For this project, I have created a database which records data of European soccer players and their teams and leagues they play in, the countries the games are being played in, and attributes of both a player and a team.

This database project idea came from the website projectpro.io, where I was re-directed to a link to a website called Kaggle and able to download a dataset. That dataset had a file in SQLite format, which contained the following tables:

- country: a table that lists out countries where soccer games are played in.
- league: a table that lists out the leagues that games are played under
- match: a table that lists out performance metrics for all of the players
- player: a table that lists out a player's name and its profile
- player_attributes: a table that lists out
- team: a table that lists out teams in the database
- team_attributes: a table that lists out how well each team does in certain attributes of soccer, with the ones on in

The dataset contained more than 25,000 matches, more than 10,000 players, 11 European Countries and their leagues, players that played in the years between 2008-2016., and player and team attributes that came from the EA Sports FIFA video games.

The structure of the tables looks like this:

Country

Attribute	**Type**	**Description**
id	integer	table identifier
name	text	country name

League

Attribute	**Type**	**Description**
id	integer	table identifier
Name	text	name of league

Match

Attribute	**Type**	**Description**
id	integer	table identifier
country_id	integer	foreign key for country table
league_id	integer	foreign key for league table
season	text	year of season

stage		
date		
home_team_api_id	integer	foreign key for the home team
away_team_api_id	integer	foreign key for the away team
home_team_goal	integer	number of goals for the home team
away_team_goal	integer	number of goals for the away team
home_player_x1	integer	integer position of the home player x-axis
away_player_x1	integer	integer position of the away player x-axis
home_player_y1	integer	integer position of the home player y-axis
....	.....	.....
away_player_y1	integer	integer position of the away player y-axis
....	.....	.....
home_player_1	integer	foreign key for the player table represents the first player of the home team
....	.....	.....
away_player_1	integer	foreign key for the player table represents the first player of the away team
....	.....	.....
shot_on	text	XML text to represent the id of each player who made a shot on the target
shot_off	text	XML text to represent the id of each player who made a shot off the target
goal	text	XML text to represent the ids of the players who scored goals and how many
foulcommit	text	XML text to represent the ids of the players who commit fouls
card	text	XML text to represent the ids of the players who took a [yellow-red] card
corner	text	XML text to represent the ids of the players who played corners
possession	text	XML text to represent home and away possession
B365H	numeric	Bookmaker or betting site odds in decimal format
B365D	numeric	Bookmaker or betting site odds in decimal format

Player

Attribute	Type	Description
id	integer	table identifier
player_api_id	integer	unique id
player_fifa_api_id	integer	unique id
player_name	text	name of the player
birthday	text	player's birthday
weight	integer	weight of the player
height	integer	height of the player

Player_Attributes

Attribute	Type	Description
id	integer	table identifier
player_api_id	integer	foreign key for player table
player_fifa_api_id	integer	foreign key for player table
date	text	date of the update
overall_rating	integer	fifa rating
potential	integer	fifa rating
preferred_foot	integer	fifa rating

Team

Attribute	Type	Description
id	integer	table identifier
team_api_id	integer	unique id
team_fifa_api_id	integer	unique id
team_long_name	text	team long name
team_short_name	text	team short name

Team_Attributes

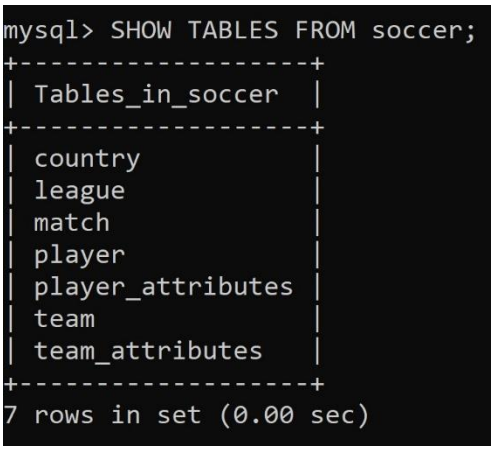
Attribute	Type	Description
id	integer	table identifier
team_api_id	integer	foreign key for team table
team_fifa_api_id	integer	foreign key for team table
date	text	date of session
buildupplayspeed	integer	rank from 1 to 100
buildupplayspeedclass	text	classification for build up speed
buildupplaydribbling	integer	rank from 1 to 100
buildupplaydribblingclass	text	classification for build up dribbling

I first originally decided to create the schema (another word for database in MySQL) from scratch and construct the tables manually on an application provided by MySQL called Workbench. In Workbench, I was able to create the tables and include columns and their datatypes. Plus, I was able to select options for those columns, like if a column could be used as a primary key which is a field in a table that identifies each row in a unique manner in a database table and must contain unique values, if the column should not be allowed to have values that are deemed NULL (meaning a column that has no value), if a column can be unsigned (where values can only be positive numbers), or if a column is unique (where there cannot be duplicate values).

I was able to construct the tables with the right columns, according to the SQLite database. And then add in some data from using the SQLite file and importing that data into the MySQL server by using an application I found called SQLite to MySQL. I added data into the tables in (except for the table sqlite_sequence since that just listed the number of rows each table had) and was able to add all fothe rows to each table.

