



CENG241
OBJECT ORIENTED
PROGRAMMING

Vehicle Gallery System

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Program Language:C++

Main Programs Name: Vehicle Gallery System

IDE: Qt Creator

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1. Introduction :

Vehicle gallery system is a software that providing businesses to add, delete and update cars and motorcycles to the system.

1.1 Purpose :

With this software, vehicle gallery businesses will be able to track the vehicles coming to their stores more easily.

With the simple appearance of the system, they can easily add, delete, or update their information about the cars and motorcycles they have.

In addition, they can calculate the cost of these vehicles according to the kilometers they travel.

1.2 Scope:

This software includes features that accelerate and facilitate the operations of the business that will use it.

2. DESING :

2.1 Approach :

This software is at a level that meets the services of a vehicle gallery. It makes it easier to keep track of vehicle information.

2.2System :

When the program starts, the login screen opens.

The login screen of the program is as in the figure.

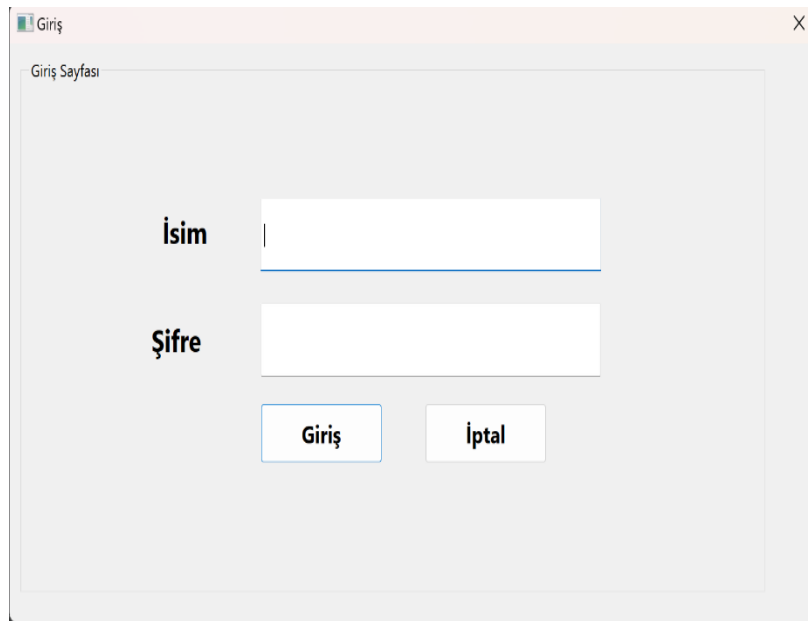


Figure 1. Login Page

If the username or password is entered incorrectly on the login screen, the following error screen will be shown.

The error screen of the program is as in the figure.

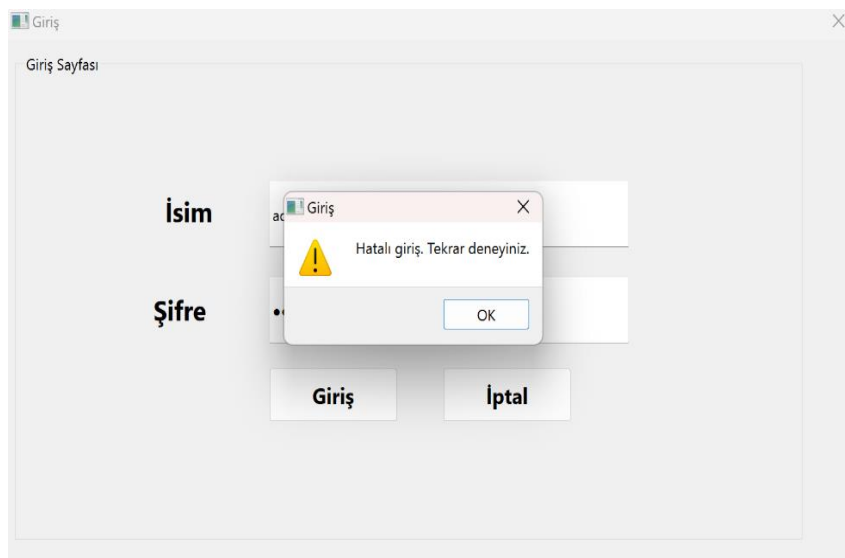


Figure 2. Login Error Page

When you enter Name: admin and Password: admin on the login screen, the following window opens.

