Object Oriented Programming

Spring2025

Assignment #2

Umar Farooq
09-131242-088
BSE-2B

DEPARTMENT OF SOFTWARE ENGINEERING
BAHRIA UNIVERSITY ISLAMABAD CAMPUS

Q1: A car rental company wants to develop a fleet management system to keep track of their rental cars. Each car has specific details, and customers can rent cars for a certain period.

Code:

```
#include <iostream>
#include <string>
using namespace std;
class Car {
private:
	int carID;
	string brand;
	string model;
	float rentalPricePerDay;
	bool isRented;
public:
	Car() :carID(0), brand(""), model(""), rentalPricePerDay(0.0),
isRented(false) {}
	void setCarDetails()
	{
		cout << "Enter car ID: ";
		cin >> carID;
		cout << "Enter car brand: ";
		cin >> brand;
		cout << "Enter car model: ";
		cin >> model;
		cout << "Enter rental price per day: $";
		cin >> rentalPricePerDay;
		isRented = false;
	}
```

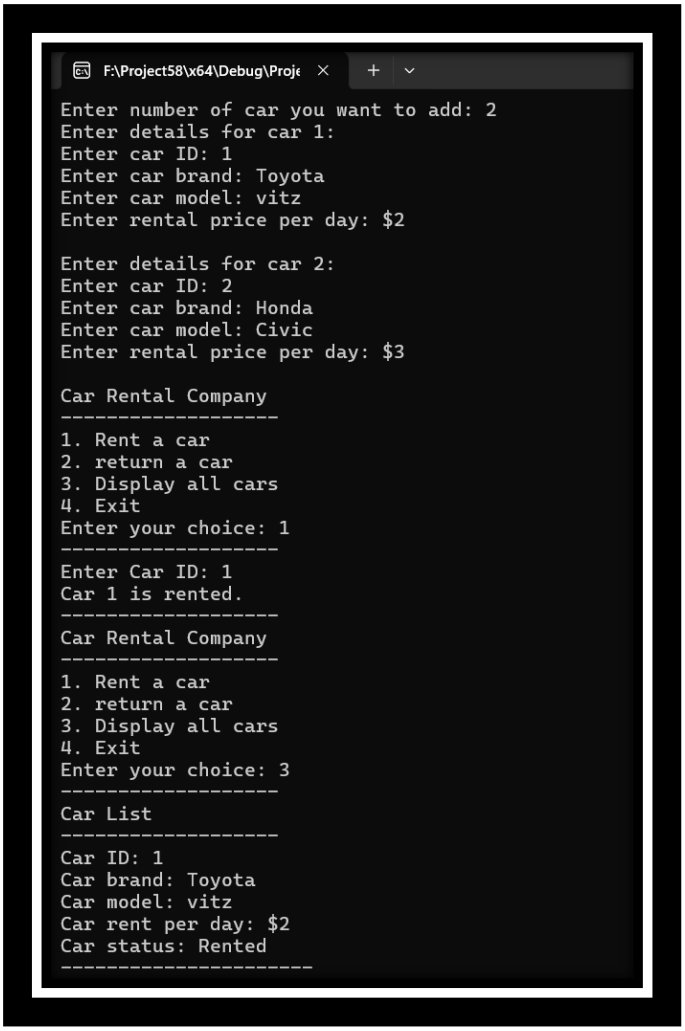
```
        void rentCar()
        {
                if (!isRented)
                {
                        isRented = true;
                        cout << "Car " << carID << " is rented." << endl;
                }
                else
                {
                        cout << "Car " << carID << " is not rented." <<
endl;
                }
                cout << "--------------------" << endl;
        }
        void returnCar()
        {
                if (isRented)
                {
                        isRented = false;
                        cout << "Car " << carID << " is returned." <<
endl;
                }
                else
                {
                        cout << "Car " << carID << " is not returned." <<
endl;
                }
                cout << "--------------------" << endl;
        }
```

