Java Domain and Attributes

Domain Formula 1

Formula One, also known as F1, is a single-seater auto racing competition which is considered the highest class of open-wheel motorsport. It was established in 1950 and is organized by the Fédération Internationale de l'Automobile (FIA). The competition consists of a series of races known as Grands Prix, held at various locations around the world.

F1 teams and drivers compete for two championship titles, one for the team and one for the driver. The cars used in Formula One are specially designed for speed and manoeuvrability and feature cutting-edge technology.

The current rules and regulations for F1 cars include specifications for engine size, aerodynamics, and weight. The racing is governed by a set of sporting and technical regulations set by the FIA.

Entities:

1. Driver – Name (String), Age (Int), Nationality (String), Races Won (Int), Podiums Taken (Int), Last Win (String), Fastest Laps (Int), Races Starts (Int), Debut Year (Float), Current Team (String).
2. Teams – Name (String), Headquarters (String), Team-Principal (String), Brand (String), Title Sponsors (String), Owners (String), Championships won (Int), Start Date (Date), Current drivers (String), No of team members (Int), car name (String), car model (String), engine used (String)
3. Circuits – Name (String), Length in Km, First Formula 1 race date, Owned or Managed By (String), Total Occupancy (Int), Highest Occupancy (Int), Fastest-Lap time, location (String), turns (Int), layout (String), designed by (String), Number of laps (Int).
4. Season – Year, races (String), calendar, driver champion (String), constructor champion (String), no of races held (Int), no of teams participated (Int), No of drivers (Int), drivers, teams (String), Winner present season (String), Fastest-Lap, date, car (String), laps completed (Int)
5. Engine Manufacturers – Name (String), Engine Type (String), Year, Powertrain Name (String), Buyers (String), Price, Country of origin (String), Reliability Issue Count (Int), Power Produced (Float), Fuel-Type (String)
6. Era
7. Standings – Year (Int), Driver’s Name (String), Team Name (String), Points (Int), positions (Int), Powertrain (String), Car Name (String)
8. Championship – Year (Int), Winner (String), Driver Champion (String), Teams Winner (String), laps completed (Int), Most reliable team (String), most reliable driver (String), highest DNF’s (String)
9. Tyre partner – Name (String), Year (Int), Types of Compounds used (String), Compounds available (String)

10. Sponsors – Sponsor Name (String), Sponsor Type (String), Brand Type (String), Owner of the brand (String), Sponsored Amount (Int)

11. Regulations Changed – Regulation Name (String), Regulation Year (Int), Regulation Type (String), Regulation Motives (String), Changes Done in?

Details About the Entities

1. Driver

As formula 1 includes cars, we need a professional driver who has lots of training and experience to drive that as well.

2. Teams

Formula 1 is a competition, we have teams who compete in the championships

Each team have their own brand to promote and will have their funding also generated from that itself.

3. Circuits

Formula 1 is held in various circuits in different countries across the globe

Circuits can be street and track based as well

4. Season

A formula 1 season is all he races which take place in that particular year.

It normally starts in the march of every year and end in December.

5. Engine of the cars play crucial role. Teams who participate in the competition can manufacture their own engines or buy from someone else.

Teams who can’t manufacture buy it from other manufacturers. Notable manufacturers have been Mercedes Benz, Ferrari, Honda, Renault Etc

7. Standings Provides all the details about the drivers like points, standings , driver wins, team wins etc

It gives information of the current and old championship details.

8. Championship provides details about one more year details.

Ideally the information and infographics about the driver and constructor championship winner and other statistical analysed data

9. Tyre plays another important role as the cars regardless of how much fast they are they have to rely only on four tyres.

There are tyre manufacturers who supply and sponsor 1000’s of tyres every year to the teams

10. Sponsors are the important part in any sports business.

And there area lot of sponsors for formula 1 like tyre, official sponsors how sponsor on the basis on their budget.

11. Regulations are the changes done to the adopted technology and methodology to bring changes with the teams. Regulation changes are made to make the champion nship challenging for the teams or to bring some environmental concerns as changes

Driver

|  |  |  |
| --- | --- | --- |
| Attributes | Datatype | Explanation |
| Name | String | Name of the driver |
| Driver Number | Int | Number of the driver given by governing bodies ([e](https://www.fia.com/)) |
| Age | Int | Age of the driver |
| Nationality | String | Nationality of driver |
| Podiums Taken | Int | Top 3 Qualified |
| Last Win | String | Latest Win Before the present race |
| Fastest Laps | Int | No of times fastest times being recorded |
| Debut Year | Int | Started year in F1 |
| Current Team | String | Present team driving for |
| Race Starts | Int | No of races taken place in |

Team

|  |  |  |
| --- | --- | --- |
| Attributes | Datatype | Explanation |
| Name | String | Name of the Team |
| Headquarters | String | Team Headquarters located Country |
| Team-Principal | String | Team CEO Name |
| Brand | String | Representing Brand for example Mercedes Benz, Red-bull, Ferrari |
| Championships won | Int | No of Championships won till date |
| Years Participated | Int | Total No years competed in formula 1 |
| Title Sponsors | String | Title sponsors will be main sponsors whose name is included with the team name till they stay and pay |
| Owners | String | Team owner’s names |
| Car Model | String | Different car each year name and model |
| Current Drivers | String | Two drivers may change every season or no |
| Engine used | String | Engine Brand Used |

