

Project Unit 5: Database management

Think of a web application that you would like to create.

In this unit you will only create some of the functionalities as the time is very limited. Now we will focus on the database management and the web pages.

In the next unit we will add sessions.

Requirements of the project:

- Create a new database and a new user with privileges to manage only that database.
- Create at least two tables that are related through a foreign key.
- Use classes. Separate the code that accesses the database (no GUI interaction) from the code that corresponds to the GUI.
- All must be written in English.

1. Describe your application.

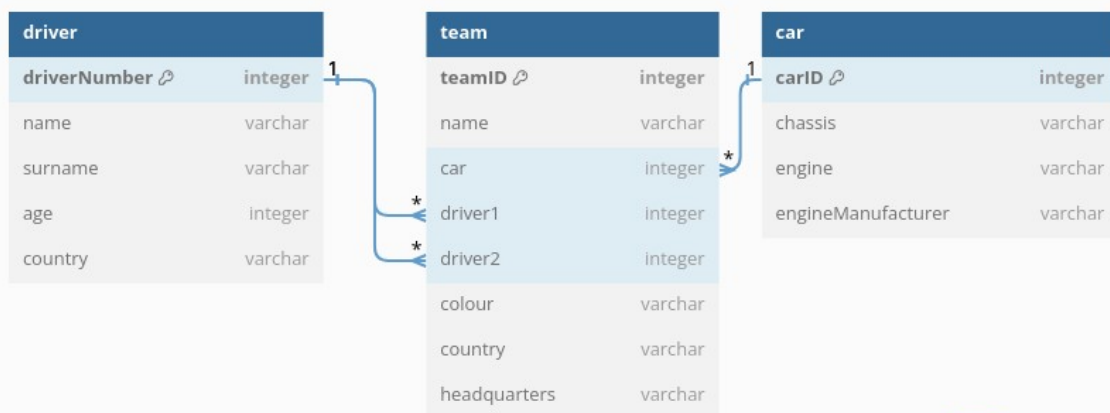
My application is a database manager for Formula1. It will store the attributes of drivers, teams and cars.

For that I will create three classes, one for cars, one for drivers and another for teams, each with its unique attributes.

Then, I will need a database manager class, which will be tasked with interacting with the database.

Finally, there will be a GUI from which to interact with the whole program.

2. Database design.



3. GUI design.

DRIVERS TEAMS CARS						
Team	Car	Drivers	Country	Base	ADD	
Red Bull Racing	RB17B	#1 Ver #11 Per	UK	Milton Keynes	DEL	
Mercedes	W14	#44 Ham #63 Rus	Germany	Brackley	EDIT	
Ferrari	SF75	#16 Lec #55 Sai	Italy	Maranello		

This GUI will have a top menu with three buttons that will display all of the data about them.

In my drawing the selected button is teams, therefore showing the data from each of them.

On the right there will be buttons to add, delete or modify the current displayed table, in this case, teams.

4. Create the database.

(The script is inside the .zip)

5. Create the classes that interact with the database.

(Inside the .zip as well)

6. Create the GUI.

Drivers

Display:

F1 Manager

Drivers

Teams

Cars

Drivers

Number	Name	Age	Country
1	Max Verstappen	26	Netherlands
2	Logan Sargeant	22	United States
3	Daniel Ricciardo	34	Australia
4	Lando Norris	23	UK
10	Pierre Gasly	27	France
11	Sergio Perez	33	Mexico
14	Fernando Alonso	42	Spain
16	Charles Leclerc	26	Monaco
18	Lance Stroll	25	Canada
20	Kevin Magnussen	31	Denmark
22	Yuki Tsunoda	23	Japan
23	Alex Albon	27	Thailand
24	Zhou Guanyu	24	China
27	Nico Hulkenberg	36	Germany
31	Esteban Ocon	27	France
44	Lewis Hamilton	38	UK
55	Carlos Sainz	38	Spain
63	George Russell	25	UK
77	Valtteri Bottas	34	Finland
81	Oscar Piastri	22	Australia

Add

Update

Delete

Add:

F1 Manager

Drivers

Teams

Cars

Add a driver

Number:

5

Name:

Surname:

Age:

Country:

Add driver

Add

Update

Delete

Driver successfully added!

