoachID (PK), Name, Phone Number, Email, Date of Birth, Tactical Style, Coach Type,

Contract Id (FK)

**Fixtures**

Attributes: Fixture ID (PK), Match Date, Home Team (FK), Away Team (FK), StadiumID (FK), Result

Relationships and Cardinality:

One Fixture is played at one Stadium (1:1).

**Stadium**

Attributes: StadiumID (PK), Stadium Name, Stadium Location, Capacity, Location, Address

Relationships and Cardinality:

One Stadium can host multiple Fixtures (1:N).

One Stadium can have multiple Tickets associated with it (1:N).

**Logistics**

Attributes: LogisticsId (PK), Logistics Name, FixtureID (FK), Transportation Mode, Departure Date & Time, Arrival Date & Time, Accommodation Details.

Relationships and Cardinality:

One Logistics entry is related to one Fixture (1:1).

**Inventory**

Attributes: ItemID (PK), Item Type, Available Stock, Cost, Team\_ID (FK)

**Ticket**

Attributes: TicketNumber (PK), StadiumID (FK), Price, Section\_No, Ticket Availability, Discount.

**Database objects:**

**1.Stored procedures**

Procedure 1: A stored procedure to update the recovery days of a player in the HealthCare table by Player\_ID.  
Procedure 2: Sells or reduces items based on the requirement like team name, item type and quantity.

Procedure 3: Procedure Which utilizes View and updates the recovery status.

Procedure 4: Adjusting ticket price according to the given input.

**2.View**

View 1: Health Care with Dynamic recovery.

View 2: Checking the active contracts.

View 3: Quick snapshot of ticket sales performance for upcoming events to make informed decisions on marketing, pricing adjustments, and logistics.

**3.** **DML trigger**

Manager Information: Details of football club managers, including names, phone numbers, emails, and years

of experience.

Club Information: Lists famous football clubs, their locations, and their associated manager IDs.

Contract Information: Specifies contractual agreements for coaches and teams, including start and end dates, terms, and specific clauses.

Coach Information: Contains records of coaches for both men's and women's teams, their details, and contract IDs.

Team Information: Information about different football teams, their locations, associated coach IDs, club IDs,

age levels, and gender.

Player Information: Entries of fictional player details such as names, contacts, birthdates, associated team and contract IDs.

HealthCare Records: Data about players' injuries, the attending doctor, type of injury, recovery days, and

status.

Stadium Information: Lists various stadiums, their locations, seating capacities, and addresses in Europe and

the USA.

Inventory Data: Details about the sports inventory available for the teams, including item type, stock, cost,

and associated team IDs.

Fixtures Data: Schedule of matches, including match dates, home and away teams, stadium IDs, and results.

Ticket Data: Ticketing information for football matches with details like price, seat number, availability, and discounts.

Logistics Data: Information on logistics for fixture arrangements, including transport mode, dates and times

of departure and arrival, accommodation details, and associated stadium IDs.

**4. CHECK Constraints**

Table Level Check Constraint 1: Contract end date should less than start date   
Table Level Check Constraint 2: min age of the entered player is more or less than 15

Table Level Check Constraint 3: Adding Check Constraint to ensure HomeTeam and AwayTeam are not the same

**5. User defined function (UDF)**

UDF1 - Calculating Contract Duration.

Udf 2 combined with a View.

**6. Non-clustered indexes**

Non-Clustered Index 1: Index on Player Table for Searching by Team.

Non Clustered Index 2: Index on HealthCare Table for Quick Access to Player Health Records.

Non Clustered Index 3: Index on Fixtures Table for Match Dates.