Efficient Football Team Management System

DAMG 6210

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2024

Group Number: Group 2
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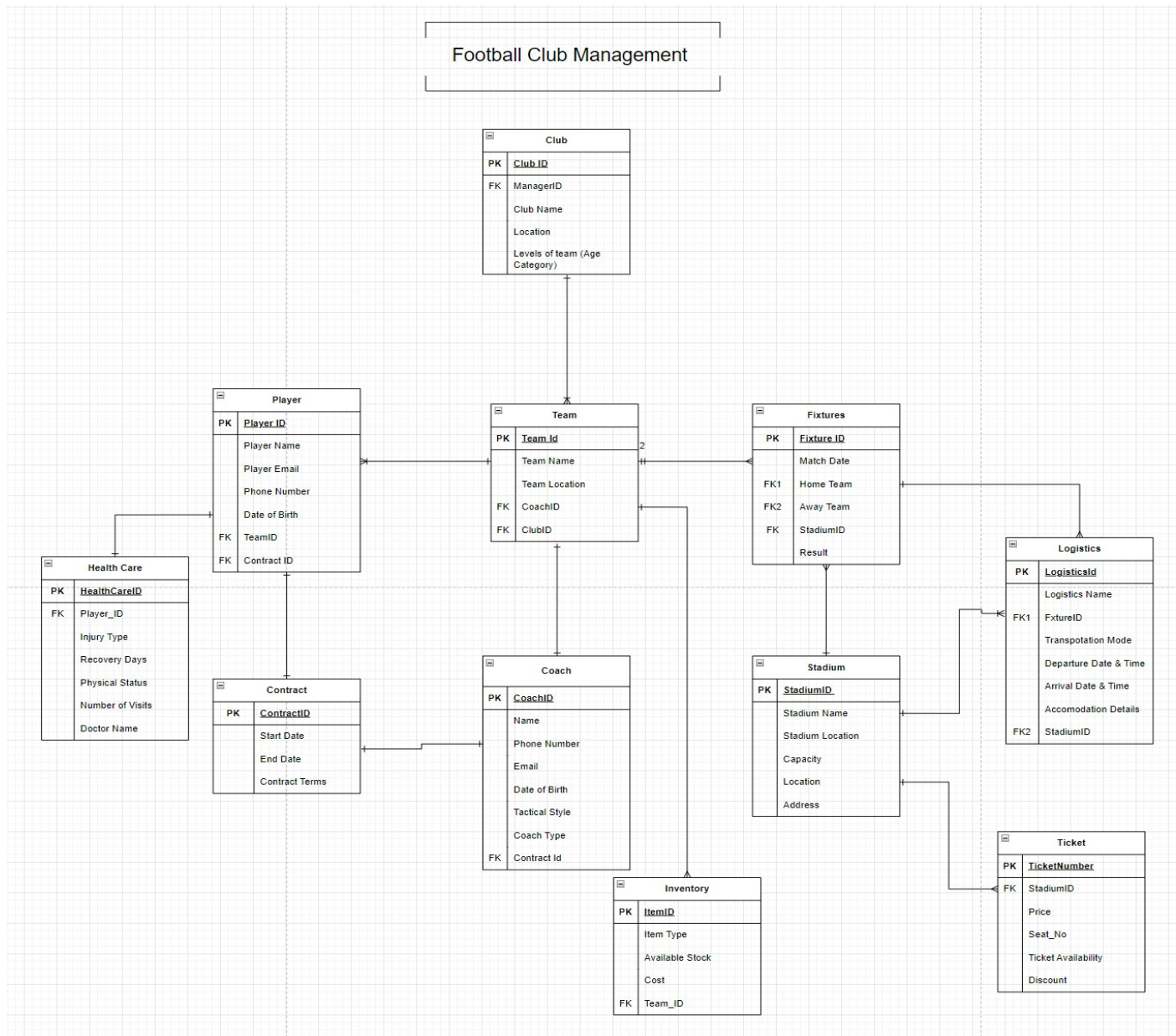Topic: Efficient Football Team Management System

GitHub Link: https://github.com/Abhishek-Chintapalli/Football_Club_Management-DataBase

