[redacted]

1 Project Description

In this assignment there are 4 parts. For each part you should:

- Write the appropriate R code.
- Include comments within the code to explain the algorithm.
- Test the code to ensure its correctness.
- Format and structure the code to maximise its readability.

A report must be submitted containing a cover page, the solutions to each of the four parts, and your code, as a PDF, to the[redacted] The cover page must contain your name, student number, unit number and name, and the declaration below.

Submission is due by Friday of week 13. Late submissions will receive a 10% reduction in marks for each day late.

2 Marking Criteria

This assignment is worth 40% of the unit assessment tasks. There four problems to investigate and 10 marks available for each of the four problems. The marking criteria for each question is given in Table 1.

Criteria	Q1	Q2	Q3	Q4
Code Correctness (5 marks) Comments explaining code (2 marks) Code Testing (1 mark) Code Style and Readability (2 marks)				
Total (10 marks)				

Table 1: Marking criteria for each part of this project.

When writing the solutions to each of the four parts, make sure to consult the marking criteria and check that you have covered them. The project will be marked using this criteria.

3 Declaration

Before submitting the assignment, include the following declaration in a clearly visible and readable place on the cover page of your project report.

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By including this statement, we the authors of this work, verify that:

- We hold a copy of this assignment that we can produce if the original is lost or damaged.
- We hereby certify that no part of this assignment/product has been copied from any other student's work or from any other source except where due acknowledgement is made in the assignment.

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- No part of this assignment/product has been written/produced for us by another person except where such collaboration has been authorised by the subject lecturer/tutor concerned.
- We are aware that this work may be reproduced and submitted to plagiarism detection software programs for the purpose of detecting possible plagiarism (**which may retain a copy on its database for future plagiarism checking**).
- We hereby certify that we have read and understand what the School of Computing, Engineering and Mathematics defines as minor and substantial breaches of misconduct as outlined in the learning guide for this unit.

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Note: An examiner or lecturer/tutor has the right not to mark this project report if the above declaration has not been added to the cover of the report.

4 Project Tasks

The International Quidditch Federation (IQF) has contracted you to assist in their analysis and reporting of results. You have been provided the data file `competitionResults.csv` containing details of each match (the teams that played, which team caught the snitch, and each team's number of goals).

The IQF wants you to use the file to provide the needed four pieces of analysis below. The IQF also want to use your code for analysis of future data files.

1. Write the code to compute the total scored by each team for each match. Note that each goal is worth 10 points and the team that caught the snitch is awarded an extra 50 points. Run your code on the data and present the results in a table showing the season and round number, the match number (a new variable that identifies each match of the season), the home and away team names and their scores
2. The winner of each match is the team who has the highest score. Each team scores 3 points for a win and 1 point for a draw and the team with the most points at the end of the season is the season winner. Write the code to compute each team's points after the first 5 rounds of matches and the full season. Provide the results for a season in a table (two tables, one table for each set of results), ordering teams by their points (i.e. a results ladder). Pick the season who's last digit corresponds to your SID's final digit.
3. An investigation into home game advantage is planned for the coming months. Write a function that returns a count of the number of home games each team has had, the total number of games each team has played in, the total points scored in a home game and the total number of points the team has scored. Provide these results in a data frame. Run the function on the provided data and show the resulting table output.
4. Provide a table containing the team statistics for all seasons. Including, but not limited to the following: number of games, number of wins, winning percentage, points scored, points conceded, number of snitch catches, goals scored, number of tournament wins. Order the teams in terms of total points scored.

Write a PDF report containing your code and all required analysis and results. The report is being marked using the marking criteria, so make sure that each piece of analysis covers all of the criteria.