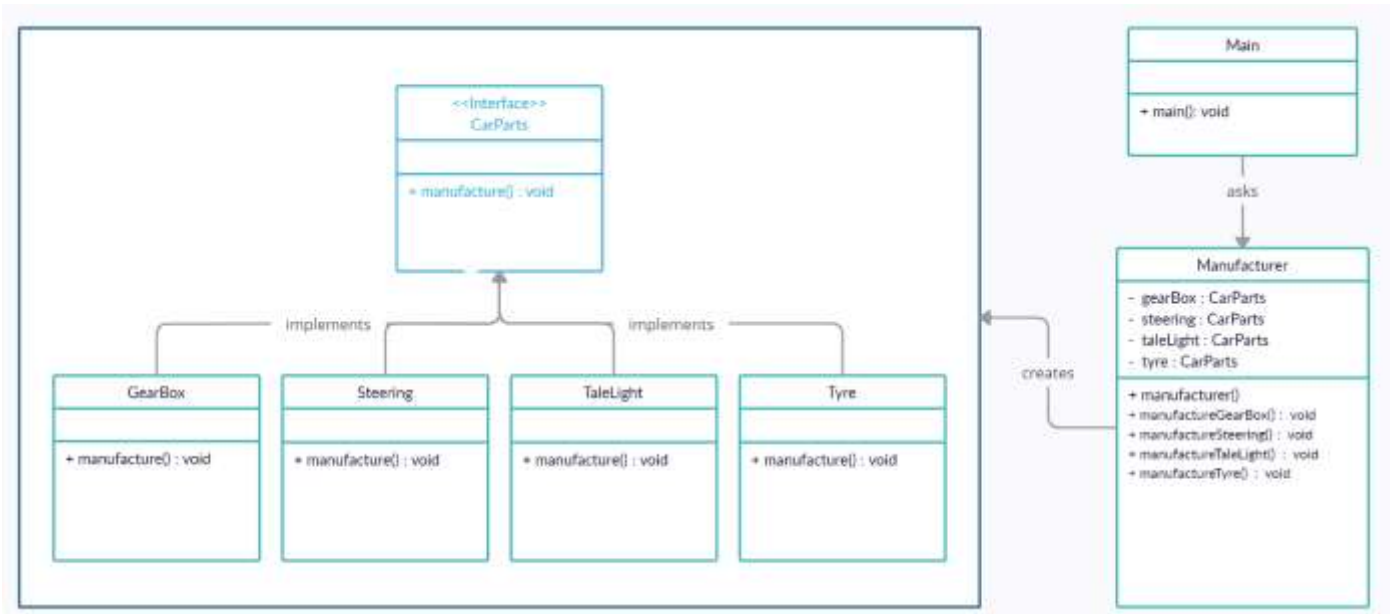


Assignment 8: Facade Design Pattern

What is Facade Design Pattern?

Facade is a structural design pattern that provides a simplified interface to a library, a framework, or any other complex set of classes.

Structure (Class Diagram)



Implementation (Code)

```
public interface CarParts {
    void manufacture();
}
```

```
public class GearBox implements CarParts {
    public void manufacture() {
        System.out.println("Gear Box Manufacturing in Progress\nManufacturing
Process Completed ✅");
    }
}
```

```
public class Steering implements CarParts {
    public void manufacture() {
        System.out.println("Steering Manufacturing in Progress\nManufacturing
Process Completed ✅");
    }
}
```

```
public class TaleLight implements CarParts {  
    public void manufacture() {  
        System.out.println("Tale Light Manufacturing in  
Progress\nManufacturing Process Completed ✅");  
    }  
}
```

```
public class Tyre implements CarParts {  
    public void manufacture() {  
        System.out.println("Tyre Manufacturing in Progress\nManufacturing  
Process Completed ✅");  
    }  
}
```

```
public class Manufacturer {  
    private CarParts gearBox;  
    private CarParts steering;  
    private CarParts taleLight;  
    private CarParts tyre;  
  
    public Manufacturer() {  
        gearBox = new GearBox();  
        steering = new Steering();  
        taleLight = new TaleLight();  
        tyre = new Tyre();  
    }  
  
    public void manufactureGearBox() {  
        gearBox.manufacture();  
    }  
    public void manufactureStreering() {  
        steering.manufacture();  
    }  
    public void manufactureTaleLight() {  
        taleLight.manufacture();  
    }  
    public void manufactureTyre() {  
        tyre.manufacture();  
    }  
}
```

```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        Manufacturer manufacturer = new Manufacturer();

        System.out.println("What do you want to manufacture? ");
        System.out.println("1. GearBox \n2. Steering \n3. TaleLight \n4. Tyre");
        System.out.print("Enter your Choice : ");
        int choice = sc.nextInt();
        System.out.println();

        switch (choice) {
            case (1) -> manufacturer.manufactureGearBox();
            case (2) -> manufacturer.manufactureStreering();
            case (3) -> manufacturer.manufactureTaleLight();
            case (4) -> manufacturer.manufactureTyre();
            default -> System.out.println("Enter a Valid Choice!");
        }
    }
}
```

Output

```
What do you want to manufacture?
1. GearBox
2. Steering
3. TaleLight
4. Tyre
Enter your Choice : 1

Gear Box Manufacturing in Progress
Manufacturing Process Completed ✓
```

Applicability

1. Use the Facade pattern when you need to have a limited but straightforward interface to a complex subsystem.
2. Use the Facade when you want to structure a subsystem into layers.