University of British Columbia, Vancouver

Department of Computer Science

CPSC 304 Project Cover Page

Milestone #: 1

Date: 2023-02-05

Group Number: 3

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

Repo Link: https://github.students.cs.ubc.ca/CPSC304-2022W-T2/project_b3m8u_f9h0f_m5t0c

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2. A single SQL script that can be used to create all the tables and data in the database. If you are using multiple scripts while developing, ensure you concatenate them and hand in only a SINGLE SQL script.

SQL Script for Creating all Tables

```
CREATE TABLE Teams (
  team_id INT NOT NULL,
  team_name VARCHAR(255) NOT NULL,
  team_code VARCHAR(255),
  image_path VARCHAR(255),
  founded VARCHAR(6),
  venue_id INT,
  coach_id INT,
  goals_conceded_count INT,
  goals_conceded_avg FLOAT,
  goals_scored_count INT,
  goals_scored_avg FLOAT,
  cleansheets_count INT,
  coach_name VARCHAR(255),
  coach_image_path VARCHAR(255),
  PRIMARY KEY (team_id)
);

CREATE TABLE Players (
  team_id INT NOT NULL,
  player_id INT NOT NULL,
  nationality VARCHAR(255),
  display_name VARCHAR(255),
  image_path VARCHAR(255),
  player_height FLOAT,
  player_weight FLOAT,
  date_of_birth DATE,
  yellow_cards INT,
  avg_rating FLOAT,
  position_name VARCHAR(255),
  nationality_image_path VARCHAR(255),
  PRIMARY KEY (player_id, team_id),
  FOREIGN KEY (team_id) REFERENCES Teams(team_id)
);

CREATE TABLE Attackers (
  player_id INT NOT NULL,
  team_id INT NOT NULL,
  total_goals INT,
  shots_on_target INT,
  PRIMARY KEY (player_id, team_id),
  FOREIGN KEY (team_id) REFERENCES Teams(team_id),
  FOREIGN KEY (player_id) REFERENCES Players(player_id) ON DELETE CASCADE
);
```

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```
CREATE TABLE Defenders (
  player_id INT NOT NULL,
  team_id INT NOT NULL,
  total_tackles INT,
  interceptions INT,
  clearances INT,
  PRIMARY KEY (player_id, team_id),
  FOREIGN KEY (team_id) REFERENCES Teams(team_id),
  FOREIGN KEY (player_id) REFERENCES Players(player_id) ON DELETE CASCADE
);

CREATE TABLE Midfielders (
  player_id INT NOT NULL,
  team_id INT NOT NULL,
  assists INT,
  accurate_passes INT,
  PRIMARY KEY (player_id, team_id),
  FOREIGN KEY (team_id) REFERENCES Teams(team_id),
  FOREIGN KEY (player_id) REFERENCES Players(player_id) ON DELETE CASCADE
);

CREATE TABLE Goalies (
  player_id INT NOT NULL,
  team_id INT NOT NULL,
  saves INT,
  goals_conceded INT,
  PRIMARY KEY (player_id, team_id),
  FOREIGN KEY (team_id) REFERENCES Teams(team_id),
  FOREIGN KEY (player_id) REFERENCES Players(player_id) ON DELETE CASCADE
);

CREATE TABLE Matches (
  match_id INT NOT NULL,
  match_week INT,
  home_team_id INT,
  away_team_id INT,
  home_team_score INT,
  away_team_score INT,
  home_team_points INT,
  away_team_points INT,
  PRIMARY KEY (match_id),
  FOREIGN KEY (home_team_id) REFERENCES Teams(team_id),
  FOREIGN KEY (away_team_id) REFERENCES Teams(team_id)
);
```

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SQL Statements for tuple insertion into different tables (relevant scripts found in data folder) note: we used an external api to get actual data for football teams and players, etc. and then used a js script to format the json files we got from the api into the format of our tables and took all relevant data that we wanted.

SQL Statement for inserting Match tuples (sqlMatches.js)

```
    "INSERT INTO Matches (match_id, match_week, home_team_id,
away_team_id, home_team_score, away_team_score, home_team_points,
away_team_points) VALUES ?";
```

SQL Statement for inserting Player tuples (sqlPlayers.js)

```
      "INSERT INTO Players (team_id, player_id, nationality, display_name,
image_path, player_height, player_weight, date_of_birth, yellow_cards,
avg_rating, position_name, nationality_image_path) VALUES ?";
```

SQL Statements for inserting tuples into player's corresponding position table (sqlPlayers.js)

```
      "INSERT INTO Attackers (team_id, player_id, total_goals,
shots_on_target) VALUES ?";

      "INSERT INTO Midfielders (team_id, player_id, assists,
accurate_passes) VALUES ?";

      "INSERT INTO Goalkeepers (team_id, player_id, saves, goals_conceded)
VALUES ?";

      "INSERT INTO Defenders (team_id, player_id, total_tackles,
interceptions, clearances) VALUES ?";
```

SQL Statements for inserting tuples into teams table (sqlTeam.js)

