**Requirements for Final Project**

**FUNCTIONALITY**

1. **What will the system do?**
   1. The application will simulate the FIFA World Cup based on a pool of 210 (current number) national teams
   2. Narrow down 210 teams into 32 teams that qualify for the world cup
      1. Each team has a ranking which corresponds to its total points (from FIFA database)
      2. Higher ranked teams have better chance of qualifying.
      3. Each confederation has the correct number of teams that qualify (ex: UEFA has 13 teams)
      4. Confederations with a half spot compete against one another as they do in the real world (CONMEBOL vs. OFC)
   3. The 210 teams are going to be distributed into 6 FIFA divisions, each having a certain number of spots allowed. The current allocations of regions:
      1. (CAF) Africa: 5
      2. (AFC) Asia: 4.5
      3. (UEFA) Europe: 13
      4. (CONCACAF) North and Central America, Caribbean: 3.5
      5. (OFC) Oceania: 0.5
      6. (CONMEBOL) South America: 4.5
      7. Host: 1 (Automatically qualify)
   4. After the qualifying teams (32) make it to the World Cup, they will go through several stages to determine the champion. The stages are groups, round of 16, quarter-finals, semi-finals, and finals.
      1. There will also be a game for the third place.
      2. In the first stage (groups) teams earn 3 points for winning, 1 point for a draw, and 0 for losing. The top two teams qualify to the next round. (Winner of a group is paired with a runner-up a different group)
      3. In case of a tie in a group, the tie is going to be solved according to
         1. First, scored goals difference.
         2. Second, goals for.
         3. Third, goals against.
         4. Finally, in case of a tie in all these, it will randomly select a team (the real world there are more conditions).
      4. After the groups stage, all games work on a knockout basis whoever wins moves to the next round immediately.
   5. There will be 3 tabs total.
      1. Tab for the list of teams
         1. The user can view all 210 national teams.
         2. View only the teams from that confederation/region.
         3. View the 32 teams that have qualified for the Cup.
         4. Search for a specific team based on name or country code.
      2. Tab for the group stage
         1. All groups are displayed using a table for each group.
            1. Tables have columns for country name, wins, draws, losses, goals against, goals for, goal difference, and points.
         2. Each group has a button for each team which will display a detailed report of the games that team has played.
      3. Tab for the knockout stage
         1. Displayed in bracket form where the winning team advances to the next available slot.
         2. Each displays information about itself and the games it has played up until that point (future games are not displayed)
2. **When will it do it?**
   1. The simulation will start when the user runs the application.
      1. Although everything is being simulated once the user hits “Start”, the user can display each round to reveal the winning teams (in knockout).
      2. User can hit “Reset” to run the simulation again, with different results.
   2. The user can interact with the simulation to see the results of games such as the score but also if it ended in overtime or penalty kicks (knockout only)
3. **What kind of computation or data transmission will be performed?**
   1. Team data (flag, logo, name, rank, confederation, total points, country code).
   2. Data about which teams qualified for the tournament.
   3. Data regarding matches and their results (score, how it ended).

**DATA**

1. **Must any data be retained?**
   1. Since this is purely a simulation no data needs to be retained after running the program.
2. **Can this system transfer to the cloud or on the web?**
   1. Currently this is an offline application.

**USABILITY**

1. **How easy must it be for the user to understand and use the system?**
   1. The UI should be clean and easy to use.
2. **What happens when the user …?**
   1. Launches the application.
      1. Greeted with a screen with a start button in the middle.
   2. Clicks on the teams tab.
      1. The relevant information is shown such as which teams came out of which region.
   3. Clicks on the groups tab.
      1. Data regarding each group is displayed.
   4. Clicks on the knockout tab.
      1. A bracket of the whole tournament is displayed including the 3rd place match.

**RELIABILITY AND AVAILABILITY**

1. **What should be saved and backed up?**
   1. A list of all 210 national teams with a ranking and rating
      1. Text file and images to display flags and backgrounds.

**PERFORMANCE**

1. **Constraints on execution speed, response time, or throughput?**
   1. The program should run quickly once it is launched, because there will only be data calculations happening in the backend of the program
      1. Expect a few seconds after pressing start button as all images are being loaded.
   2. The response time should be quick as well to make sure the user experience is the best
2. **How much data will flow through the system?**
   1. The only data that will flow through the systems is the information already stored in the program

**SUPPORTABILITY**

1. **When and in what ways might the system be changed in the future?**
   1. Information about the tournament such as who the host is
   2. Based on future World Cup tournaments, the program may need to allow a greater number of teams (FIFA World Cup 2026 is set to have 48 teams versus 32)
   3. Connect to an online database to determine rank and database for teams
   4. Increase number of national teams (went from 207 to 210)
   5. Properly center text and panes according to the user’s display

**FURPS+**

1. **Interface Requirements**
   1. A clean and simple UI that uses tabs to display either information about each stage in the world cup (excluding qualifications)
      1. Should be able to view groups and scores
   2. A brief explanation of on how to use the UI should be provided