For analyzing the data, I did it by using both MySQL Workbench and Windows Command Prompt. In the Command Prompt, I signed in with MySQL credentials and was able to get into MySQL where I could interact with the databases and their tables.

This screenshot shows the tables listed in the ‘soccer’ schema.



This screenshot lists the data from the table ‘country’ from the soccer schema.

```
mysql> SELECT * FROM soccer.country;
+-------+-------------+
| id    | name        |
+-------+-------------+
|     1 | Belgium     |
|  1729 | England     |
|  4769 | France      |
|  7809 | Germany     |
| 10257 | Italy       |
| 13274 | Netherlands |
| 15722 | Poland      |
| 17642 | Portugal    |
| 19694 | Scotland    |
| 21518 | Spain       |
| 24558 | Switzerland |
+-------+-------------+
11 rows in set (0.02 sec)
```

This screenshot lists the data from the table ‘league’ from the soccer schema.

```
mysql> SELECT * FROM soccer.league;
+-------+------------+-------------------------+
| id    | country_id | name                    |
+-------+------------+-------------------------+
|     1 |          1 | Belgium Jupiler League  |
|  1729 |       1729 | England Premier League  |
|  4769 |       4769 | France Ligue 1          |
|  7809 |       7809 | Germany 1. Bundesliga   |
| 10257 |      10257 | Italy Serie A           |
| 13274 |      13274 | Netherlands Eredivisie  |
| 15722 |      15722 | Poland Ekstraklasa      |
| 17642 |      17642 | Portugal Liga ZON Sagres |
| 19694 |      19694 | Scotland Premier League |
| 21518 |      21518 | Spain LIGA BBVA         |
| 24558 |      24558 | Switzerland Super League |
+-------+------------+-------------------------+
11 rows in set (0.04 sec)
```

This screenshot lists some data from the table ‘team’ from the soccer schema.

```
mysql> SELECT * FROM soccer.team;
+-------+-------------+-----------------+--------------------------+-----------------+
| id    | team_api_id | team_fifa_api_id | team_long_name           | team_short_name |
+-------+-------------+-----------------+--------------------------+-----------------+
|     1 |        9987 |             673 | KRC Genk                 | GEN             |
|     2 |        9993 |             675 | Beerschot AC             | BAC             |
|     3 |       10000 |           15005 | SV Zulte-Waregem         | ZUL             |
|     4 |        9994 |            2007 | Sporting Lokeren         | LOK             |
|     5 |        9984 |            1750 | KSV Cercle Brugge        | CEB             |
|     6 |        8635 |             229 | RSC Anderlecht           | AND             |
|     7 |        9991 |             674 | KAA Gent                 | GEN             |
|     8 |        9998 |            1747 | RAEC Mons                | MON             |
|    10 |        9985 |             232 | Standard de LiÃ¨ge       | STL             |
|    11 |        8203 |          110724 | KV Mechelen              | MEC             |
|    12 |        8342 |             231 | Club Brugge KV           | CLB             |
|    13 |        9999 |             546 | KSV Roeselare            | ROS             |
|    14 |        8571 |          100081 | KV Kortrijk              | KOR             |
|    16 |        9996 |          111560 | Royal Excel Mouscron     | MOU             |
|    17 |       10001 |             681 | KVC Westerlo             | WES             |
|    18 |        9986 |             670 | Sporting Charleroi       | CHA             |
|   614 |        9997 |             680 | Sint-Truidense VV        | STT             |
|  1034 |        9989 |             239 | Lierse SK                | LIE             |
|  1042 |        6351 |            2013 | KAS Eupen                | EUP             |
|  1513 |        1773 |          100087 | Oud-Heverlee Leuven      | O-H             |
|  2004 |        8475 |          110913 | Waasland-Beveren         | WAA             |
|  2476 |        8573 |             682 | KV Oostende              | OOS             |
|  2510 |      274581 |          111560 | Royal Excel Mouscron     | MOP             |
|  3457 |       10260 |              11 | Manchester United        | MUN             |
|  3458 |       10261 |              13 | Newcastle United         | NEW             |
|  3459 |        9825 |               1 | Arsenal                  | ARS             |
|  3460 |        8659 |             109 | West Bromwich Albion     | WBA             |
|  3461 |        8472 |             106 | Sunderland               | SUN             |
|  3462 |        8650 |               9 | Liverpool                | LIV             |
|  3463 |        8654 |              19 | West Ham United          | WHU             |
|  3464 |        8528 |            1917 | Wigan Athletic           | WIG             |
|  3465 |       10252 |               2 | Aston Villa              | AVL             |
|  3466 |        8456 |              10 | Manchester City          | MCI             |
|  3467 |        8668 |               7 | Everton                  | EVE             |
|  3468 |        8655 |               3 | Blackburn Rovers         | BLB             |
```

