CSCI X370 Database Management
Term Project Proposal

Group - **DB Injectors**

Title - **European Soccer Data Exploration and Prediction Using SQL**

Objective -

- To provide an interactive way of exploring statistical data involving soccer matches played from 2008 to 2016 in Europe.
- To be better at working with MySQL as a backend service.

Original Use-case/ Interaction - We will use the data from the soccer matches database to provide a prediction of who will win a given match between two teams.

Impact - Profession betters can use historical data (or use our own prediction logic) to better predict soccer matches.

Existing Applications - currently the database is just stored as an SQLite database and is not able to be interacted with, without downloading and installing the database yourself.

Schema -

Table	Total Rows	Total Columns	Columns
Country	11	2	id, name
League	11	3	id, country_id, name
Match	25979	100	id, country_id, league_id, season, stage, date, match_api_id, home_team_api_id, away_team_api_id, home_team_goal, away_team_goal, home_player_X1, home_player_X2, home_player_X3, home_player_X4, home_player_X5, home_player_X6, home_player_X7, home_player_X8, home_player_X9, home_player_X10, home_player_X11, away_player_X1, away_player_X2, away_player_X3, away_player_X4, away_player_X5, away_player_X6, away_player_X7, away_player_X8, away_player_X9, away_player_X10, away_player_X11, home_player_Y1, home_player_Y2, home_player_Y3, home_player_Y4, home_player_Y5, home_player_Y6, home_player_Y7, home_player_Y8, home_player_Y9, home_player_Y10, home_player_Y11, away_player_Y1, away_player_Y2, away_player_Y3, away_player_Y4, away_player_Y5, away_player_Y6, away_player_Y7, away_player_Y8, away_player_Y9, away_player_Y10, away_player_Y11, home_player_1, home_player_2, home_player_3, home_player_4, home_player_5, home_player_6, home_player_7, home_player_8, home_player_9, home_player_10, home_player_11, away_player_1, away_player_2, away_player_3, away_player_4, away_player_5, away_player_6, away_player_7, away_player_8, away_player_9, away_player_10, away_player_11, goal, shoton, shotoff, foulcommit, card, cross, corner, possession, B365H, B365D, B365A, BWH, BWD, BWA, IWH, IWD, IWA, LBH, LBD, LBA, PSH, PSD, PSA
Player	11060	7	id, player_api_id, player_name, player_fifa_api_id, birthday, height, weight
Player_Attributes	183978	42	id, player_fifa_api_id, player_api_id, date, overall_rating, potential, preferred_foot, attacking_work_rate, defensive_work_rate, crossing, finishing, heading_accuracy, short_passing, volleys, dribbling, curve, free_kick_accuracy, long_passing, ball_control, acceleration, sprint_speed, agility, reactions, balance, shot_power, jumping, stamina, strength, long_shots, aggression, interceptions, positioning, vision, penalties, marking, standing_tackle, sliding_tackle, gk_diving, gk_handling, gk_kicking, gk_positioning, gk_reflexes
Team	299	5	id, team_api_id, team_fifa_api_id, team_long_name, team_short_name
Team_Attributes	1458	25	id, team_fifa_api_id, team_api_id, date, buildUpPlaySpeed, buildUpPlaySpeedClass, buildUpPlayDribbling, buildUpPlayDribblingClass, buildUpPlayPassing, buildUpPlayPassingClass, buildUpPlayPositioningClass, chanceCreationPassing, chanceCreationPassingClass, chanceCreationCrossing, chanceCreationCrossingClass, chanceCreationShooting, chanceCreationShootingClass, chanceCreationPositioningClass, defencePressure, defencePressureClass, defenceAggression, defenceAggressionClass, defenceTeamWidth, defenceTeamWidthClass, defenceDefenderLineClass

System Architecture

Our application will consist of a web-based front end that will communicate with a java-based server connected to MySQL via JDBC as per the project guidelines. Our user interface will be constructed using Java server pages, HTML, CSS, and Javascript. Users will be able to query the database using various filters and options provided. The HTTP request is handled by a Java server that interprets the request, queries the database accordingly and returns the result back to the JSP page.

Conclusion

Our project will be to create a tool that will be useful in predicting outcomes for matches between different soccer teams based on their performance in previous games. We can do this by comparing statistics between the two teams from the European soccer teams database and using those to guess which team would win. The results of this comparison will then be displayed on our web-based front end. We believe that this tool will be useful for professional betters and also hold some entertainment value to compare sports fans' favorite teams.

Team members -

Members	*Responsibilities*
Piyush Subedi	Framework design + Dataset collection
Tung	(View) UI - Explorer view
Anthony Holevinski	(View) UI - Prediction view
Andrew	(Controller) Server - Handling HTTP requests
Farah	(Controller) Server - Handling DB interactions
Nathan,Robert	Query for match prediction

References

- Mathien, Hugo. "European Soccer Database." Kaggle, October 23, 2016. https://www.kaggle.com/hugomathien/soccer
- Rudov, Dima. "Data Analysis Using SQL." Kaggle. Kaggle, May 14, 2018. https://www.kaggle.com/dimarudov/data-analysis-using-sql.