Scout Master 2019: Phase 1

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Team 4
Nehal Azmat, MS BAPM
Chandrashila Chattopadhyay, MS BAPM
Elilinma Ezeife, MBA
Donald Pendagast III, MBA
Ayush Sengupta, MS BAPM

Business Case

Each year, professional football (a.k.a., soccer) teams and their coaching staff are required to discover, monitor, and track new and existing players to attract critical talent necessary to increase the chance at a successful season. Scouts are responsible for producing talent recommendations in a prioritized list for coaches and team owners to consider in their decision making. With many players and player statistics to consider, scouts need real-time information to help present viable recruits and to make the case for their selections to management (i.e., decision-makers).

The purpose of this database is to house relevant information about available talent, player performance, and club priorities to produce a prioritized list for a team's scout. Potential benefits include:

- More timely decision-making
- Consideration from a wide catalog of data
- Easy-to-communicate recommendations

For the purpose of this project, we will assume the perspective of a scout with an english club team within the Premier League. Sample data will include European professional club teams in the top five markets (i.e., England, France, Germany, Spain, and Italy) and will illustrate all of the business rules and nuances.

Business Rules

In order to provide reporting to scouts, we will model the situation using the following business rules:
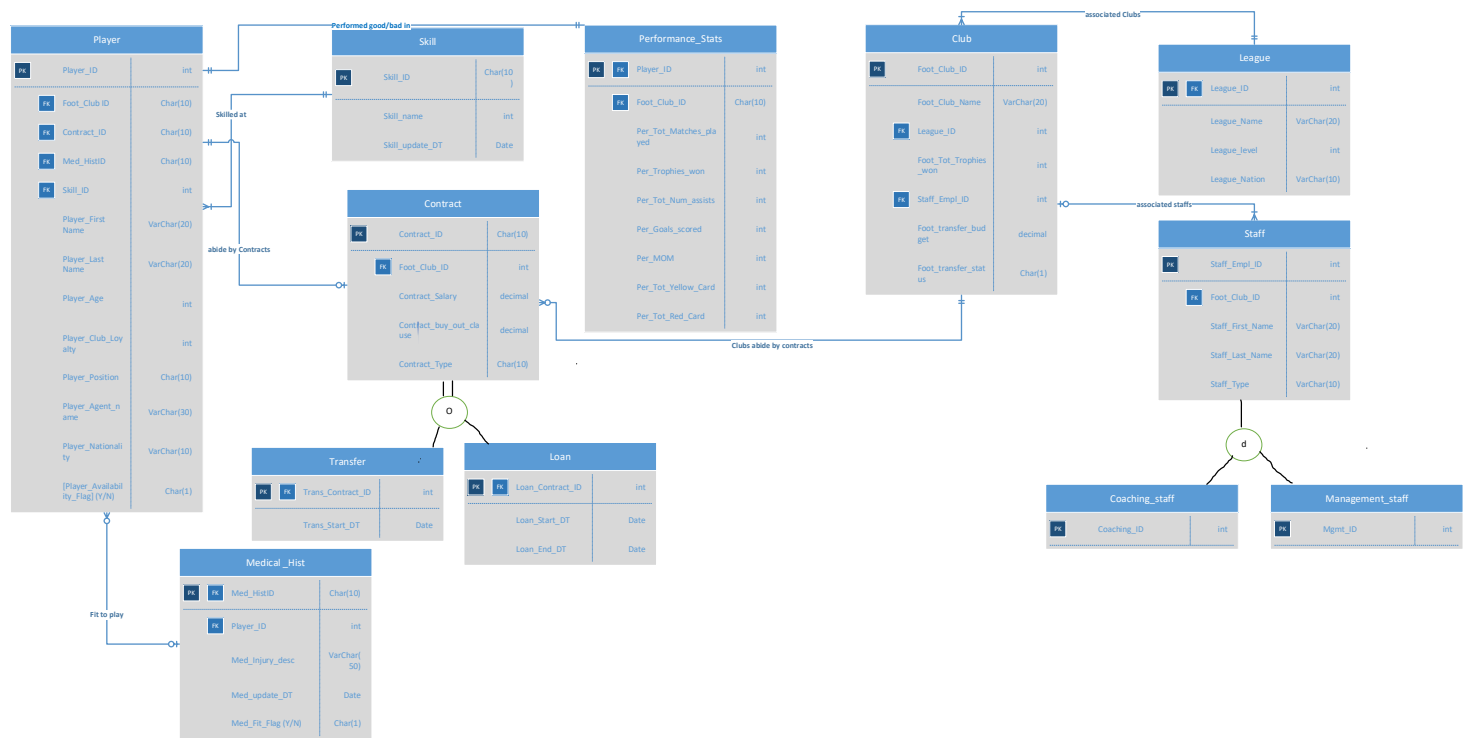
Players are individual football athletes with demographic and psychographic information. Players possess a set of *skills* and ratings for each skill level. As players compete in games, various statistics are captured to measure their *performance* which is used to further rate and compare players (including penalties, goals scored, complete passes, etc.). Additionally, a *medical history* is captured to document injuries and indicate the condition the player is in. In order to facilitate the recruitment process, we also track the player's *agent*. Availability of a player is based on its contract (e.g., loan) and no club with a transfer ban may acquire new players.