The entrance screen of the program is as in the figure

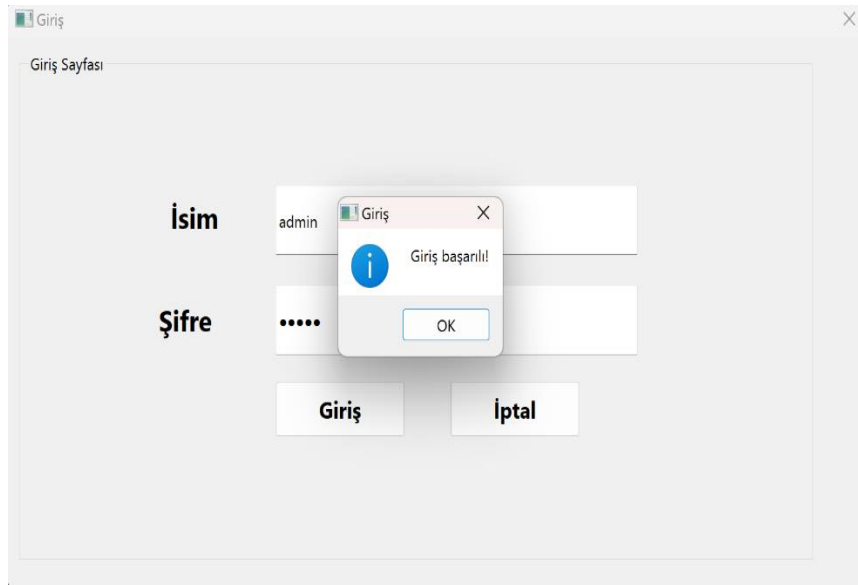


Figure 3. Login login Successful Page

After entering the username and password correctly, the vehicle selection screen appears. Here we choose which type of vehicle we want to process. The vehicle selection screen is as follows.

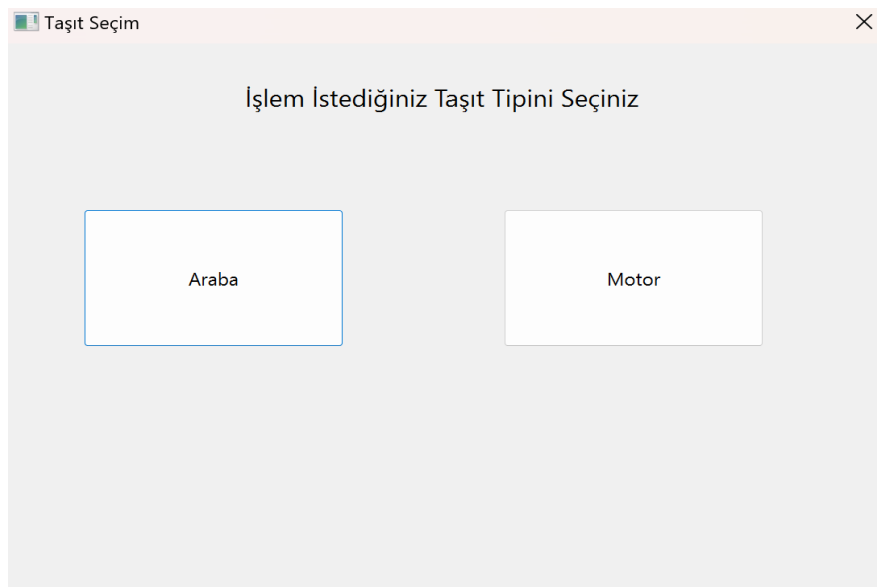


Figure 4. Vehicle Selection Page

When we click on the car button, the car registration screen appears.