This screenshot lists the table ‘league’ in alphabetical order according to the column ‘name’ (I know all of the data is already set in order but even if the id and country_id values weren’t in numerical order, the table would be ordered to list the values in ‘league’ in alphabetical order according to the column ‘name’)

```
mysql> SELECT * FROM league ORDER BY name;
+-------+------------+-------------------------+
| id    | country_id | name                    |
+-------+------------+-------------------------+
|     1 |          1 | Belgium Jupiler League  |
|  1729 |       1729 | England Premier League  |
|  4769 |       4769 | France Ligue 1          |
|  7809 |       7809 | Germany 1. Bundesliga   |
| 10257 |      10257 | Italy Serie A           |
| 13274 |      13274 | Netherlands Eredivisie  |
| 15722 |      15722 | Poland Ekstraklasa      |
| 17642 |      17642 | Portugal Liga ZON Sagres |
| 19694 |      19694 | Scotland Premier League |
| 21518 |      21518 | Spain LIGA BBVA         |
| 24558 |      24558 | Switzerland Super League |
+-------+------------+-------------------------+
11 rows in set (0.00 sec)
```

This screenshot lists out how many rows the soccer schema table ‘player’ has.

```
mysql> SELECT COUNT(*) FROM soccer.player;
+----------+
| COUNT(*) |
+----------+
|    11059 |
+----------+
1 row in set (0.01 sec)
```

This screenshot lists out how many rows the soccer schema table ‘player_attributes’ has.

```
mysql> SELECT COUNT(*) FROM soccer.player_attributes;
+----------+
| COUNT(*) |
+----------+
|   183978 |
+----------+
1 row in set (0.13 sec)
```

This screenshot lists out how many rows the soccer schema table ‘match’ has.

```
mysql> SELECT COUNT(*) FROM soccer.match;
+----------+
| COUNT(*) |
+----------+
|    25979 |
+----------+
1 row in set (0.12 sec)
```

This screenshot lists out how many rows the soccer schema table ‘team_attributes’ has.

```
mysql> SELECT COUNT(*) FROM soccer.team_attributes;
+----------+
| COUNT(*) |
+----------+
|     1458 |
+----------+
1 row in set (0.01 sec)
```

This screenshot find the name “England Premier League” from the column name in the table ‘league’.

```
mysql> SELECT * FROM soccer.league WHERE name = 'England Premier League';
+------+------------+-----------------------+
| id   | country_id | name                  |
+------+------------+-----------------------+
| 1729 |       1729 | England Premier League |
+------+------------+-----------------------+
1 row in set (0.00 sec)
```

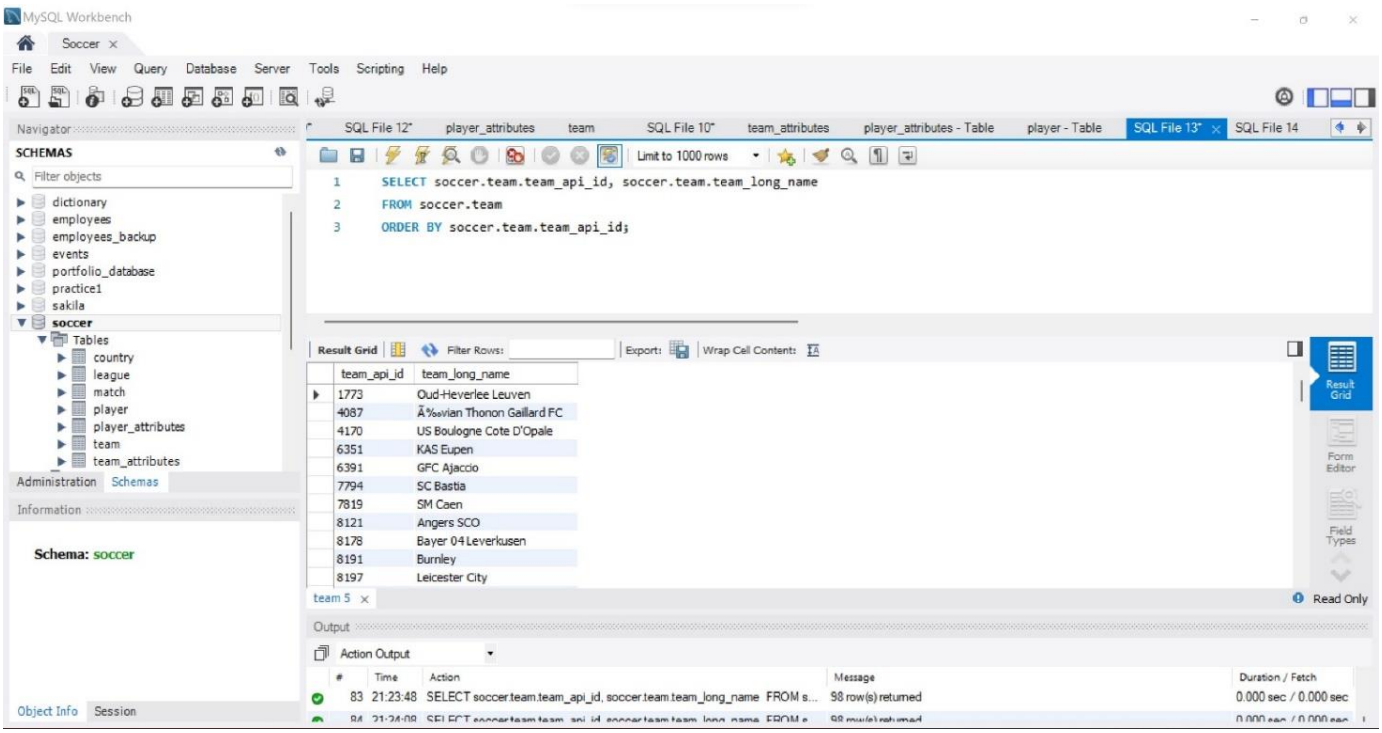
This screenshot lists out several soccer team’s name and their profile from the ‘team’ table.

```
mysql> SELECT * FROM soccer.team WHERE team_long_name = 'Manchester United';
+------+-------------+-----------------+-------------------+-----------------+
| id   | team_api_id | team_fifa_api_id | team_long_name    | team_short_name |
+------+-------------+-----------------+-------------------+-----------------+
| 3457 |       10260 |              11 | Manchester United | MUN             |
+------+-------------+-----------------+-------------------+-----------------+
1 row in set (0.00 sec)

mysql> SELECT * FROM soccer.team WHERE team_long_name = 'Liverpool';
+------+-------------+-----------------+----------------+-----------------+
| id   | team_api_id | team_fifa_api_id | team_long_name | team_short_name |
+------+-------------+-----------------+----------------+-----------------+
| 3462 |        8650 |               9 | Liverpool      | LIV             |
+------+-------------+-----------------+----------------+-----------------+
1 row in set (0.00 sec)

mysql> SELECT * FROM soccer.team WHERE team_long_name = 'Paris Saint-Germain';
+------+-------------+-----------------+---------------------+-----------------+
| id   | team_api_id | team_fifa_api_id | team_long_name      | team_short_name |
+------+-------------+-----------------+---------------------+-----------------+
| 9548 |        9847 |              73 | Paris Saint-Germain | PSG             |
+------+-------------+-----------------+---------------------+-----------------+
1 row in set (0.00 sec)

mysql> SELECT * FROM soccer.team WHERE team_long_name = 'Aston Villa';
+------+-------------+-----------------+----------------+-----------------+
| id   | team_api_id | team_fifa_api_id | team_long_name | team_short_name |
+------+-------------+-----------------+----------------+-----------------+
| 3465 |       10252 |               2 | Aston Villa    | AVL             |
+------+-------------+-----------------+----------------+-----------------+
1 row in set (0.00 sec)

mysql> SELECT * FROM soccer.team WHERE team_long_name = 'Vancouver Whitecaps';
Empty set (0.00 sec)
```