Update:

F1 Manager

Drivers

Teams

Cars

Update a driver

Number: 1

Name:

Surname:

Age:

Country:

Update driver

Add

Update

Delete

Delete:

F1 Manager

Drivers

Teams

Cars

Delete a driver

Driver to delete:

Delete driver

1. Max Verstappen

2. Logan Sargeant

3. Daniel Ricciardo

4. Lando Norris

5. Sebastian Vettel

10. Pierre Gasly

11. Sergio Perez

14. Fernando Alonso

16. Charles Leclerc

18. Lance Stroll

20. Kevin Magnussen

22. Yuki Tsunoda

23. Alex Albon

24. Zhou Guanyu

27. Nico Hulkenberg

31. Esteban Ocon

44. Lewis Hamilton

55. Carlos Sainz

63. George Russell

77. Valtteri Bottas

Add

Update

Delete

Teams

Display:

F1 Manager

Drivers

Teams

Cars

Teams

Colour	Name	Country	Headquarters	Car	Drivers
	Alfa Romeo	Switzerland	Hinwil	Alfa Romeo C43	77. Valtteri Bottas 24. Zhou Guanyu 22. Yuki Tsunoda
	Alpha Tauri	Italy	Faenza	Alpha Tauri AT04	3. Daniel Ricciardo 10. Pierre Gasly
	Alpine	France	Enstone	Alpine A523	31. Esteban Ocon
	Aston Martin	UK	Silverstone	Aston Martin AMR23	14. Fernando Alonso 18. Lance Stroll
	Ferrari	Italy	Maranello	Ferrari SF-23	16. Charles Leclerc 55. Carlos Sainz
	Haas	USA	Kannapolis	Haas VF-23	20. Kevin Magnussen
	McLaren	UK	Woking	McLaren MCL60	27. Nico Hulkenberg 4. Lando Norris
	Mercedes	Germany	Brackley	Mercedes F1 W14	81. Oscar Piastri 44. Lewis Hamilton
	Red Bull	Austria	Milton Keynes	Red Bull RB19	63. George Russell 1. Max Verstappen
	Williams	UK	Grove	Williams FW45	11. Sergio Perez 2. Logan Sargeant 23. Alex Albon

Add

Update

Delete

Add:

F1 Manager

Drivers

Teams

Cars

Add a team

Name:

Colour:

Country:

Headquarters:

Driver 1:

Driver 2:

Car:

Add team

Max Verstappen

Logan Sargeant

Daniel Ricciardo

Lando Norris

Sebastian Vettel

Pierre Gasly

Sergio Perez

Fernando Alonso

Charles Leclerc

Lance Stroll

Kevin Magnussen

Yuki Tsunoda

Alex Albon

Zhou Guanyu

Nico Hulkenberg

Esteban Ocon

Lewis Hamilton

Carlos Sainz

George Russell

Add

Update

Delete

Update:

F1 Manager

Drivers

Teams

Cars

Update a team

Team to update:

Name:

Alfa Romeo

Colour:

Country:

Headquarters:

Driver 1:

Driver 2:

Car:

Update team

Add

Update

Delete

Delete:

F1 Manager

Drivers

Teams

Cars

Delete a team

Team to delete:

Delete team

Alfa Romeo

Add

Update

Delete

Cars

Display:

F1 Manager

Drivers

Teams

Cars

Cars

Chassis	Engine Manufacturer	Engine
Alfa Romeo C43	Ferrari	Ferrari 066/10
Alpha Tauri AT04	Honda RBPT	Honda RBPTH001
Alpine A523	Renault	Renault E-Tech RE23
Aston Martin AMR23	Mercedes	Mercedes-AMG F1 M14
Ferrari SF-23	Ferrari	Ferrari 066/10
Haas VF-23	Ferrari	Ferrari 066/10
McLaren MCL60	Mercedes	Mercedes-AMG F1 M14
Mercedes F1 W14	Mercedes	Mercedes-AMG F1 M14
Red Bull RB19	Honda RBPT	Honda RBPTH001
Williams FW45	Mercedes	Mercedes-AMG F1 M14

Add

Update

Delete

Add:

F1 Manager

Drivers

Teams

Cars

Add a car

Chassis:

Engine:

Engine manufacturer:

Add car

Add

Update

Delete

Update:

F1 Manager

Drivers

Teams

Cars

Update a car

Car to update:

Alfa Romeo C43

Chassis:

Engine:

Engine manufacturer:

Update car

Add

Update

Delete

Delete:

F1 Manager

Drivers

Teams

Cars

Delete a car

Car to delete:

Alfa Romeo C43

Delete car

Add

Update

Delete

Project score:

- GUI design: aspect, clarity and easy to navigate.
- Originality and innovation
- Complexity
- Clarity, modularization and organization of the code, using comments where necessary.
- Security against possible hacking.
- Error control.

How to submit the project:

You must include:

- pdf file with the design.
- Source files of the application.

Create a .zip with your name and upload it through the corresponding link in "mestre".