Clubs are the individual football teams. Clubs are collections of players whereby each club has a *contract* agreement written that establishes a formal relationship between a player and its team. Contracts can either be a *transfer* or *loan* type and indicates the duration of the agreement and if and when a player may be acquired. To manage each club, a team of *staff* are assigned — made up of *coaching* staff and *management*.

Each club belongs to a *league*. Leagues belong to countries and have distinct names.

ERD Model

See attached Visio file for complete details.

Player

PK	Player_ID	int
FK	Foot_Club ID	Char(10)
FK	Contract_ID	Char(10)
FK	Med_HistID	Char(10)
FK	Skill_ID	int
	Player_First Name	VarChar(20)
	Player_Last Name	VarChar(20)
	Player_Age	int
	Player_Club_Loyalty	int
	Player_Position	Char(10)
	Player_Agent_name	VarChar(30)
	Player_Nationality	VarChar(10)
	]Player_Availability_Flag] (Y/N)	Char(1)

Performed good/bad in

Skill

PK	Skill_ID	Char(10)
	Skill_name	int
	Skill_update_DT	Date

Skilled at

abide by Contracts

Contract

PK	Contract_ID	Char(10)
FK	Foot_Club_ID	int
	Contract_Salary	decimal
	Contract_buy_out_clause	decimal
	Contract_Type	Char(10)

Performance_Stats

PK	FK	Player_ID	int
	FK	Foot_Club_ID	Char(10)
		Per_Tot_Matches_played	int
		Per_Trophies_won	int
		Per_Tot_Num_assists	int
		Per_Goals_scored	int
		Per_MOM	int
		Per_Tot_Yellow_Card	int
		Per_Tot_Red_Card	int

associated Clubs

Club

PK	Foot_Club_ID	int
	Foot_Club_Name	VarChar(20)
	League_ID	int
	Foot_Tot_Trophies_won	int
FK	Staff_Empl_ID	int
	Foot_transfer_budget	decimal
	Foot_transfer_status	Char(1)

Clubs abide by contracts

League

PK	FK	League_ID	int
		League_Name	VarChar(20)
		League_level	int
		League_Nation	VarChar(10)

associated staffs

Staff

PK	Staff_Empl_ID	int
FK	Foot_Club_ID	int
	Staff_First_Name	VarChar(20)
	Staff_Last_Name	VarChar(20)
	Staff_Type	VarChar(10)

Transfer

PK	FK	Trans_Contract_ID	int
		Trans_Start_DT	Date

Loan

PK	FK	Loan_Contract_ID	int
		Loan_Start_DT	Date
		Loan_End_DT	Date

Coaching_staff

PK	Coaching_ID	int

Management_staff

PK	Mgmt_ID	int

Fit to play

Medical _Hist

PK	FK	Med_HistID	Char(10)
	FK	Player_ID	int
		Med_Injury_desc	VarChar(50)
		Med_update_DT	Date
		Med_Fit_Flag (Y/N)	Char(1)

Data Dictionary

Player

Attribute	Description	Data type
Player_ID	ID of the player being scouted by the scouting team. Primary key for table: Player	int
Player_First_Name	Player's First name	VarChar(20)
Player_Last_Name	Player's Last name	VarChar(20)
Player_Age	Age of the player (in years)	int
Player_Club_Loyalty	No. of clubs played for in his career	int
Player_Nationality	Nationality of the player	VarChar(10)
Player_Position	The position in which the player primarily plays in a team formation	Char (10)
Player_Agent_Name	Agent name (First name, Last name) handling the Player	VarChar(30)
Player_availability_Flag	Whether the player is currently active (Y) or has a ban on him (N). Derived field depending on conditions	Char (1)