Circuits

|  |  |  |
| --- | --- | --- |
| Attributes | Datatype | Explanation |
| Name of the Circuit | String | Name of the driver |
| Year | Int | Present Year |
| First Formula 1 Race | Int | Debut race of f1 |
| Owned or Managed By | String | Owners or Association Name owning the track |
| Total Occupancy | Int | Total No people can fit in the circuit during races |
| Highest Occupancy | Int | Record of highest Occupancy |
| Turns/ Corners | Int | No of turns present |
| Designed By | String | Circuits are designed by Designers and Their name for legacy |
| Country | String | Country in which circuits is located |
| Number of laps | Int | Number of laps driven according to year |
| Fastest-Lap time Driver Time | String | Time of the driver holding fastest lap record |
| Fastest-Lap time Driver Name | String | Name of the driver holding fastest lap record |

Season

|  |  |  |
| --- | --- | --- |
| Attributes | Datatype | Explanation |
| Year | Int | Year of the season |
| Races | String | Races by their names |
| Calendar | String | Calendar of Races took place |
| Driver champion | String | Name of the driver champion of the year |
| Constructor champion | String | Team who won name |
| No of races held | Int | Total of races held, varies yearly |
| No of teams participated | Int | No of teams participated |
| No of drivers | Int | No of drivers change as team changes |
| Drivers Names | String | Name of the drivers |
| Team Names | String | Name of the teams |

Engine Manufacturers Data

|  |  |  |
| --- | --- | --- |
| Attributes | Datatype | Explanation |
| Name | String | Name of the Engine Manufacturer |
| Engine Type | String | Engine have types based on their technology and based on number of cylinders and their alignments |
| Technology Name | String | Technology used in Engine |
| Buyers | String | Buyers of that engine |
| Brand | String | Brand who sells Engine |
| Price | Int | Price Approximation |
| Country of origin | String | Manufacturer Country |
| Reliability Issue Count | Int | No of times Engine Broke Down |
| Power Produced | Double | Power Produced, horsepower, torque, top speed |
| Fuel-Type | String | Fuel Type Used |
| Year | Int | Which Year used |

Standings

|  |  |  |
| --- | --- | --- |
| Attributes | Datatype | Explanation |
| Year | Int | Year |
| Drivers Name | String | Name of the Driver |
| Drivers Points | Float | Points of the drivers |
| Teams Name | String | Team Name |
| Team Points | Float | Team Points |
| Powertrain Name | String | Engine Using |
| Positions | String | Positions in the leader board present |
| Car Name | Int | Car using Name |
| Car Number | Int | Car Number |
| Races Won | Int | Total Number of races Won |
| Podiums | Int | Total No of times came Qualified top 3 in Qualifier |

Championship

|  |  |  |
| --- | --- | --- |
| Attributes | Datatype | Explanation |
| Drivers Name | String | Name of the Driver |
| Drivers Points | Float | Points of the drivers |
| Teams Name | String | Team Name |
| Team Points | Float | Team Points |
| Driver Winner Name | String | Driver Championship Winner |
| Team Winner Name | String | Constructor Championship Winner Name |
| Max Laps Completed Driver Name | String | Max Number of laps  Completed Driver in the year |
| Most Reliable Team | String | Team with low Did not finish’s |
| Most Reliable Driver | String | Driver with low DNF’s |
| Max DNF Team | String | Team with HIGH Did not finish’s |
| Max DNF Driver | String | Driver with IGH DNF’s |

Tyre partner

|  |  |  |
| --- | --- | --- |
| Tyre Name | String | Name of the driver |
| Tyre Code | String | Every tyre has a name and code |
| Year | Int | Year of the tyre |
| Compound Used | String | Age of the driver |
| Compound Made | String | Nationality of driver |
| Circuit | String | Tyres used by the circuits |
| No of tyres Supplied | Int | Total no of tyres supplied that year |
| Tyre Size | Float | Size of the wheel used that year |
| Tyre Made Of | String | Tyres compounds made up of. Example Rubber, Polythene Etc |

SPONSORS

|  |  |  |
| --- | --- | --- |
| Sponsor Name | String | Name of the driver |
| Sponsor Type | String | Sponsors will be a lot of types like Title sponsor, or only one race sponsor, official sponsor etc |
| Brand Type | String | Brand category based on their business. |
| Owner of the Brand | String | Owners of the brand |
| Market Value | String | Market value of the brand |
| Deal Amount | Int | Deal Amount Agreement |
| Total Years in F1 | Int | Total years in F1 |

REGULATIONS

|  |  |  |
| --- | --- | --- |
| Regulation Name | String | Regulation Name |
| Year | String | Every year there are new rules and Regulations set by FIA(  [Federation Internationale de l'Automobile](https://www.fia.com/)  ) The Governing body |
| Regulation Type | String | Regulations can be technical or financial to increase difficulty for the teams |
| Regulation Motives | String | Regulations are brought to Reduce fuel consumption and Pollution. Mainly there are motives behind every change |

OUTCOME:

This application will be used by people organisations to keep track of points, positions and other data regarding the races taken place.

This application aims to keep periodic data so that one can go back in time and look at the points back then.

This application aims to provide both technical and economical data about the teams and drivers which can be used for various analysis