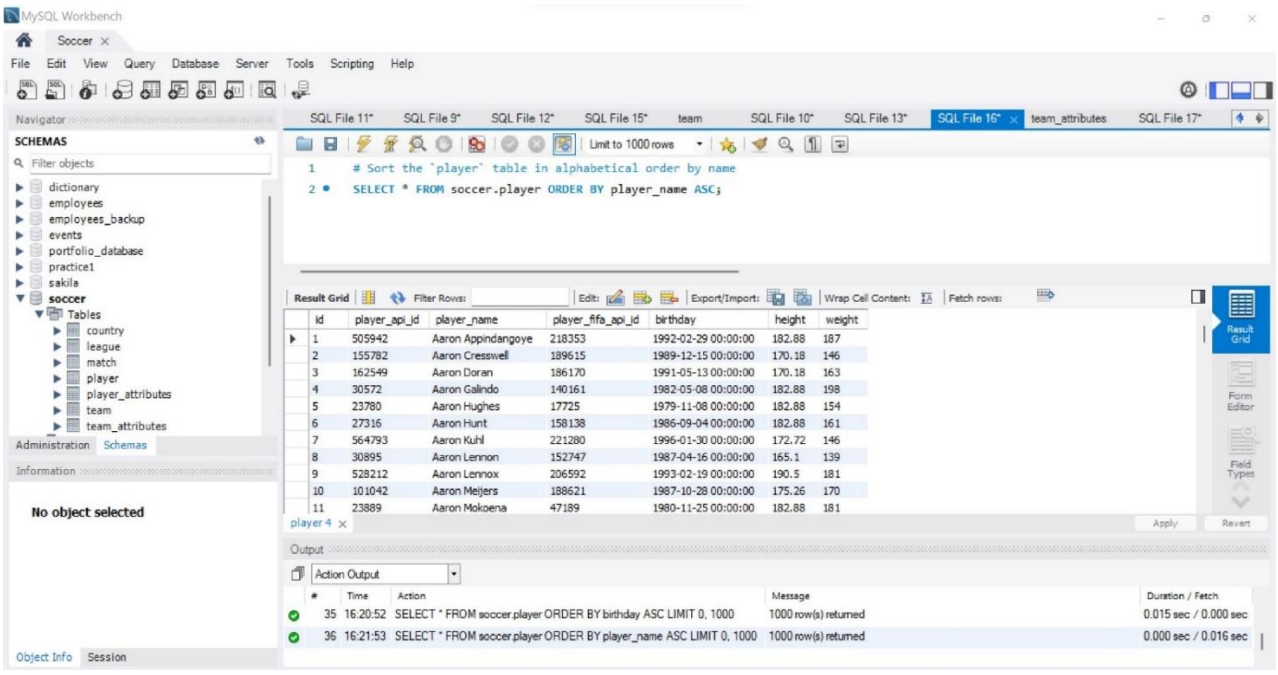
This screenshot lists out several soccer player's name and their profile from the soccer.player table.

```
mysql> SELECT * FROM soccer.player WHERE player_name = 'Lionel Messi';
+------+---------------+--------------+------------------+---------------------+--------+--------+
| id   | player_api_id | player_name  | player_fifa_api_id | birthday            | height | weight |
+------+---------------+--------------+------------------+---------------------+--------+--------+
| 6176 |         30981 | Lionel Messi |             158023 | 1987-06-24 00:00:00 | 170.18 |    159 |
+------+---------------+--------------+------------------+---------------------+--------+--------+
1 row in set (0.01 sec)

mysql> SELECT * FROM soccer.player WHERE player_name = 'Cristiano Ronaldo';
+------+---------------+------------------+------------------+---------------------+--------+--------+
| id   | player_api_id | player_name      | player_fifa_api_id | birthday            | height | weight |
+------+---------------+------------------+------------------+---------------------+--------+--------+
| 1995 |         30893 | Cristiano Ronaldo |             20801 | 1985-02-05 00:00:00 | 185.42 |    176 |
+------+---------------+------------------+------------------+---------------------+--------+--------+
1 row in set (0.01 sec)

mysql> SELECT * FROM soccer.player WHERE player_name = 'Fernando Torres';
+------+---------------+----------------+------------------+---------------------+--------+--------+
| id   | player_api_id | player_name    | player_fifa_api_id | birthday            | height | weight |
+------+---------------+----------------+------------------+---------------------+--------+--------+
| 3335 |         30853 | Fernando Torres |             49369 | 1984-03-20 00:00:00 | 185.42 |    172 |
+------+---------------+----------------+------------------+---------------------+--------+--------+
1 row in set (0.01 sec)

mysql> SELECT * FROM soccer.player WHERE player_name = 'David Villa';
+------+---------------+-------------+------------------+---------------------+--------+--------+
| id   | player_api_id | player_name | player_fifa_api_id | birthday            | height | weight |
+------+---------------+-------------+------------------+---------------------+--------+--------+
| 2430 |         30909 | David Villa |            113422 | 1981-12-03 00:00:00 | 175.26 |    152 |
+------+---------------+-------------+------------------+---------------------+--------+--------+
1 row in set (0.01 sec)

mysql> SELECT * FROM soccer.player WHERE player_name = 'David Beckham';
+------+---------------+--------------+------------------+---------------------+--------+--------+
| id   | player_api_id | player_name  | player_fifa_api_id | birthday            | height | weight |
+------+---------------+--------------+------------------+---------------------+--------+--------+
| 2324 |         30612 | David Beckham |               250 | 1975-05-02 00:00:00 | 182.88 |    165 |
+------+---------------+--------------+------------------+---------------------+--------+--------+
1 row in set (0.01 sec)
```