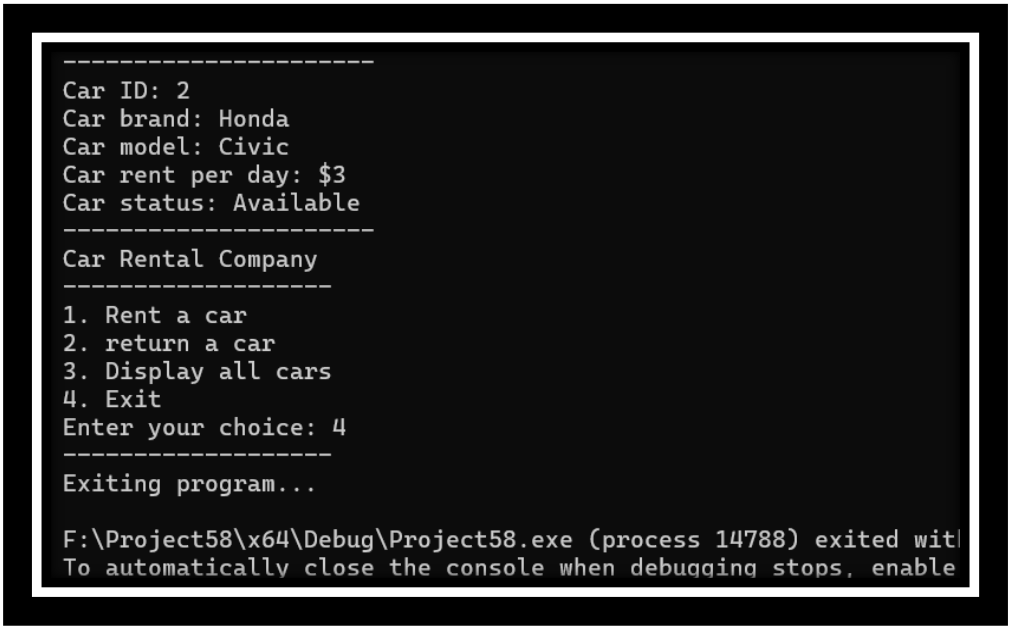
```
        void display()
        {
                cout << "Car ID: " << carID << endl;
                cout << "Car brand: " << brand << endl;
                cout << "Car model: " << model << endl;
                cout << "Car rent per day: $" << rentalPricePerDay <<
endl;
                cout << "Car status: " << (isRented ? "Rented" :
"Available") << endl;
                cout << "----------------------" << endl;
        }
        int getCarID()
        {
                return carID;
        }
};
int main()
{
        int size;
        cout << "Enter number of car you want to add: ";
        cin >> size;
        Car* Cars = new Car[size];
        for (int i = 0; i < size; i++)
        {
                cout << "Enter details for car " << (i + 1) << ": " <<
endl;
                Cars[i].setCarDetails();
                cout << endl;
        }
```

```
int choice;
do {
	cout << "Car Rental Company" << endl;
	cout << "-------------------" << endl;
	cout << "1. Rent a car" << endl;
	cout << "2. return a car" << endl;
	cout << "3. Display all cars" << endl;
	cout << "4. Exit" << endl;
	cout << "Enter your choice: ";
	cin >> choice;
	cout << "-------------------" << endl;
	if (choice == 1 || choice == 2)
	{
		int carID;
		cout << "Enter Car ID: ";
		cin >> carID;
		bool found = false;

		for (int i = 0; i < size; i++)
		{
			if (Cars[i].getCarID() == carID)
			{
				if (choice == 1) Cars[i].rentCar();
				else Cars[i].returnCar();
				found = true;
				break;
			}
		}
		if (!found) cout << "Car ID not found." << endl;
```

```
            }
            else if (choice == 3)
            {
                cout << "Car List" << endl;
                cout << "-------------------" << endl;
                for (int i = 0; i < size; i++)
                {
                    Cars[i].display();
                }
            }

        }
        while (choice != 4);
        delete[] Cars;
        cout << "Exiting program..." << endl;
        return 0;
}
```

Screenshot:


F:\Project58\x64\Debug\Proje
Enter number of car you want to add: 2
Enter details for car 1:
Enter car ID: 1
Enter car brand: Toyota
Enter car model: vitz
Enter rental price per day: $2
Enter details for car 2:
Enter car ID: 2
Enter car brand: Honda
Enter car model: Civic
Enter rental price per day: $3
Car Rental Company
1. Rent a car
2. return a car
3. Display all cars
4. Exit
Enter your choice: 1
Enter Car ID: 1
Car 1 is rented.
Car Rental Company
1. Rent a car
2. return a car
3. Display all cars
4. Exit
Enter your choice: 3
Car List
Car ID: 1
Car brand: Toyota
Car model: vitz
Car rent per day: $2
Car status: Rented


Car ID: 2
Car brand: Honda
Car model: Civic
Car rent per day: $3
Car status: Available
Car Rental Company
1. Rent a car
2. return a car
3. Display all cars
4. Exit
Enter your choice: 4
Exiting program...
F:\Project58\x64\Debug\Project58.exe (process 14788) exited wit
To automatically close the console when debugging stops, enable