Here, we first enter the car's information into the relevant fields, including brand, model, year, gear and engine. And when we select the gear, fuel type and color information and click on the add button, our car will be added to the list.

The screenshot shows a Windows application window titled 'Araba Kayıt'. The form contains the following elements:

- Marka: Text input field.
- Model: Text input field.
- Yıl: Text input field.
- Vites: Dropdown menu with 'Otomatik' selected.
- Yakıt Tipi: Dropdown menu with 'Benzin' selected.
- Motor: Text input field.
- Renk: Dropdown menu with 'Beyaz' selected.
- Yakıt Tüketimi Hesaplama: A sub-form with 'Kilometre' and 'Tüketim' text input fields, and a 'Hesapla' button.
- Table: A table with 7 columns: Marka, Model, Yıl, Vites Tipi, Yakıt Tipi, Motor Gücü, Renk. The table is currently empty.
- Buttons: 'Ekle', 'Sil', and 'Güncelle' buttons at the bottom.

Figure 5. Car Registration Screen 1

Here we can choose the gear that belongs to the car among the gear options.

This screenshot is identical to Figure 5, but the 'Vites' dropdown menu is open, showing the following options:

- Otomatik
- Otomatik
- Manuel
- Yarı Otomatik

Figure 6. Car Registration Screen 2

Here we can choose the fuel type for the car among the fuel type options.

Araba Kayıt

Marka:

Model:

Yıl:

Vites:

Motor:

Renk:

Yakıt Tipi:

Yakıt Tüketimi Hesaplama

Kilometre:

Tüketim:

Hesapla

Marka	Model	Yıl	Vites Tipi	Yakıt Tipi	Motor Gücü	Renk
-------	-------	-----	------------	------------	------------	------

Ekle Sil Güncelle

Figure 7. Car Registration Screen 3

Here we can choose the one that belongs to the car among the color options.

Araba Kayıt

Marka:

Model:

Yıl:

Vites:

Motor:

Renk:

Yakıt Tipi:

Yakıt Tüketimi Hesaplama

Kilometre:

Tüketim:

Hesapla

Marka	Model	Yıl	Vites Tipi	Yakıt Tipi	Motor Gücü	Renk
-------	-------	-----	------------	------------	------------	------

Ekle Sil Güncelle

Figure 8. Car Registration Screen 4

After entering the information of the vehicles we want into the required fields and clicking the add button, the vehicles will be added to the list.

The screenshot shows the 'Araba Kayıt' (Car Registration) window. It features a form with the following fields: Marka (Brand), Model, Yıl (Year), Vites (Gear), Yakıt Tipi (Fuel Type), Motor (Engine), and Renk (Color). The 'Yakıt Tüketimi Hesaplama' (Fuel Consumption Calculation) section includes 'Kilometre' (Kilometer) and 'Tüketim' (Consumption) fields, along with a 'Hesapla' (Calculate) button. Below the form is a table of registered cars with columns: Marka, Model, Yıl, Vites Tipi, Yakıt Tipi, Motor Gücü, and Renk. The table contains five entries. At the bottom are three buttons: 'Ekle' (Add), 'Sil' (Delete), and 'Güncelle' (Update).

	Marka	Model	Yıl	Vites Tipi	Yakıt Tipi	Motor Gücü	Renk
1	Bmw	5.20i	2017	Otomatik	Benzin	170hp	Siyah
2	Honda	Civic DTEC	2018	Otomatik	Dizel	120hp	Beyaz
3	Toyota	Corolla	2020	Otomatik	Hybrid	122hp	Gri
4	Volkswagen	Scirocco1.4 TSi	2013	Yarı Otomatik	Benzin	160hp	Mavi
5	Fiat	Egea	2023	Manuel	Gaz	95hp	Kırmızı

Figure 9. Car Registration Screen 5

If the vehicle information is to be updated, click on the desired line, change the information in the field above and click on the update button.