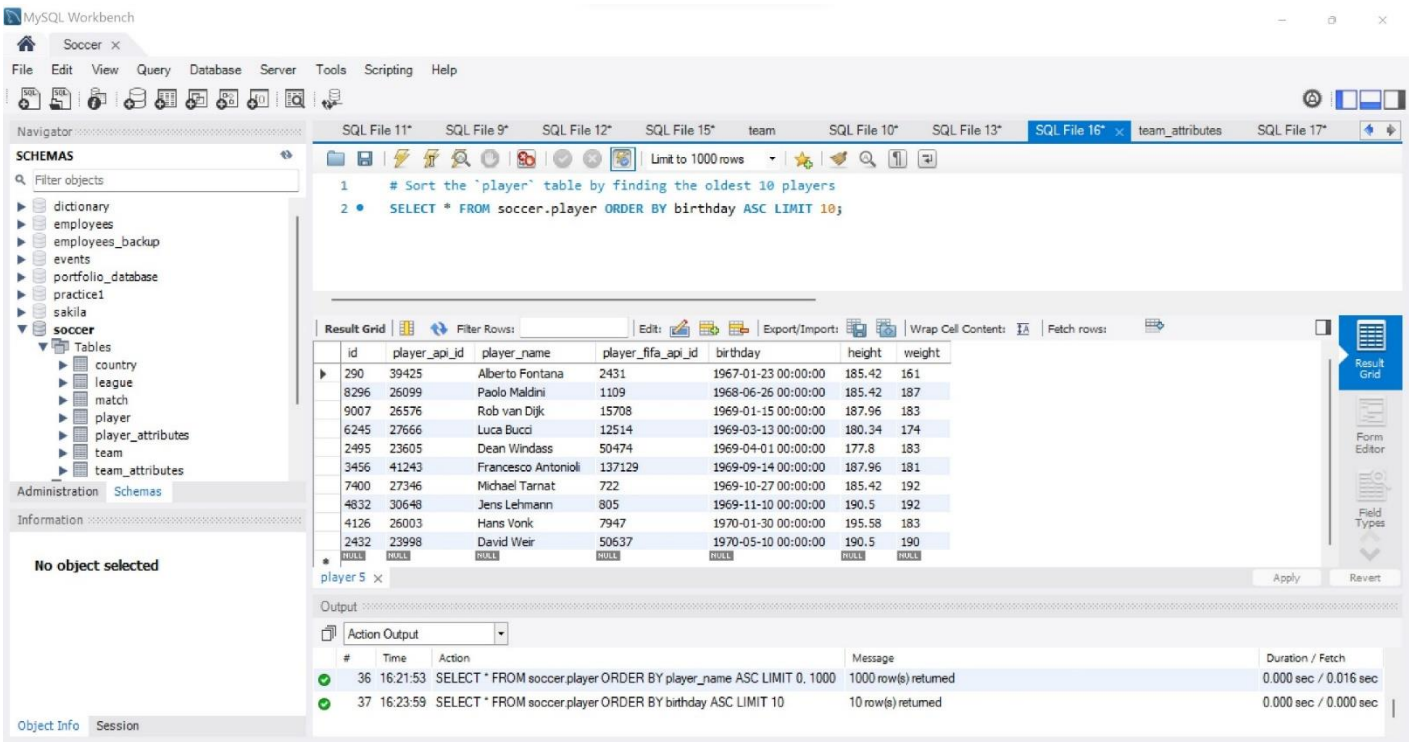
This screenshot lists out two columns, team_api_id and team_long_name, from the table 'team' and the results are ordered by the column team_api_id.



