Name: swetha K

Roll No: 235229143

Labsheet-11. Car Washing Shop Management USing Queueus

step1:Define the queue class:Create a class to represent a queue with methods like is_empty,enqueue,dequeue and size.The queue can be implemented using a list

step2:Implement the car washing shop management program:Create an instance of the queue class to represent the car queue. start an infinite loop to continuosly interact with the user untilltheychoose to exit. inside the loop:display the menu of options for the user to choose from :add a car to the queue ,wash the next car,dispaly the number of cars waiting,or exit.

prompt the user to enter their choice.Based on the user's choice,perform the corresponding actions: option1:Prompt the user to enter the car details and add the car to queue.

option2:Check if the queue is empty.if not,dequeue the car from the front of the queue and display a message indicating that the car has been washed.

option3:get the current size of the queue and display it.

option4:display a good bye message and break out of the loop to end the program. default:display an error message for an invaild choice.

In [2]:
```
class Queue:
    def __init__(self):
        self.items = []

    def is_empty(self):
        return len(self.items) == 0

    def enqueue(self, item):
        self.items.append(item)

    def dequeue(self):
        if not self.is_empty():
            return self.items.pop(0)

    def size(self):
        return len(self.items)
```

In [3]:
```
car_queue = Queue()

while True:
    print("1. Add a car to the queue")
    print("2. Wash the next car")
    print("3. Display the number of cars waiting")
    print("4. Exit")

    choice = input("Enter your choice: ")

    if choice == "1":
        car_details = input("Enter car details: ")
        car_queue.enqueue(car_details)
        print("Car added to the queue.")

    elif choice == "2":
        if not car_queue.is_empty():
            washed_car = car_queue.dequeue()
            print("Car washed:", washed_car)
        else:
            print("No cars in the queue.")

    elif choice == "3":
        num_cars_waiting = car_queue.size()
        print("Number of cars waiting:", num_cars_waiting)

    elif choice == "4":
        print("Goodbye!")
        break

    else:
        print("Invalid choice. Please try again.")
```

```
1. Add a car to the queue
2. Wash the next car
3. Display the number of cars waiting
4. Exit
Enter your choice: 1
Enter car details: bmw
Car added to the queue.
1. Add a car to the queue
2. Wash the next car
3. Display the number of cars waiting
4. Exit
Enter your choice: 1
Enter car details: ford
Car added to the queue.
1. Add a car to the queue
2. Wash the next car
3. Display the number of cars waiting
4. Exit
Enter your choice: 1
Enter car details: audi
Car added to the queue.
1. Add a car to the queue
2. Wash the next car
```

```
3. Display the number of cars waiting
4. Exit
Enter your choice: 1
Enter car details: suzuki
Car added to the queue.
1. Add a car to the queue
2. Wash the next car
3. Display the number of cars waiting
4. Exit
Enter your choice: 2
Car washed: bmw
1. Add a car to the queue
2. Wash the next car
3. Display the number of cars waiting
4. Exit
Enter your choice: 3
Number of cars waiting: 3
1. Add a car to the queue
2. Wash the next car
3. Display the number of cars waiting
4. Exit
Enter your choice: 4
Goodbye!
```

In [ ]: