

CPS 510 Lab 2 Report

Section 03

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Topic: World Cup Soccer DBMS

Background:

The FIFA World Cup is divided into two parts: Group stage and Knockout Bracket. This database system will simulate how the tournament is managed in both stages; tracking each team's goals, points, wins and losses. It will also track each player's goals, yellow cards and red cards.

Purpose:

The main purpose of this DBMS is to keep relevant data for each team and then use it to qualify to the knockout stage. After that relevant data would be used to track each team and its players' information. Furthermore at the end of the tournament, the winning team and the top scorer will be presented.

The DBMS will also provide stats and insight, such as Players (Goals, Assists, Yellow Cards, Red Cards, etc), Coaches, Match Fixtures, and past scores of each team or group. This will help the user keep track of their teams' and player stats.

Features:

Users that use this system will have many features incorporated into the program. The system will require the same inputs for both stages but will react to them differently depending on the stage. The teams in each Group would be displayed at the start of the program.

The system would return a date for each game, and during the game it would require some inputs:

1. Which Team scored
2. Who Scored it
3. What time was it scored
4. Who got a yellow card
5. Who got a red card

6. How many fouls by each team
7. How many corners by each team
8. Number of shots
9. Etc

Yellow and red cards would stay on the player's record for 2 games and 2 yellow cards are equivalent to one red card. They would still be available for the entirety of the tournament but will not be in effect after two matches.

Number of fouls, corners and shots does not affect the game but it is for analytics to break down the game.

These inputs are the same for every match in both stages. The difference between stages is how the system would use them.

The System will then pair each team such that every team has played a total of 3 matches and a total 6 matches are played in the whole group. If a team wins they get 3 points. If they tie they get one point and If they lose they get no points. These points add up and by the end of the group stage the system picks the first two teams with the most points in each group. It then randomly puts them in a knockout bracket.

During the knockout stage, If a team wins they go to the next round and if they lose they leave, except for the semi-finals where losers go to play for third place. And a tie would result in two 15 minute extra time periods and if the tie continues a penalty shootout happens.

During penalty shootouts, every team shoots 5 penalties and the one with more wins. If it is still a tie the first one to score and save wins. However, the system would open a new penalty window once the extra time is over, and it would track them itself then decide the winner based on the info inputted.

At the end of the tournament, the system would return the first three places and top Scorer.

Top Scorer will be returned by checking the stats collected throughout all matches and returns the player with the highest goals.

System would also have a delete button in case a referee decides to cancel a goal for various reasons such as offside, foul, etc.

How it works:

First time opening the application, it would welcome the user then load up all the matches that have not been played (Group Stage). Users would have to select a match to start inputting information into. The match information page would have buttons for red cards, yellow cards, and goals. Clicking on a button would open a dropdown list and a textbox. Dropdown list will have both team's names and the user would have to select the appropriate one then type the player's name, number and time of event in respective textboxes. If a red/yellow card button is pressed the player would be flagged and appropriate punishment would be served. Once the game ends the user would press the end match button and the program would give the appropriate points to each team.

For the knockout stage, the interface would be very similar except for when a tie happens the end match button would give a warning message saying a game cannot end on a tie and reminding the user there is still extra time and there could be penalties. There would be a go to penalties page where the user can enter how many penalties each team got and decides the winner on those.

Information can be edited as long as the end match button is not clicked, to prevent mis inputs and false goals.