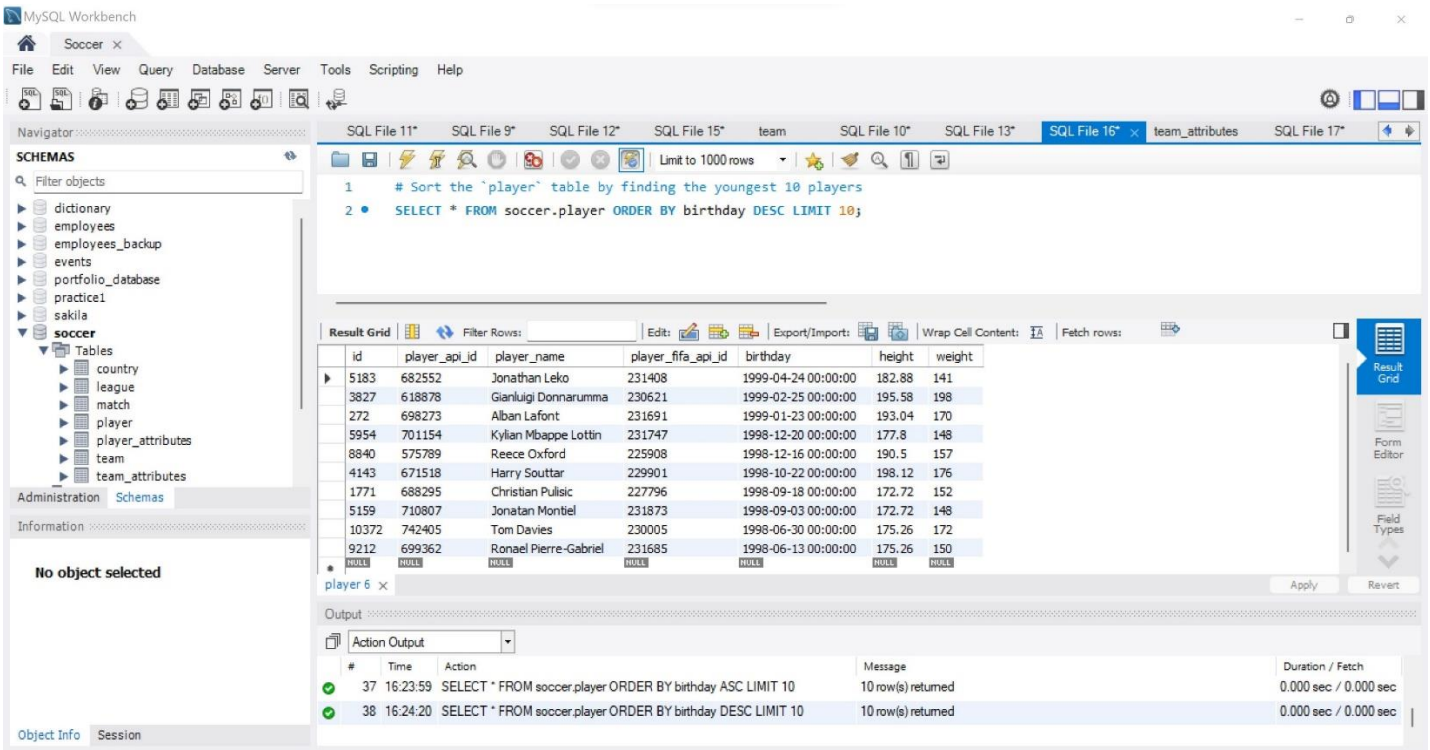
This screenshot lists the ‘player’ table sorted in alphabetical order by name



