

# CS 451 Final Project: Summary and Logical Design

Zane Globus-O'Harra

*1 March 2023*

## 1 Summary

### 1.1 High Level Overview

The world that will be modeled will be a simplified version of a Formula 1 (F1) car-racing season. This will include the drivers, the teams the drivers are in, the races, and the results of those races.

### 1.2 Kinds of Data

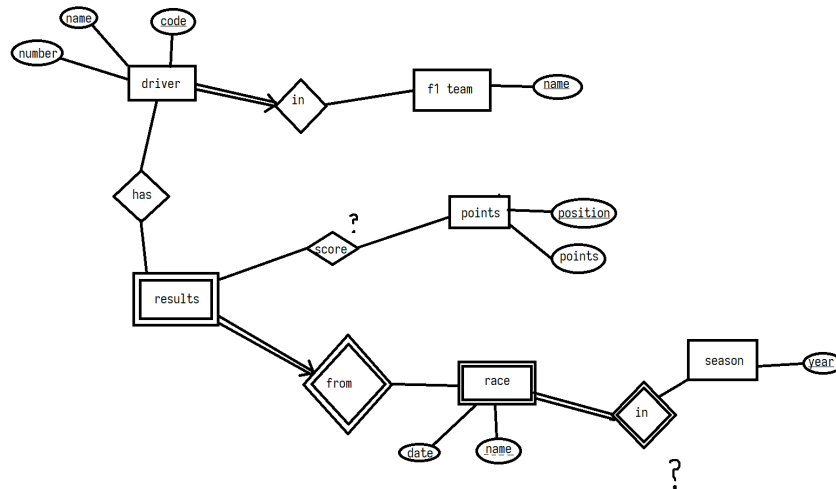
The kinds of data that will be stored will be about the drivers, the teams, and the results that those drivers receive in the races that they participate in. I'm not sure how in-depth you want me to go when discussing kinds of data, but I think that the high level overview and the ER diagram in the Logical Design section make it fairly clear the kinds of data that I will be keeping track of.

### 1.3 Application Programs

The application programs that are desired are a way to summarize the results in a season, and determine who was the champion for that season. I also want to look at the average results of each driver, and give a summary of their best and worst races in a season (if I add data for multiple seasons, then I will also be able to look at their results across their career).

Each team will have two drivers, and I will also have a way to look at the results of a team over a season (the team's results is the sum of the results of its drivers), and the results of that team over its tenure in F1.

## 2 Logical Design



There are two things that I am uncertain about with this diagram (note where the question marks are):

- (1) Points are awarded to each driver determined by the results of the race (i.e., the position in which they finish). However, it makes sense to have the “points” table be separate, because the number of points a driver receives depends on their position (e.g., first place always receives 25 points). I wasn’t sure what the proper Chen notation was to connect the points table to the results table (my confusion arose from the fact that the position is determined by where the driver finishes, and I didn’t know if the points table should bridge to the driver table, the results table, or both).
- (2) My second confusion arose from the proper notation with having a race in a season. As it currently stands, a race is owned by a season, the season having a primary key of “year”, and the race using the “year” foreign key and the race “name” partial key as its primary key. Each season can have a race in it only once (e.g., there can be only one Italian Grand Prix in the 2022 season), but a race can appear in multiple seasons (e.g., the Italian Grand Prix also took place in the 2021 season, 2020 season, and so on). I wasn’t sure what the proper notation for this would be.

## 3 Other Notes

By my count, my ER diagram comes out to 8 tables.