```
    "INSERT INTO Teams (team_id, team_name, team_code, image_path,
founded, venue_id, coach_id, coach_name, coach_image_path,
goals_conceded_count, goals_conceded_avg, goals_scored_count,
goals_scored_avg, cleansheets_count) VALUES ?";
```

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3. A PDF file containing:

a. A short description of the final project, and what it accomplished.

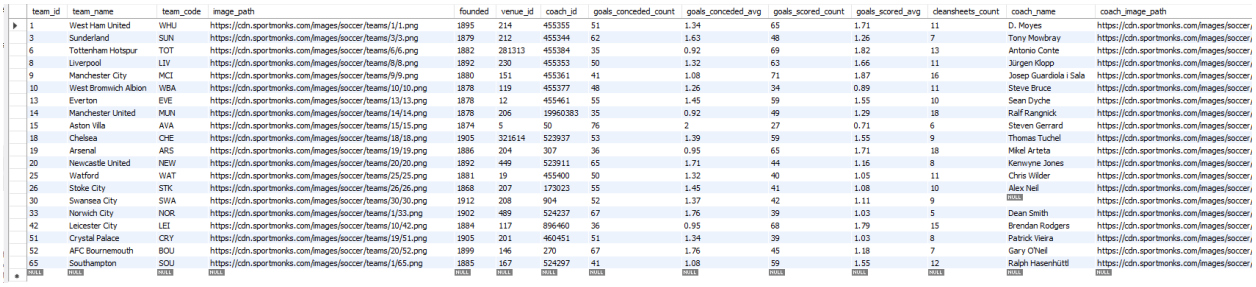
The final project is a website that we made which allows a player to search for a specific player or team and lets them see top players/teams ordered by some relevant statistic such as goals, game won, etc. The user can also then click on individual teams or players and see various relevant statistics relating to the team, player or match.

b. A description of how your final schema differed from the schema you turned in. i. If the final schema differed, explain why. Note that turning in a final schema that's different from what you planned is fine, we just want to know what changed and why.

our schema differed from the original by only keeping the matches, players (and its ISA hierarchy), and teams as we would easily have sufficient complexity to demonstrate all of the relevant queries with these 3 main entities and wanted to keep the complexity of the project to a reasonable degree as the data collection and then creation of the database and website would otherwise be unnecessarily long and complicated.

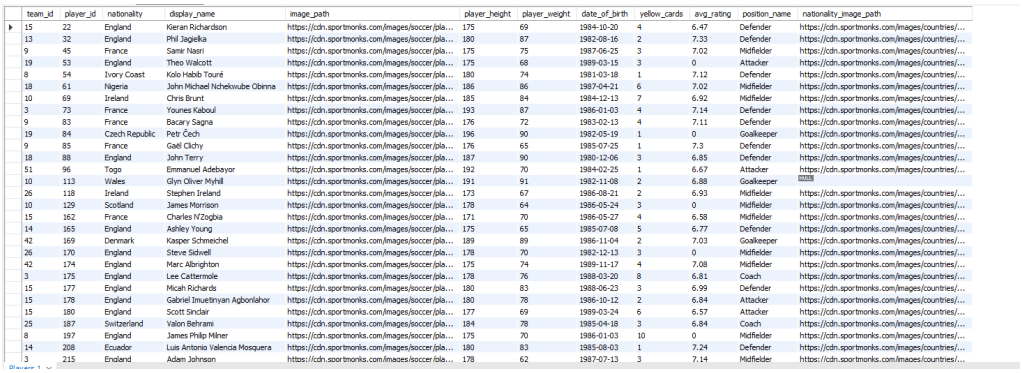
c. A copy of the schema and screenshots that show what data is present in each relation after the SQL script from item #2 is run.

Teams:



team_id	team_name	team_code	image_path	founded	venue_id	coach_id	goals_conceded_count	goals_conceded_avg	goals_scored_count	goals_scored_avg	cleansheets_count	coach_name	coach_image_path
1	West Ham United	WHU	https://cdn.sportmonks.com/images/soccer/teams/1/1.png	1895	214	455355	51	1.34	65	1.71	11	D. Moyes	https://cdn.sportmonks.com/images/soccer/
3	Sunderland	SUN	https://cdn.sportmonks.com/images/soccer/teams/3/3.png	1879	212	455344	62	1.63	48	1.26	7	Tony Mowbray	https://cdn.sportmonks.com/images/soccer/
6	Tottenham Hotspur	TOT	https://cdn.sportmonks.com/images/soccer/teams/6/6.png	1882	281313	455384	35	0.92	69	1.82	13	Antonio Conte	https://cdn.sportmonks.com/images/soccer/
8	Liverpool	LIV	https://cdn.sportmonks.com/images/soccer/teams/8/8.png	1892	230	455353	50	1.32	63	1.66	11	Jürgen Klopp	https://cdn.sportmonks.com/images/soccer/
9	Manchester City	MCI	https://cdn.sportmonks.com/images/soccer/teams/9/9.png	1880	151	455361	41	1.08	71	1.87	16	Josep Guardiola i Sala	https://cdn.sportmonks.com/images/soccer/
10	West Bromwich Albion	WBA	https://cdn.sportmonks.com/images/soccer/teams/10/10.png	1878	119	455377	48	1.26	34	0.89	11	Steve Bruce	https://cdn.sportmonks.com/images/soccer/
13	Everton	EVE	https://cdn.sportmonks.com/images/soccer/teams/13/13.png	1878	12	455461	55	1.45	59	1.55	10	Sean Dyche	https://cdn.sportmonks.com/images/soccer/
14	Manchester United	MUN	https://cdn.sportmonks.com/images/soccer/teams/14/14.png	1878	206	19960383	35	0.92	49	1.29	18	Ralf Rangnick	https://cdn.sportmonks.com/images/soccer/
15	Aston Villa	AVA	https://cdn.sportmonks.com/images/soccer/teams/15/15.png	1874	5	50	76	2	27	0.71	6	Steven Gerrard	https://cdn.sportmonks.com/images/soccer/
18	Chelsea	CHE	https://cdn.sportmonks.com/images/soccer/teams/18/18.png	1905	321614	523937	53	1.39	59	1.55	9	Thomas Tuchel	https://cdn.sportmonks.com/images/soccer/
19	Arsenal	ARS	https://cdn.sportmonks.com/images/soccer/teams/19/19.png	1886	204	307	36	0.95	65	1.71	18	Mikel Arteta	https://cdn.sportmonks.com/images/soccer/
20	Newcastle United	NEW	https://cdn.sportmonks.com/images/soccer/teams/20/20.png	1892	449	523911	65	1.71	44	1.16	8	Kenwyne Jones	https://cdn.sportmonks.com/images/soccer/
25	Watford	WAT	https://cdn.sportmonks.com/images/soccer/teams/25/25.png	1881	19	455400	50	1.32	40	1.05	11	Chris Wilder	https://cdn.sportmonks.com/images/soccer/
26	Stoke City	STK	https://cdn.sportmonks.com/images/soccer/teams/26/26.png	1868	207	173023	55	1.45	41	1.08	10	Alex Neil	https://cdn.sportmonks.com/images/soccer/
30	Swansea City	SWA	https://cdn.sportmonks.com/images/soccer/teams/30/30.png	1912	208	904	52	1.37	42	1.11	9	NULL	https://cdn.sportmonks.com/images/soccer/
33	Norwich City	NOR	https://cdn.sportmonks.com/images/soccer/teams/1/33.png	1902	489	524237	67	1.76	39	1.03	5	Dean Smith	https://cdn.sportmonks.com/images/soccer/
42	Leicester City	LEI	https://cdn.sportmonks.com/images/soccer/teams/10/42.png	1884	117	896460	36	0.95	68	1.79	15	Brendan Rodgers	https://cdn.sportmonks.com/images/soccer/
51	Crystal Palace	CRY	https://cdn.sportmonks.com/images/soccer/teams/19/51.png	1905	201	460451	51	1.34	39	1.03	8	Patrick Vieira	https://cdn.sportmonks.com/images/soccer/
52	AFC Bournemouth	BOU	https://cdn.sportmonks.com/images/soccer/teams/20/52.png	1899	146	270	67	1.76	45	1.18	7	Gary O'Neil	https://cdn.sportmonks.com/images/soccer/
65	Southampton	SOU	https://cdn.sportmonks.com/images/soccer/teams/1/65.png	1885	167	524297	41	1.08	59	1.55	12	Ralph Hasenhüttl	https://cdn.sportmonks.com/images/soccer/
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Players:



team_id	player_id	nationality	display_name	image_path	player_height	player_weight	date_of_birth	yellow_cards	avg_rating	position_name	nationality_image_path
15	22	England	Kieran Richardson	https://cdn.sportmonks.com/images/soccer/pla...	175	69	1984-10-20	4	6.47	Defender	https://cdn.sportmonks.com/images/countries/...
13	32	England	Phil Jagielka	https://cdn.sportmonks.com/images/soccer/pla...	180	87	1982-08-16	2	7.33	Defender	https://cdn.sportmonks.com/images/countries/...
9	45	France	Samir Nasri	https://cdn.sportmonks.com/images/soccer/pla...	175	75	1987-06-25	3	7.02	Midfielder	https://cdn.sportmonks.com/images/countries/...
19	53	England	Theo Walcott	https://cdn.sportmonks.com/images/soccer/pla...	175	68	1989-03-15	3	0	Attacker	https://cdn.sportmonks.com/images/countries/...
8	54	Ivory Coast	Kolo Habib Touré	https://cdn.sportmonks.com/images/soccer/pla...	180	74	1981-03-18	1	7.12	Defender	https://cdn.sportmonks.com/images/countries/...
18	61	Nigeria	John Michael Ncheksuube Obinna	https://cdn.sportmonks.com/images/soccer/pla...	186	86	1987-04-21	6	7.02	Midfielder	https://cdn.sportmonks.com/images/countries/...
10	69	Ireland	Chris Brunt	https://cdn.sportmonks.com/images/soccer/pla...	185	84	1984-12-13	7	6.92	Midfielder	https://cdn.sportmonks.com/images/countries/...
3	73	France	Younes Kaboul	https://cdn.sportmonks.com/images/soccer/pla...	193	87	1986-01-03	4	7.14	Defender	https://cdn.sportmonks.com/images/countries/...