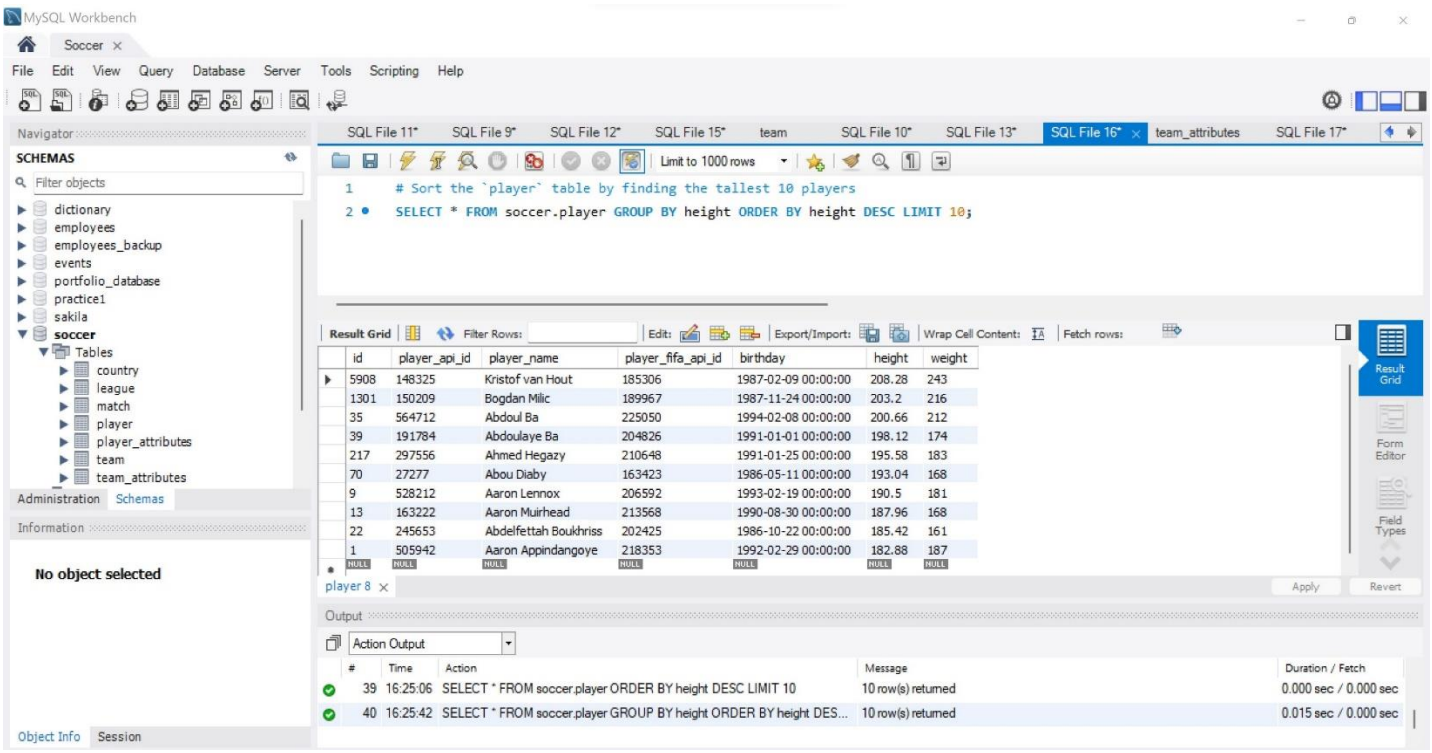
This table lists the ‘player’ table being sorted by the 10 oldest players in that table.



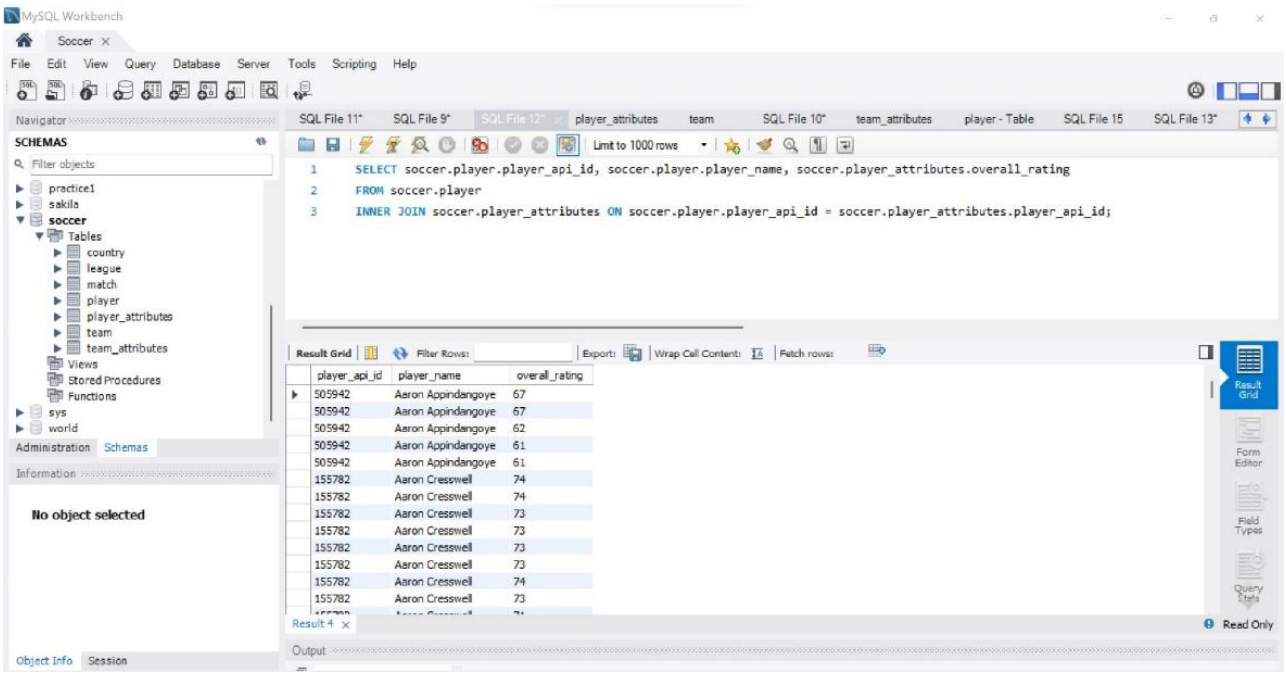
This table lists the ‘player’ table being sorted by the 10 youngest players in that table.