The screenshot shows the 'Araba Kayıt' (Car Registration) window with the form updated. The 'Marka' field is set to 'Volkswagen', 'Model' to 'Passat', 'Yıl' to '2019', 'Vites' to 'Yarı Otomatik', and 'Yakıt Tipi' to 'Dizel'. The 'Motor' field is set to '120hp' and 'Renk' to 'Gri'. The 'Yakıt Tüketimi Hesaplama' section remains the same. In the table, the fifth row (Fiat Egea) is highlighted with a blue background. The 'Güncelle' (Update) button at the bottom right is also highlighted in blue.

	Marka	Model	Yıl	Vites Tipi	Yakıt Tipi	Motor Gücü	Renk
1	Bmw	5.20i	2017	Otomatik	Benzin	170hp	Siyah
2	Honda	Civic DTEC	2018	Otomatik	Dizel	120hp	Beyaz
3	Toyota	Corolla	2020	Otomatik	Hybrid	122hp	Gri
4	Volkswagen	Scirocco1.4 TSi	2013	Yarı Otomatik	Benzin	160hp	Mavi
5	Fiat	Egea	2023	Manuel	Gaz	95hp	Kırmızı

Figure 10. Car Registration Screen 6

After clicking the update button, the following image appears.

The screenshot shows the 'Araba Kayıt' application window. It features input fields for 'Marka', 'Model', 'Yıl', 'Vites', 'Yakıt Tipi', 'Motor', and 'Renk'. A 'Yakıt Tüketimi Hesaplama' (Fuel Consumption Calculation) section includes 'Kilometre' and 'Tüketim' fields with a 'Hesapla' button. Below these is a table with 5 rows of car data. The 5th row is highlighted in blue, and the 'Güncelle' (Update) button is highlighted in blue.

	Marka	Model	Yıl	Vites Tipi	Yakıt Tipi	Motor Gücü	Renk
1	Bmw	5.20i	2017	Otomatik	Benzin	170hp	Siyah
2	Honda	Civic DTEC	2018	Otomatik	Dizel	120hp	Beyaz
3	Toyota	Corolla	2020	Otomatik	Hybrid	122hp	Gri
4	Volkswagen	Scirocco1.4 TSi	2013	Yarı Otomatik	Benzin	160hp	Mavi
5	Volkswagen	Passat	2019	Yarı Otomatik	Dizel	120hp	Gri

Figure 11. Car Registration Screen 7

If we want to delete a vehicle, we select the row with the vehicle and click the delete button.

The screenshot shows the 'Araba Kayıt' application window. The input fields are now populated with the data from the 5th row of the table: 'Marka: Volkswagen', 'Model: Passat', 'Yıl: 2019', 'Vites: Yarı Otomatik', 'Yakıt Tipi: Dizel', 'Motor: 120hp', and 'Renk: Gri'. The 'Güncelle' button is now disabled. The 'Sil' (Delete) button is highlighted in blue.

	Marka	Model	Yıl	Vites Tipi	Yakıt Tipi	Motor Gücü	Renk
1	Bmw	5.20i	2017	Otomatik	Benzin	170hp	Siyah
2	Honda	Civic DTEC	2018	Otomatik	Dizel	120hp	Beyaz
3	Toyota	Corolla	2020	Otomatik	Hybrid	122hp	Gri
4	Volkswagen	Scirocco1.4 TSi	2013	Yarı Otomatik	Benzin	160hp	Mavi
5	Volkswagen	Passat	2019	Yarı Otomatik	Dizel	120hp	Gri

Figure 12. Car Registration Screen 8

After clicking the delete button, the vehicle is deleted from the list.