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

Football Club Management

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

Player
PK	Player ID
	Player Name
	Player Email
	Phone Number
	Date of Birth
FK	TeamID
FK	Contract ID

Team
PK	Team Id
	Team Name
	Team Location
FK	CoachID
FK	ClubID

Fixtures
PK	Fixture ID
	Match Date
FK1	Home Team
FK2	Away Team
FK	StadiumID
	Result

Health Care
PK	HealthCareID
FK	Player_ID
	Injury Type
	Recovery Days
	Physical Status
	Number of Visits
	Doctor Name

Contract
PK	ContractID
	Start Date
	End Date
	Contract Terms

Coach
PK	CoachID
	Name
	Phone Number
	Email
	Date of Birth
	Tactical Style
	Coach Type
FK	Contract Id

Stadium
PK	StadiumID
	Stadium Name
	Stadium Location
	Capacity
	Location
	Address

Logistics
PK	LogisticsId
	Logistics Name
FK1	FxtureID
	Transpotation Mode
	Departure Date & Time
	Arrival Date & Time
	Accomodation Details
FK2	StadiumID

Inventory
PK	ItemID
	Item Type
	Available Stock
	Cost
FK	Team_ID

Ticket
PK	TicketNumber
FK	StadiumID
	Price
	Seat_No
	Ticket Availability
	Discount

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.
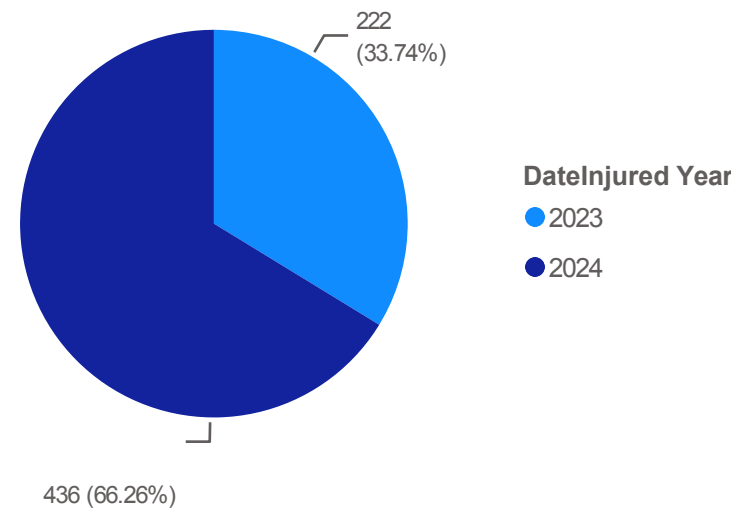Non Clustered Index 2: Index on HealthCare Table for Quick Access to Player Health Records.
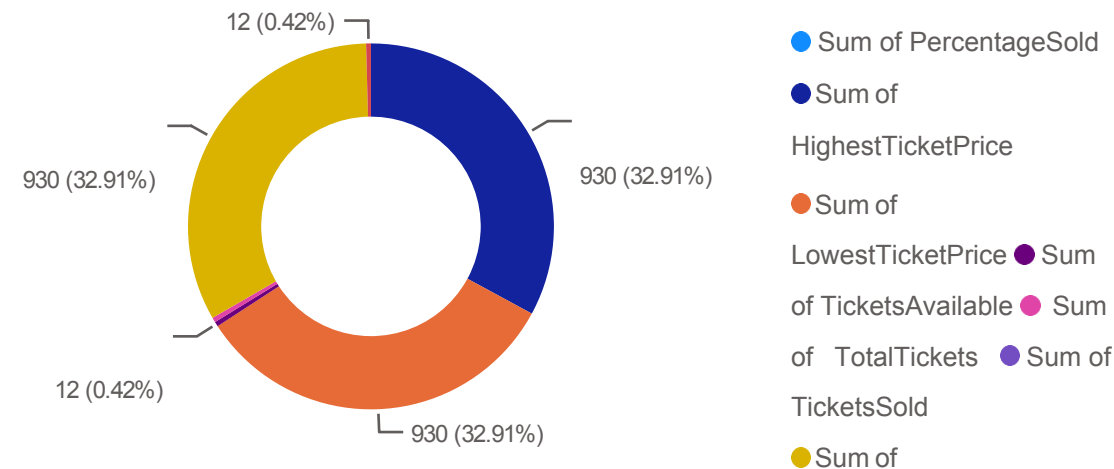Non Clustered Index 3: Index on Fixtures Table for Match Dates.