9	83	France	Bacary Sagna	https://cdn.sportmonks.com/images/soccer/pla...	176	72	1983-02-13	4	7.11	Defender	https://cdn.sportmonks.com/images/countries/...
19	84	Czech Republic	Petr Čech	https://cdn.sportmonks.com/images/soccer/pla...	196	90	1982-05-19	1	0	Goalkeeper	https://cdn.sportmonks.com/images/countries/...
9	85	France	Gaël Clichy	https://cdn.sportmonks.com/images/soccer/pla...	176	65	1985-07-25	1	7.3	Defender	https://cdn.sportmonks.com/images/countries/...
18	88	England	John Terry	https://cdn.sportmonks.com/images/soccer/pla...	187	90	1980-12-06	3	6.85	Defender	https://cdn.sportmonks.com/images/countries/...
51	96	Togo	Emmanuel Adebayor	https://cdn.sportmonks.com/images/soccer/pla...	192	70	1984-02-25	1	6.67	Attacker	https://cdn.sportmonks.com/images/countries/...
10	113	Wales	Glyn Oliver Myhill	https://cdn.sportmonks.com/images/soccer/pla...	191	91	1982-11-08	2	6.88	Goalkeeper	NULL
26	118	Ireland	Stephen Ireland	https://cdn.sportmonks.com/images/soccer/pla...	173	67	1986-08-21	2	6.93	Midfielder	https://cdn.sportmonks.com/images/countries/...
10	129	Scotland	James Morrison	https://cdn.sportmonks.com/images/soccer/pla...	178	64	1986-05-24	3	0	Midfielder	https://cdn.sportmonks.com/images/countries/...
15	162	France	Charles N'Zogbia	https://cdn.sportmonks.com/images/soccer/pla...	171	70	1986-05-27	4	6.58	Midfielder	https://cdn.sportmonks.com/images/countries/...
14	165	England	Ashley Young	https://cdn.sportmonks.com/images/soccer/pla...	175	65	1985-07-08	5	6.77	Defender	https://cdn.sportmonks.com/images/countries/...
42	169	Denmark	Kasper Schmeichel	https://cdn.sportmonks.com/images/soccer/pla...	189	89	1986-11-04	2	7.03	Goalkeeper	https://cdn.sportmonks.com/images/countries/...
26	170	England	Steve Sidwell	https://cdn.sportmonks.com/images/soccer/pla...	178	70	1982-12-13	3	0	Midfielder	https://cdn.sportmonks.com/images/countries/...
42	174	England	Marc Albrighton	https://cdn.sportmonks.com/images/soccer/pla...	175	74	1989-11-17	4	7.08	Midfielder	https://cdn.sportmonks.com/images/countries/...
3	175	England	Lee Cattermole	https://cdn.sportmonks.com/images/soccer/pla...	178	76	1988-03-20	8	6.81	Coach	https://cdn.sportmonks.com/images/countries/...
15	177	England	Micah Richards	https://cdn.sportmonks.com/images/soccer/pla...	180	83	1988-06-23	3	6.99	Defender	https://cdn.sportmonks.com/images/countries/...
15	178	England	Gabriel Imuetinyan Agbonlahor	https://cdn.sportmonks.com/images/soccer/pla...	180	78	1986-10-12	2	6.84	Attacker	https://cdn.sportmonks.com/images/countries/...
15	180	England	Scott Sinclair	https://cdn.sportmonks.com/images/soccer/pla...	177	69	1989-03-24	6	6.57	Attacker	https://cdn.sportmonks.com/images/countries/...
25	187	Switzerland	Valon Behrami	https://cdn.sportmonks.com/images/soccer/pla...	184	78	1985-04-18	3	6.84	Coach	https://cdn.sportmonks.com/images/countries/...
8	197	England	James Philip Milner	https://cdn.sportmonks.com/images/soccer/pla...	175	70	1986-01-03	10	0	Midfielder	https://cdn.sportmonks.com/images/countries/...
14	208	Ecuador	Luis Antonio Valencia Mosquera	https://cdn.sportmonks.com/images/soccer/pla...	180	83	1985-08-03	1	7.24	Defender	https://cdn.sportmonks.com/images/countries/...
3	215	England	Adam Johnson	https://cdn.sportmonks.com/images/soccer/pla...	178	62	1987-07-13	3	7.14	Midfielder	https://cdn.sportmonks.com/images/countries/...

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Matches:

match_id	match_week	home_team_id	away_team_id	home_team_score	away_team_score	home_team_points	away_team_points
849	1	14	6	1	0	3	0
856	1	52	15	0	1	0	3
864	1	33	51	1	3	0	3
871	1	42	3	4	2	3	0
879	1	13	25	2	2	1	1
888	1	18	30	2	2	1	1
896	1	20	65	2	2	1	1
905	1	19	1	0	2	0	3
915	1	26	8	0	1	0	3
923	1	10	9	0	3	0	3
931	2	15	14	0	1	0	3
939	2	65	13	0	3	0	3
949	2	1	42	1	2	0	3
958	2	30	20	2	0	3	0
966	2	3	33	1	3	0	3
976	2	6	26	2	2	1	1
985	2	25	10	0	0	1	1
993	2	51	19	1	2	0	3
1001	2	9	18	3	0	3	0
1012	2	8	52	1	0	3	0
1020	3	14	20	0	0	1	1
1028	3	51	15	2	1	3	0
1036	3	1	52	3	4	0	3
1047	3	33	26	1	1	1	1
1054	3	3	30	1	1	1	1
1062	3	42	6	1	1	1	1
1071	3	10	18	2	3	0	3
1081	3	13	9	0	2	0	3
1089	3	25	65	0	0	1	1

Matches 1

Midfielders:

player_id	assists	accurate_passes	team_id
45	2	376	9
61	1	1008	18
69	3	390	10
118	1	123	26
129	3	0	10
162	0	9	15
170	0	0	26
174	6	447	42
197	11	0	8
215	5	377	3
224	0	129	3
270	0	581	33
285	0	106	13
291	1	0	13
292	0	48	13
294	11	1073	9
296	5	1453	9
316	0	133	51
323	3	606	8
346	0	36	25
411	0	0	3
420	0	425	14
437	1	1645	26
480	0	484	19

Attackers

player_id	total_goals	shots_on_target	team_id
53	5	0	19
96	1	4	51
178	1	6	15
180	2	7	15
239	0	0	26
288	0	0	10
410	5	0	26
473	4	10	3
513	3	10	52
608	3	0	33
627	4	11	19
726	0	1	51
736	0	1	14
746	9	25	1
759	0	0	26
798	16	43	19
802	6	0	9
821	1	1	14
823	5	13	26
826	0	6	30
828	4	17	9
829	6	17	30

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Defenders

player_id	saves	goals_conceded	team_id
84	0	0	19
113	65	48	10
169	99	36	42
231	0	35	42
254	121	49	25
275	0	40	9
281	7	25	26
297	0	55	13
393	89	76	15
450	44	22	10
467	27	76	15
519	80	43	51
595	2	26	8
633	70	47	8
681	55	52	18
733	115	51	30
757	33	17	20
832	83	33	14
838	74	62	3
890	69	67	33
945	7	35	14
977	1	35	6
1008	0	2	14
1011	46	55	13
1014	88	35	6
1085	13	66	52

Goalkeepers

player_id	total_tackles	interceptions	clearances	team_id
22	18	12	20	15
32	39	50	170	13
54	22	25	45	8
73	43	52	196	3
83	50	50	99	9
85	28	50	40	9
88	21	38	88	18
165	20	26	18	14
177	41	60	142	15
208	27	15	18	14
237	43	25	35	9
238	41	76	258	42
293	41	51	27	26
298	1	3	0	13
302	2	6	10	10
302	2	6	10	15
306	27	53	257	33
336	62	54	101	1
355	0	0	0	20
360	24	47	127	15
361	31	18	32	26
368	10	10	60	51
383	44	77	154	1
392	19	24	47	52
400	7	2	15	26
422	4	10	12	51

d. A list of all SQL queries used and where it can be found in the code (i.e., file name and line number(s)). For SQL query requirements, check the rubric listed on Canvas for Milestone 4.

e. Screenshots demonstrating the functionality of each query using the GUI. We want to see a before/during/after progression of events. For example, the before screenshot would be what data is in the table before you run the query, the during screenshot(s) is how the query is triggered using the GUI, and the after screenshot is what data is in your table afterwards. Please label each set of screenshots with the name of the query it is meant to address (e.g., “Insert Operation”).

both d and e below for each query.

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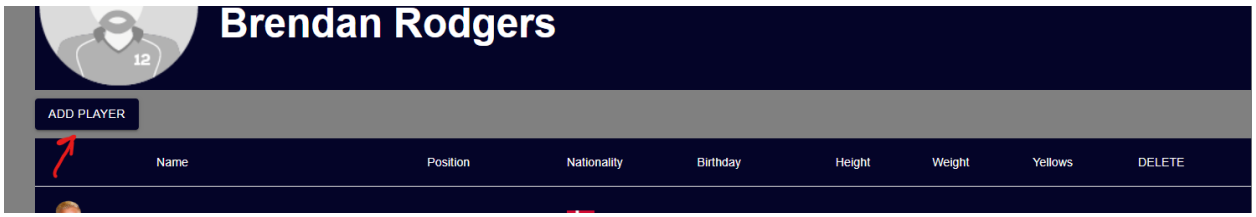
All SQL queries can be found in the queries subfolder found at the root of the repository

Queries: INSERT Operation: (found in insertPlayer() in queriesTeamPage.js)