	Marka	Model	Yıl	Vites Tipi	Yakıt Tipi	Motor Gücü	Renk
1	Bmw	5.20i	2017	Otomatik	Benzin	170hp	Siyah
2	Honda	Civic DTEC	2018	Otomatik	Dizel	120hp	Beyaz
3	Toyota	Corolla	2020	Otomatik	Hybrid	122hp	Gri
4	Volkswagen	Scirocco1.4 TSi	2013	Yarı Otomatik	Benzin	160hp	Mavi

Figure 13. Car Registration Screen 9

When we enter the kilometers traveled by the vehicle in the fuel consumption field and click on the calculate button, it shows us how much fuel we spent in TL.

Yakıt Tüketimi Hesaplama

Kilometre 100

Hesapla

Tüketim 500 ₺

Figure 14. Car Registration Screen 10

When we finish our operations here, we return to the main menu by clicking the cross button on the top right.

If we are going to perform operations for the motorcycle from here, we click on the this button.

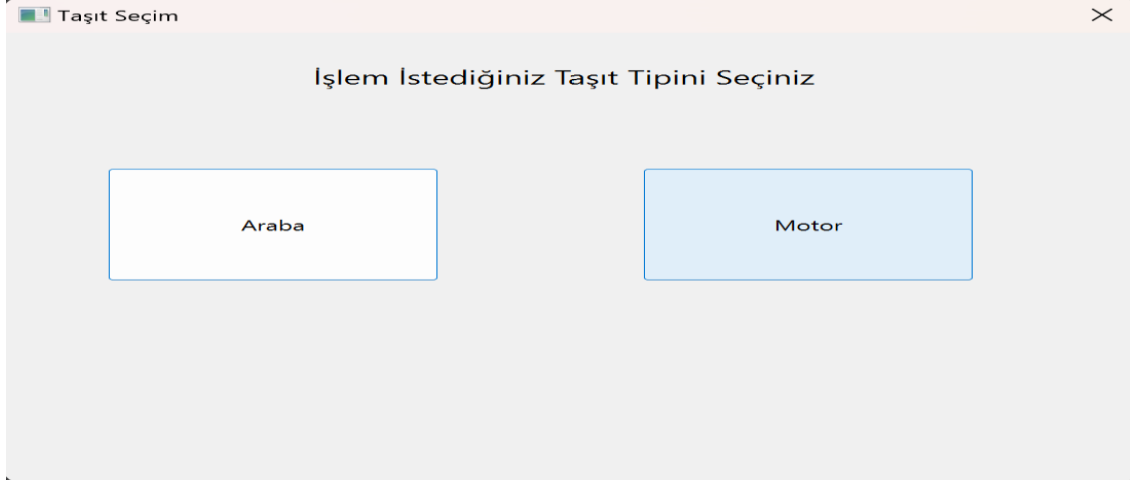


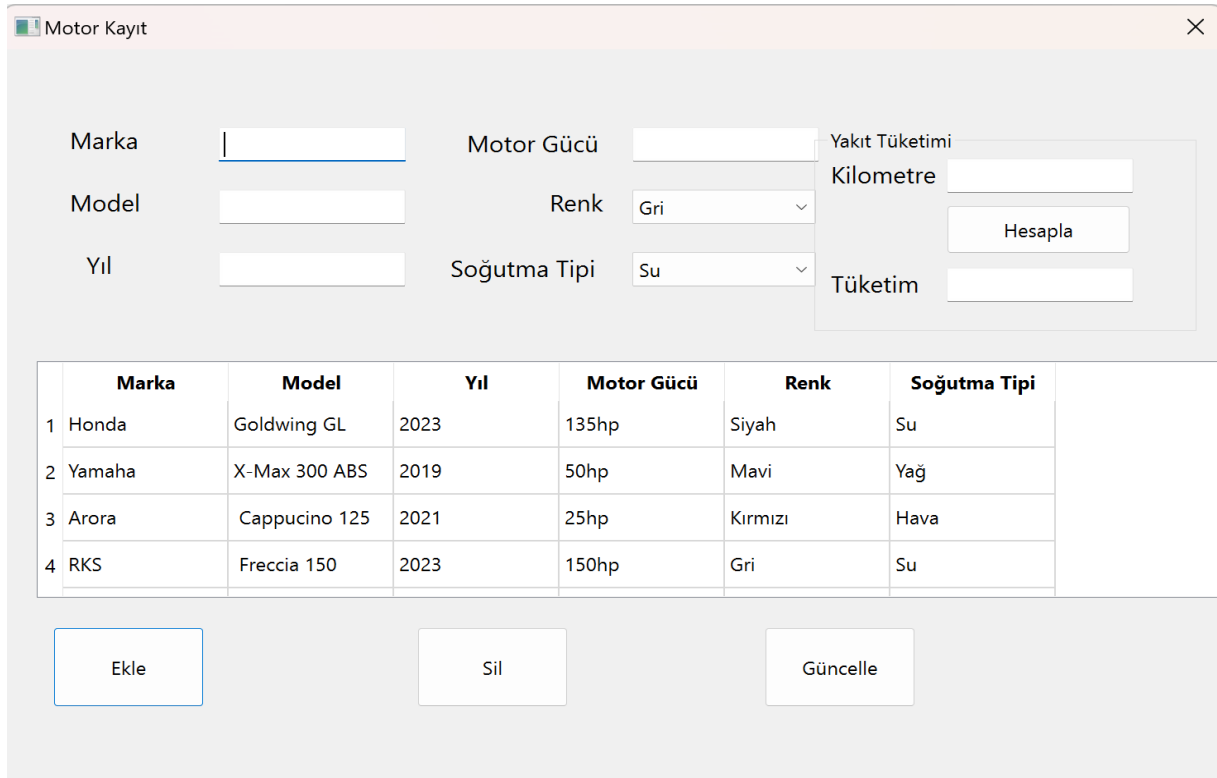