Count of ManagerID and Sum of ExperienceYears by ExperienceLevel

3 (1.99%)
9 (5.96%)
129 (85.43%)

ExperienceLevel
- Experienced
- Under-experienc…
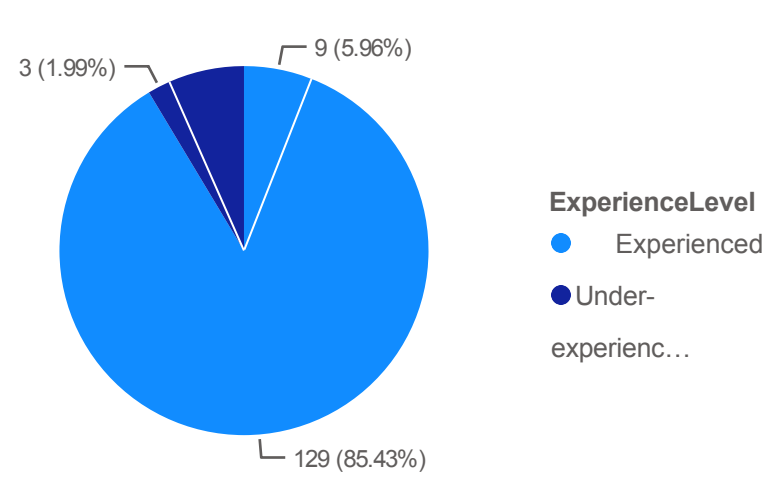
Sum of DaysSinceInjury by Year

222 (33.74%)
436 (66.26%)

DateInjured Year
- 2023
- 2024

Sum of PercentageSold, Sum of HighestTicketPrice, Sum of LowestTicketPrice, Sum of TicketsAvailable, Sum of TotalTickets, Sum of TicketsSold, Sum of AverageTicketPrice and Count of Fixture_ID

12 (0.42%)
930 (32.91%)
930 (32.91%)
930 (32.91%)
12 (0.42%)

- Sum of PercentageSold
- Sum of HighestTicketPrice
- Sum of LowestTicketPrice
- Sum of TicketsAvailable
- Sum of TotalTickets
- Sum of TicketsSold
- Sum of

Sum of AvailableStock and Count of ItemID by Team_ID

150 (3.23%)
165 (3.56%)
165 (3.56%)
169 (3.64%)
170 (3.67%)
AverageTicketPrice
Count of Fixture_ID
170 (3.6%)
250 (5.39%)
245 (5.28%)
245 (5.28%)
4 (0.09%)
215 (4.64%)
1 (3.69%)
175 (3.77%)
180 (3.88%)
185 (3.99%)
185 (3.99%)
4 (0.09%)
17