Performance_Stats

Attribute	Description	Data type
Player_ID	ID of the player being scouted by the scouting team. Primary key and Foreign Key	int
Foot_Club_ID	Foreign key for table: Performance_Stats. Primary key to fetch Club details related to respective players	Char (10)
Per_Trophies_won	Total number of trophies won for each player	int
Perf_Tot_Num_assists	Total number of assists made in his career	int
Perf_Goals_scored	Total number of goals scored in his career	int
Perf_Tot_Matches_played	Total number of professional matches played	int
Perf_MOM	Total number of Man of the Matches in his career	int
Perf_Tot_Red card	Total number of red cards collected in his career	int
Perf_Tot_Yellow card	Total number of yellow cards collected in his career	int

Note: Attributes listed above can be duplicated for club career and international career or combined

Club

Attribute	Description	Data type
Foot_Club ID	Primary key to fetch Club details related to respective players	int
Foot_Club Name	Name of the soccer club	VarChar(20)
League_ID	Foreign key. Used for retrieving data from League table.	int
Staff_Empl_ID	Foreign key. Employee ID assigned to identify each staff of the club.	int
Foot_transfer budget	The budget allocated by the club management for transfer purpose in the current season (in $ million)	decimal
Foot_transfer status	Whether the club has any transfer ban currently on them	Char(1)
Foot_Tot_Trophies_won	Number of trophies won by the club	int

League

Attribute	Description	Data type
League ID	Primary Key. ID of the football league as assigned by the scouting team	int
League_level	Levels or divisions assigned to each League	int
League Name	Name of the league	VarChar (20)
League_Nation	Nation the league belongs to	VarChar (20)

Staff

Attribute	Description	Data type
Staff_Empl ID	Primary Key. ID of the staff member of employee	int
Foot_Club_ID	Foreign Key. To get the details related to soccer club the employee/staff is in	int
Staff_First_Name	First name of the employee	VarChar(20)
Staff_Last_Name	Last name of the employee	VarChar(20)
Staff_Type	Role of the staff member	VarChar(10)

Staff SubType table- Coaching_staff

Attribute	Description	Data type
Coaching ID	Surrogate Key for Staff subtype	int

Staff SubType table- Management_Staff

Attribute	Description	Data type
Mgmt_ID	Surrogate Key for Staff subtype	int

Skill

Attribute	Description	Data type
Skill_ID	Primary Key. Surrogate key for Skill table – combination of Player ID and skill set for each of the type of player depending on position he/she plays.	char
Skill_Name	Speed, Shooting, Passing, Dribbling, Defending skill of the player, Physical stamina.	int
Skill_update_DT	Date skill set or Skill table got updated with new or update value	Date

Contract

Attribute	Description	Data type
Contract_ID	Primary key. ID of the contract of the player	Char (10)
Foot_Club_ID	Foreign Key. To get the details related to soccer club.	int
Contract_Salary	Current salary of the player being scouted by the team	decimal
Contract_Type	To record if the player is in Transfer or Loan	Char (10)
Contract_buy-out clause	Cost to be incurred if the player is purchased before the end of their contract	decimal

Contract SubType table-Transfer

Attribute	Description	Data type
Trans_Contract_ID	Surrogate Key. Contract ID for each type of contract	int
Trans_Start_DT	Transfer start date	Date

Contract SubType table-Loan

Attribute	Description	Data type
Loan_Contract_ID	Surrogate Key. Contract ID for each type of contract	int
Loan_Start_DT	Loan start date	Date
Loan_End_DT	Loan end date	Date

Medical_Hist

Attribute	Description	Data type
Med_HistID	Primary Key. ID of the medical records of the player	Char (10)
Player_ID	ID of the player being scouted by the scouting team. Primary key and Foreign Key	int
Med_Injury_desc	Records of the past injuries sustained by the player; Medical tests taken by the player	VarChar(50)
Med_update_DT	Last updated date of medical history table for each player	Date
Med_Fit_Flag	Current health status of the player. Y/N	Char (1)