Figure 15. Vehicle Selection Page 2

This following window opens for motorcycle operations

Here we can do the same for motorcycles as we did for cars. Add, delete and update operations work the same way.

Marka	Model	Yıl	Motor Gücü	Renk	Soğutma Tipi
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Figure 16. Motorcycle Registration Screen 1



Motor Kayıt

Marka Motor Gücü Yakıt Tüketimi

Model Renk Kilometre

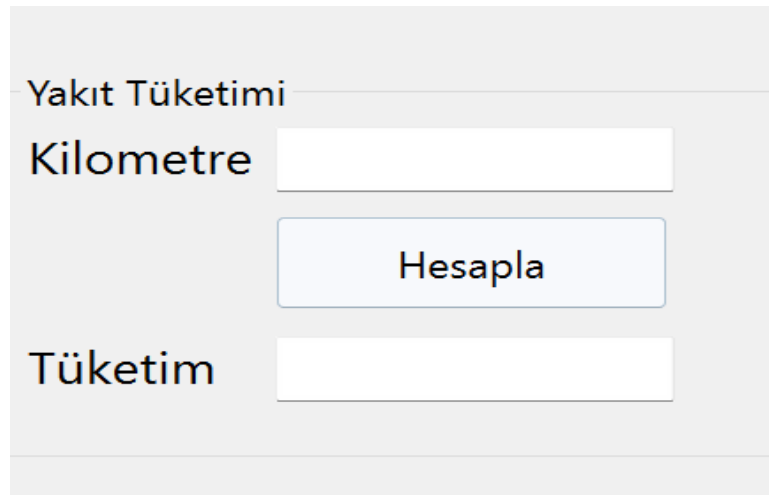
Yıl Soğutma Tipi

Tüketim

	Marka	Model	Yıl	Motor Gücü	Renk	Soğutma Tipi
1	Honda	Goldwing GL	2023	135hp	Siyah	Su
2	Yamaha	X-Max 300 ABS	2019	50hp	Mavi	Yağ
3	Arora	Cappucino 125	2021	25hp	Kırmızı	Hava
4	RKS	Freccia 150	2023	150hp	Gri	Su

Figure 17. Motorcycle Registration Screen 2

In the fuel consumption calculation section, it makes a different calculation than for cars and finds the fuel consumed in TL for the motorcycle.