```
INSERT INTO
Players (
  team_id,
  player_id,
  nationality,
  display_name,
  image_path,
  player_height,
  player_weight,
  date_of_birth,
  yellow_cards,
  avg_rating,
  position_name,
  nationality_image_path)
VALUES (?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?, ?)`
```

click on add player to display dropdown for typing in player stats



type in the stats into the textFields

click on the plus symbol on the right to add the player to the database.

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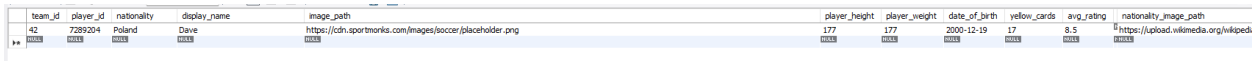
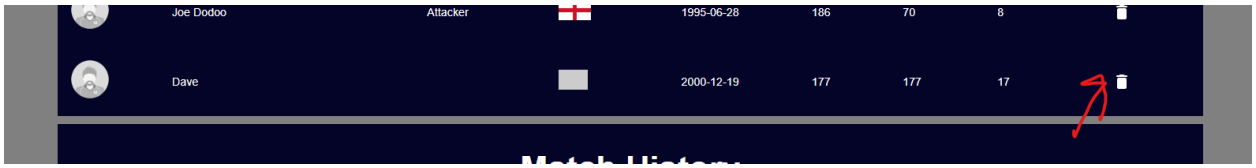
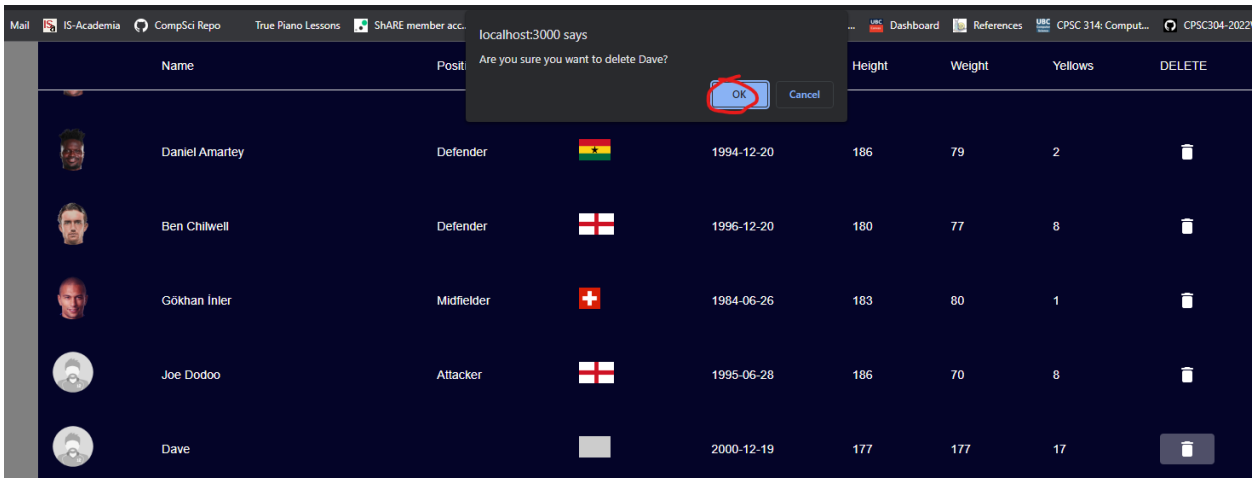
Queries: DELETE Operation: (found in deletePlayer() in queriesTeamPage.js)