Team_ID
- 503
- 502
- 602
- 504

テレビ20
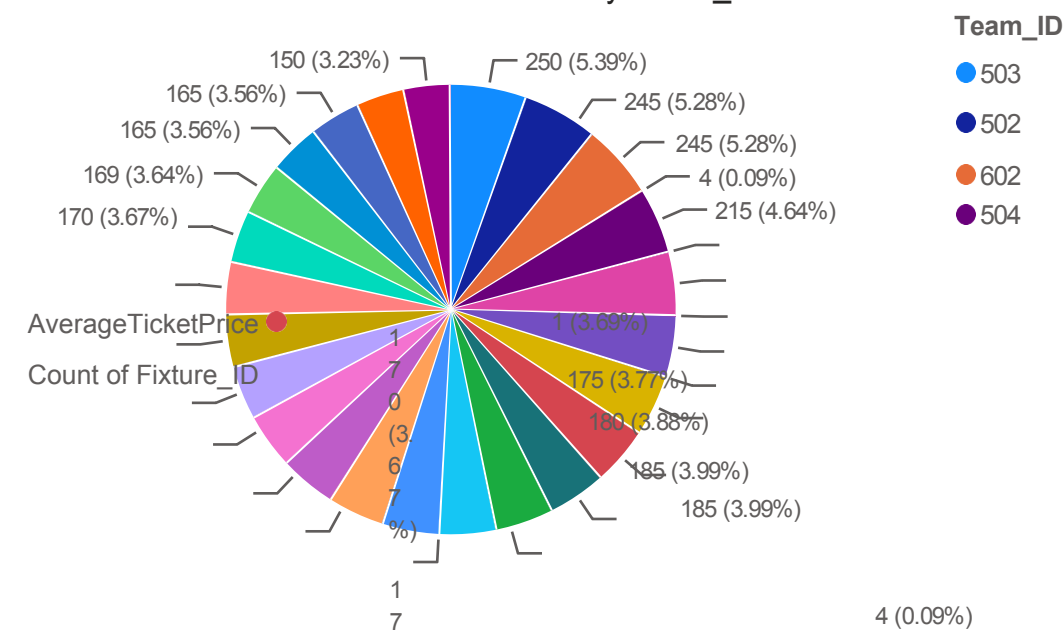
46%)
4 (0.09%)
201 (4.33%)
4 (0.09%)
200 (4.31%)

190 (4.1%)
190 (4.1%)
189 (4.08%)

508

● 608   ● 611
● 604   ● 606
● 511

Sum of RecoveryDays by Player_ID
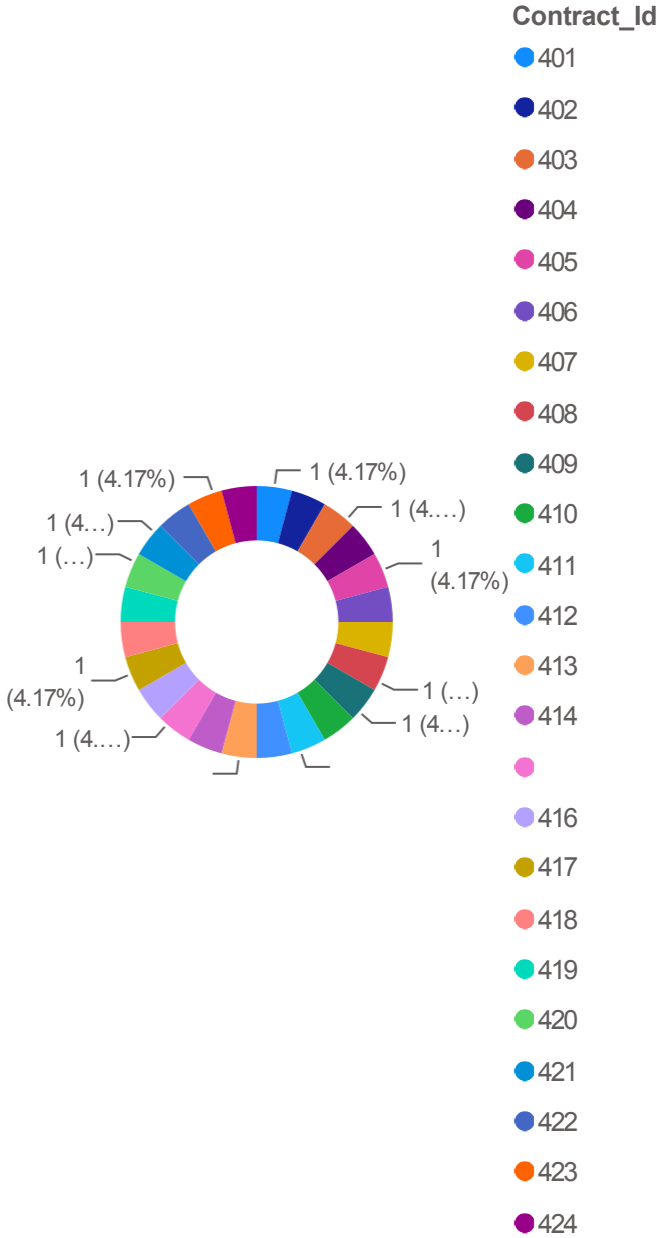
14 (4.67%)
14 (4.67%)