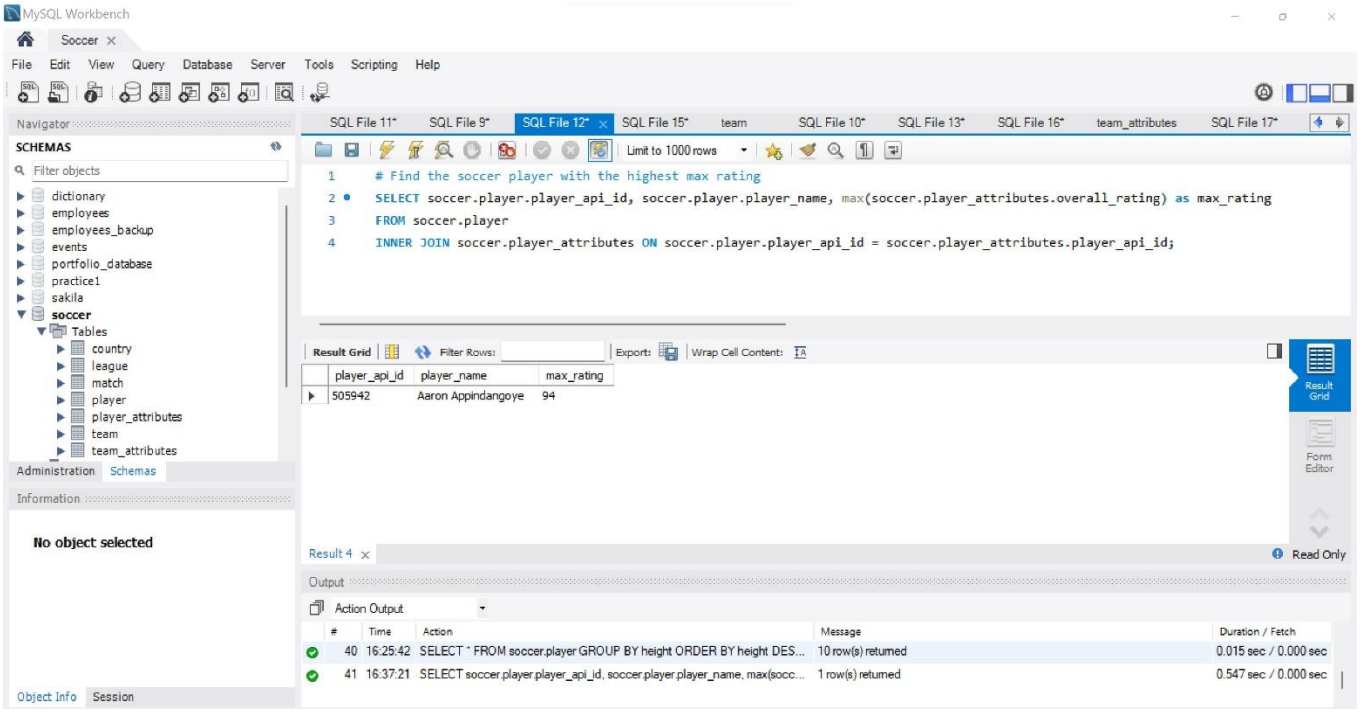
This table lists the ‘player’ table being sorted by the 10 tallest players in that table.



This screenshow shows the statement that combines two tables, player and player_attributes, joining together since they both have a column that's named player_api_id, and displays the player_api_id, player_name, and their overall_rating.



This screenshot shows the statement and the resulting grid that comes from trying to find the soccer player with the highest maximum overall rating from the database, combining the two tables player and player_attributes, since they both have a column with the same name player_api_id.



This screenshot shows the statement and the resulting grid that comes from trying to find the teams that have the highest defensive aggression rating and defensive pressure rating recorded in their games