```
DELETE FROM Players WHERE player_id = ? AND team_id = ?
```





after pressing ok:

QUERIES: UPDATE Operation: (in updatePlayer() in queriesPlayerPage.js)

```
        UPDATE
            Players
        SET
```

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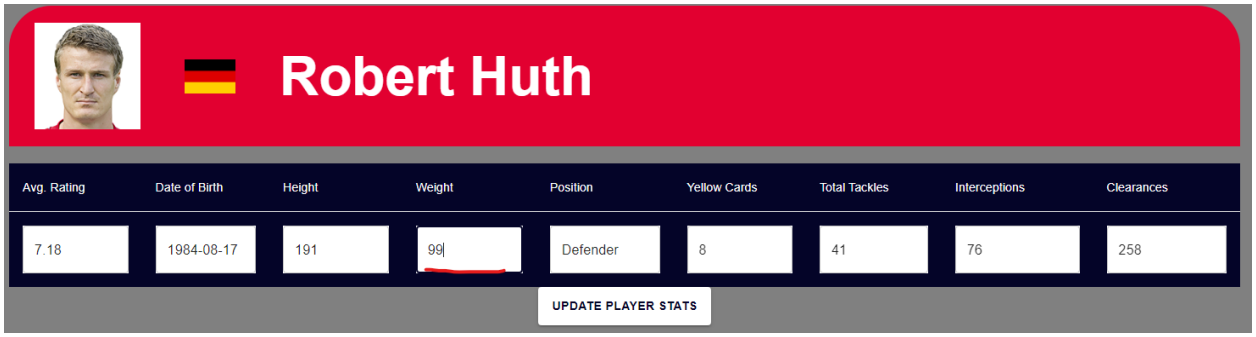
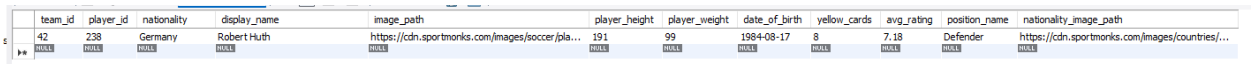
```
        nationality = ?,
        display_name = ?,
        image_path = ?,
        player_height = ?,
        player_weight = ?,
        date_of_birth = ?,
        yellow_cards = ?,
        avg_rating = ?,
        position_name = ?,
        nationality_image_path = ?
    WHERE
        team_id = ? AND player_id = ?
```

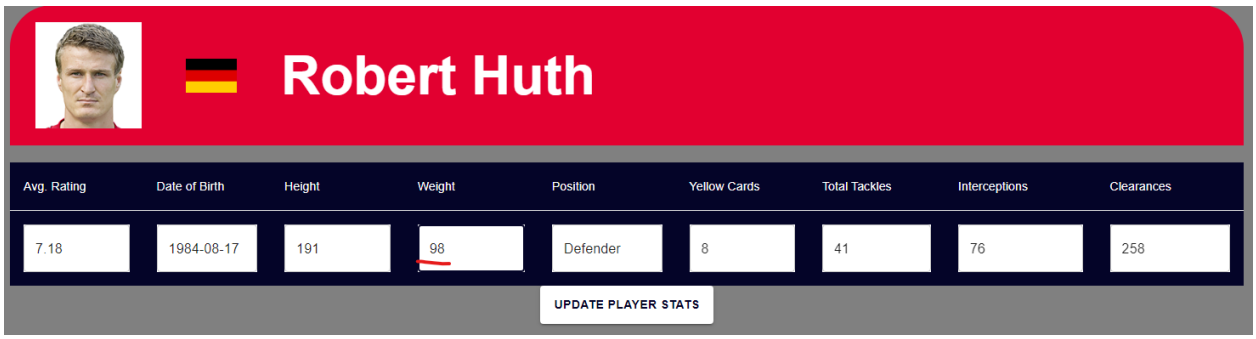
Player table before update:



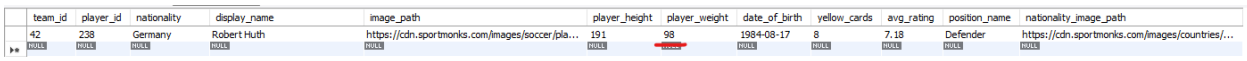


team_id	player_id	nationality	display_name	image_path	player_height	player_weight	date_of_birth	yellow_cards	avg_rating	position_name	nationality_image_path
42	238	Germany	Robert Huth	https://cdn.sportmonks.com/images/soccer/pla...	191	99	1984-08-17	8	7.18	Defender	https://cdn.sportmonks.com/images/countries/...

Player Table after Update, typed in 98 as the weight



pressed update player Stats, and table value changed in sql

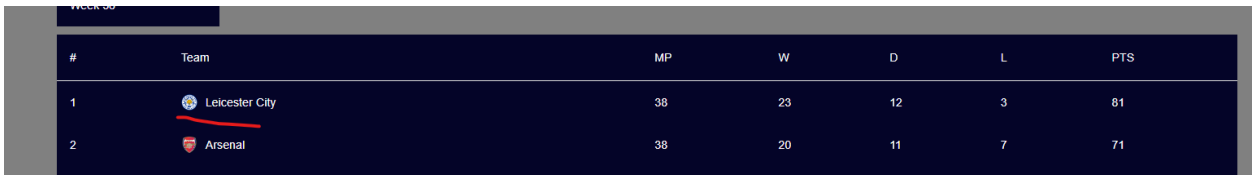


team_id	player_id	nationality	display_name	image_path	player_height	player_weight	date_of_birth	yellow_cards	avg_rating	position_name	nationality_image_path
42	238	Germany	Robert Huth	https://cdn.sportmonks.com/images/soccer/pla...	191	98	1984-08-17	8	7.18	Defender	https://cdn.sportmonks.com/images/countries/...

you can effectively type in any value into any of the player statistics and change their resulting value and then press the update button to send the update to the database

Queries: Selection (found in teamInfo() in queriesTeamPage.js)