21 (7%)

90 (30%)

21 (7%)

28 (9.33%)

42 (14%)

28 (9.33%)

35 (11.67%)

Player_ID
- 7003
- 9017
- 8016
- 6005
- 10010
- 1011
- 12018
- 4022
- 11009
- 5004
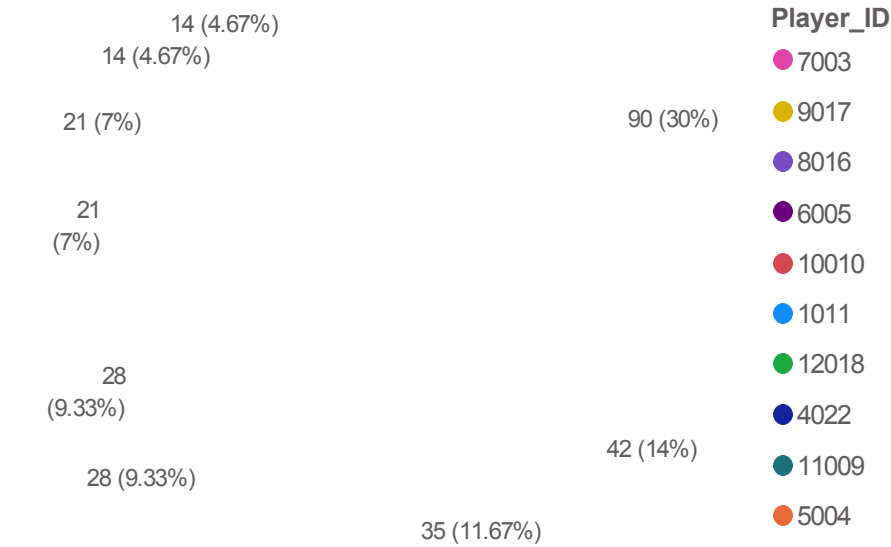
D | show clubs

ClubName	Club_ID	Location	ManagerID
AC Milan	112	Milan	715
Arsenal FC	109	London	763
Atletico Madrid	111	Madrid	400
Bayern Munich	106	Munich	203
Borussia Dortmund	110	Dortmund	555
Chelsea FC	108	London	233
FC Barcelona	101	Barcelona	785
Juventus	107	Turin	846
Liverpool FC	103	Liverpool	674
Manchester City	102	Manchester	389
Paris Saint-Germain	105	Paris	496
Real Madrid	104	Madrid	226

Count of CoachID by Contract_Id

1 (4.17%)
1 (4.17%)
1 (4.17%)
1 (4....)
1 (...)
1 (4.17%)
1 (...)
1 (4....)
1 (4.17%)
1 (4.17%)
1 (...)
1 (4....)
1 (4....)

Contract_Id
- 401
- 402
- 403
- 404
- 405
- 406
- 407
- 408
- 409
- 410
- 411
- 412
- 413
- 414
- 416
- 417
- 418
- 419
- 420
- 421
- 422
- 423
- 424

Count of LogisticsID by AccomodationDetails, Year, Quarter, Month, Day, Year, Quarter, Month, Day and FixtureID

FixtureID ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 10 ● 11 ● 12

	8 April Qtr 2 2024	3 April Qtr 2 2024	4 April Qtr 2 2024	1 April Qtr 2 2024	10 April Qtr 2 2024	5 April Qtr 2 2024	2 April Qtr 2 2024	6 April Qtr 2 2024	9 April Qtr 2 2024	7 April Qtr 2 2024

8 April Qtr 2 2024 — 3 April Qtr 2 2024 — 4 April Qtr 2 2024 — 1 April Qtr 2 2024 — 10 April Qtr 2 2024 — 5 April Qtr 2 2024 — 2 April Qtr 2 2024 — 6 April Qtr 2 2024 — 9 April Qtr 2 2024 — 7 April Qtr 2 2024

Accommoda… | Apartment b… | Hostel acco… | Hotel accom… | Hotel booke… | Luxury hotel… | Resort stay a… | Team to stay… | Team to stay…
Team to stay

Day