Yakıt Tüketimi

Kilometre

Tüketim

Figure 18. Motorcycle Registration Screen 3

When we are done with our operations here, we can close our program by pressing the cross buttons on the top right.

2.3 System Design:

In the system, the vehicle class is the parent of the car and bike classes. There is an inheritance relationship between them. This system has data encapsulation. In the main system, the user is guided by 2 operations. and there are many options within these two options. The class diagram representation of the software is as follows:

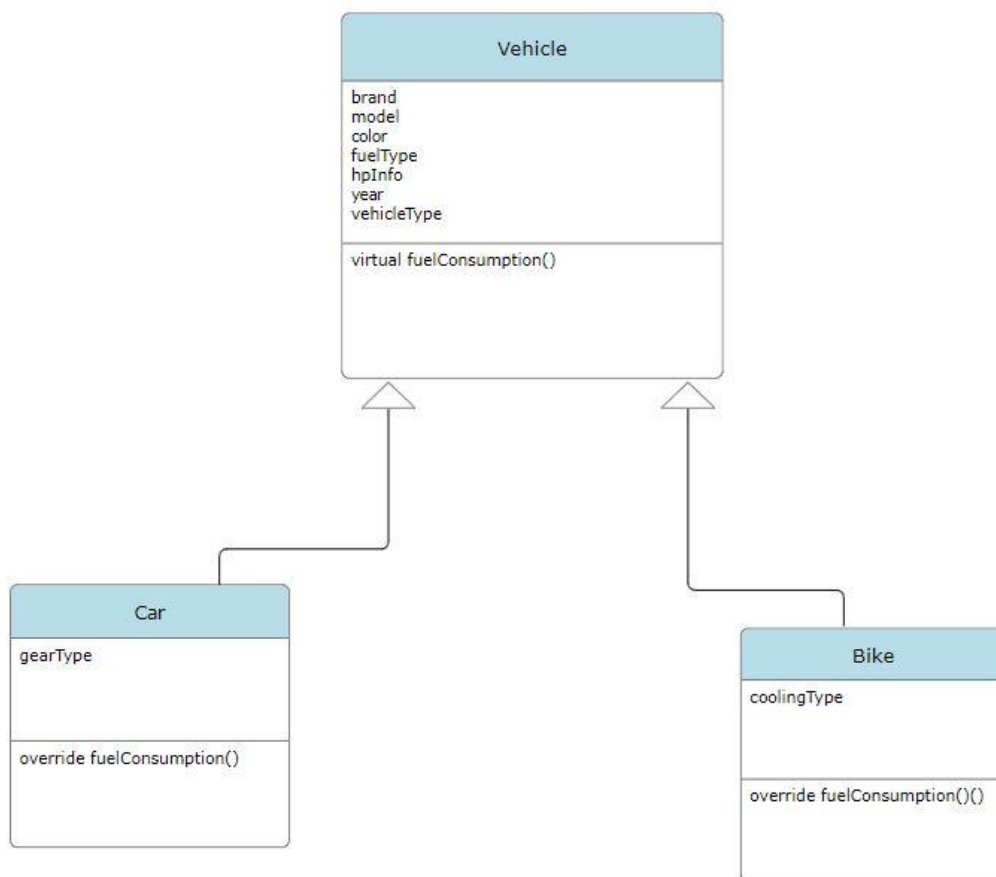


Figure 19. Class Diagram

3. Conclusion:

This project was created to facilitate the transactions of businesses in the vehicle sales sector according to their needs. It is a system that has been created with C++ object-oriented software language. It is an application that has been tried to be exemplified by using the topics (functions, class ,constructors, destructors, etc.) we see in CENG241 course content. It can be developed according to needs and can be setting an example for the users in the field.