```
SELECT *
FROM Teams
WHERE team_id = ${teamID}`
```



#	Team	MP	W	D	L	PTS
1	Leicester City	38	23	12	3	81
2	Arsenal	38	20	11	7	71

Queries: Projection (found in getPlayerStats() in queriesPlayerPage.js)

```
SELECT position_name FROM Players WHERE player_id = ?
```

this query is a query used for selecting the position of the player and then using that to find which table the player is supposed to be in, which helps with displaying the extra stats at the end of a player's stats table, whenever we click on a player

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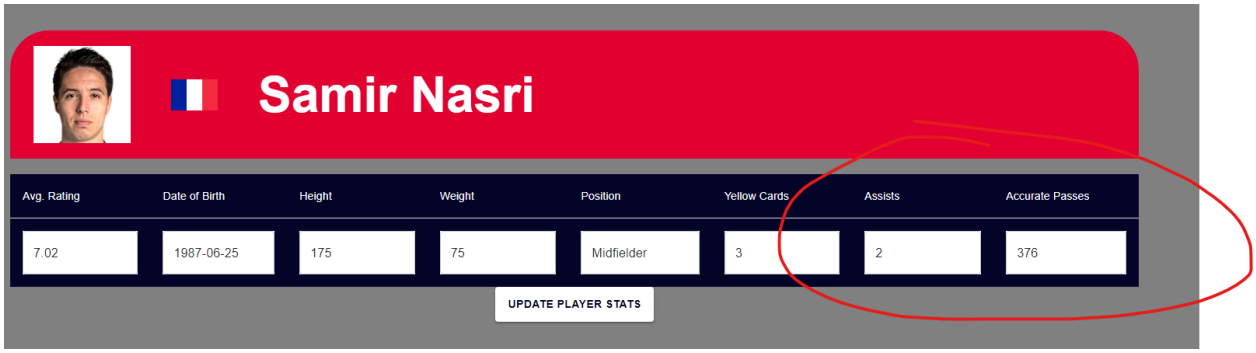

Queries: Join (found in matchesByTeam() in queriesTeamPage.js)

```
        SELECT
            Matches.*,
            HomeTeam.image_path AS home_image_path,
            HomeTeam.team_code AS home_team_code,
            AwayTeam.image_path AS away_image_path,
            AwayTeam.team_code AS away_team_code
        FROM
            Matches
            JOIN Teams AS HomeTeam ON Matches.home_team_id =
HomeTeam.team_id
            JOIN Teams AS AwayTeam ON Matches.away_team_id =
AwayTeam.team_id
        WHERE
            home_team_id = ${teamID}
            OR away_team_id = ${teamID}
        ORDER BY
            match_week ASC
```

This query is executed whenever you click on any of the team and the team page is rendered, you can scroll down and find the match history there, example execution below:

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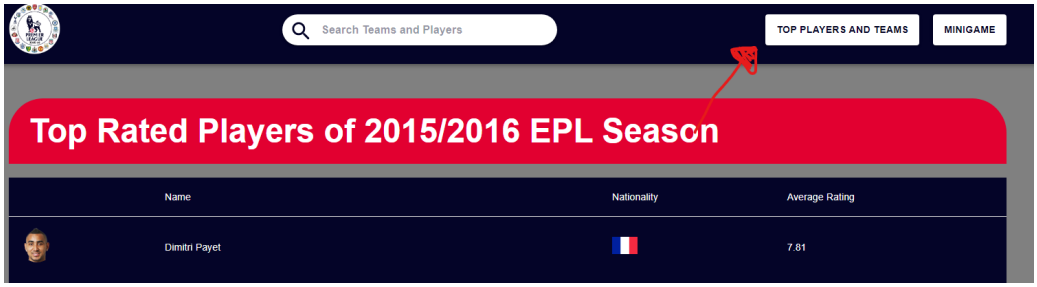
Queries: Aggregation with Group By (found in top_rated_players() in topPlayersTeams.js)

```
SELECT
    player_id,
    display_name,
    avg_rating,
    image_path AS player_image_path
FROM
    Players
GROUP BY
    player_id
HAVING
    avg_rating > 7.5
ORDER BY
    avg_rating DESC;
```

renders by clicking on the button at the top right (Top Players and Teams)



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Queries: Aggregation with Having (found in top_rated_teams() in topPlayersTeams.js)

```
SELECT
    Teams.team_id,
    Teams.team_name,
    AVG(Players.avg_rating) AS average_rating,
    Teams.image_path AS team_image_path
FROM
    Teams
    JOIN Players ON Teams.team_id = Players.team_id
GROUP BY
    Teams.team_id
HAVING
    AVG(Players.avg_rating) > 6.5
ORDER BY
    average_rating DESC;
```

renders by just clicking on the top teams/players button at the top right.

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Queries: Nested Aggregation with Group By (found in top_teams_average_conceded() in topPlayersTeams.js)

```
        SELECT
            SUM(subquery.total_goals_conceeded) / 38 AS
average_goals_conceeded,
            Teams.team_id,
            Teams.team_name,
            Teams.image_path as team_image_path
        FROM
            (
                SELECT
                    Matches.home_team_id AS team_id,
                    SUM(away_team_score) AS total_goals_conceeded
                FROM
                    Matches
                GROUP BY
                    home_team_id
                UNION
                ALL
                SELECT
```

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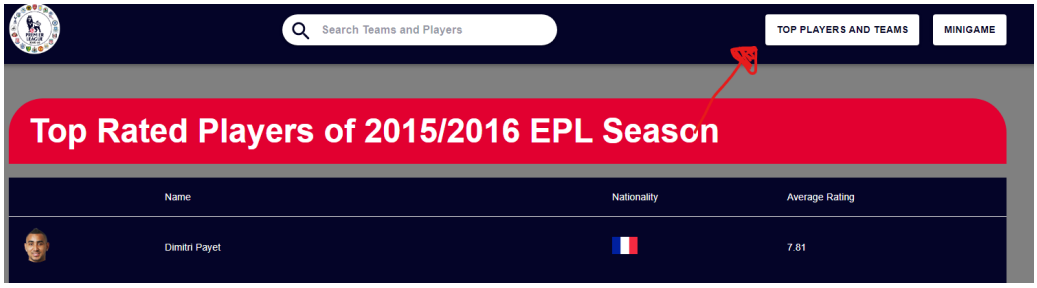
```
                Matches.away_team_id AS team_id,
                SUM(home_team_score) AS total_goals_conceeded
            FROM
                Matches
            GROUP BY
                away_team_id
        ) AS subquery
        JOIN Teams ON subquery.team_id = Teams.team_id
GROUP BY
    Teams.team_id
ORDER BY
    SUM(subquery.total_goals_conceeded) / 38 DESC;
```

This just renders by clicking on the Top Players and Teams button on the top right, the nested aggregation is internally querying and summing over all of a teams, matches (union between matches where they were away and where they were the home team) and then for each group summing over the group of two tuples that result due to the union and dividing by the total number of matches to get the average.



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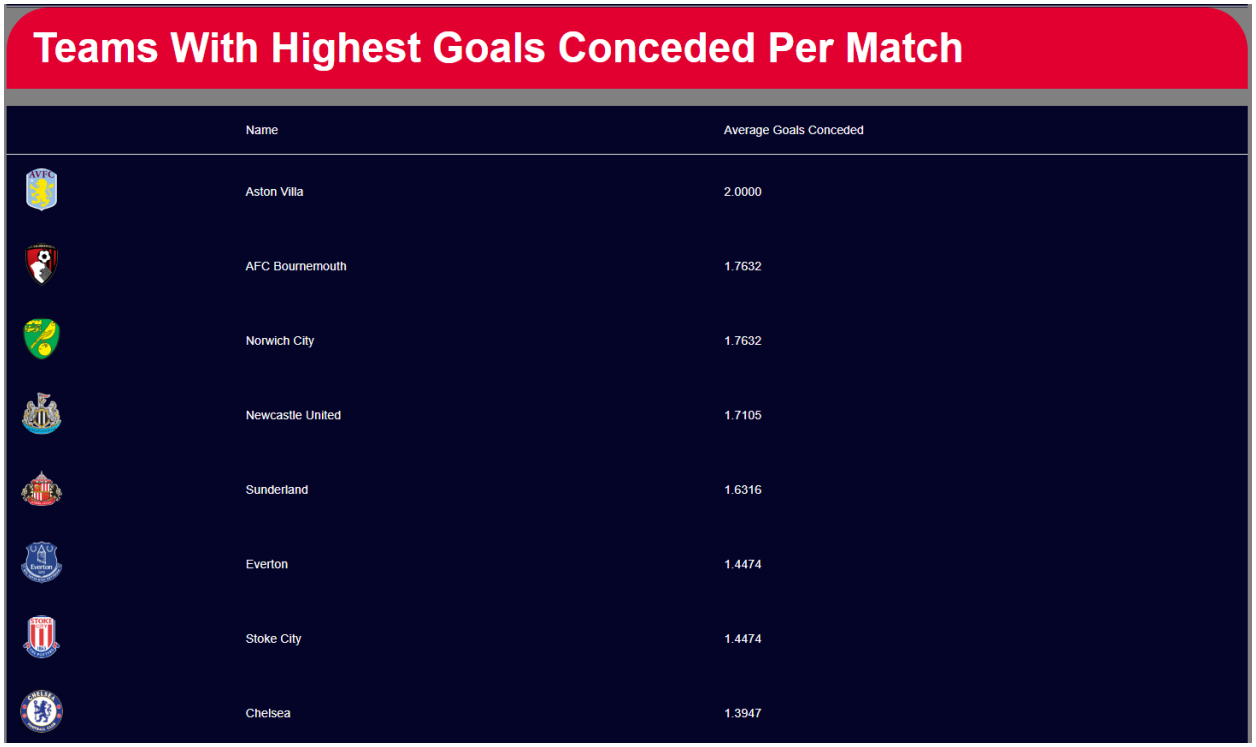

Teams With Highest Goals Conceded Per Match

	Name	Average Goals Conceded
	Aston Villa	2.0000
	AFC Bournemouth	1.7632
	Norwich City	1.7632
	Newcastle United	1.7105
	Sunderland	1.6316
	Everton	1.4474
	Stoke City	1.4474
	Chelsea	1.3947

Queries: Division (found in matchgames() in mainPage.js)

```
        SELECT
        Teams.team_name, Teams.team_id, Teams.image_path as
teams_image_path
    FROM
        Teams
    WHERE
        Teams.team_id IN (
            SELECT
                home_team_id
            FROM
                Matches
            WHERE
                home_team_score = ?
                AND away_team_score = ?
        )
        AND Teams.team_id IN (
            SELECT
                away_team_id
            FROM
                Matches
            WHERE
                home_team_score = ?
                AND away_team_score = ?
        );
```

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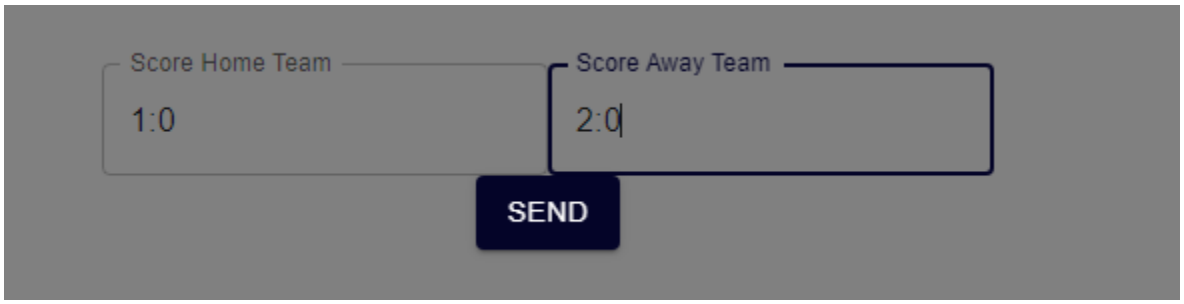
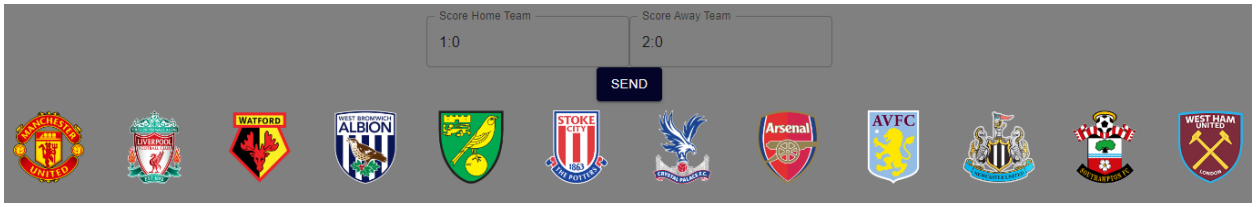
Quick Explanation: division that finds all teams who have had both a game of a score of 1:0 as the home team and 2:0 as the away team in this example.





i. You need only to include screenshots for the required queries – if you implemented more than what was required, screenshots are not needed for those extra queries.

4. Lastly, include a README.txt file if there's anything you want to add that's not included in your PDF file.

Sidenotes:

- the data in the screenshots of the mysql tables is not complete, there is much more data, but a screenshot wouldnt be able to capture all of it
- the script to insert data are all 1 statement insertions because we used an API to get all of the data we needed from a real football league and fill it with 20 teams and all of their players and match history between 2015-2016