Code : interface Vehicle { public void changeGear(int a); public void speedUp(int a); public void applyBreaks(int a); public void display(); } class Bicycle implements Vehicle{ private int gear; private int speed; final int maxSpeed = 50;

```java
@Override
public void changeGear(int a){
    if(a > 0){
        gear = a;
    }
    else{
        System.out.println("Gear cannot be Negative.");
    }
}

@Override
public void applyBreaks(int a) {
    speed -= a;
}

@Override
public void speedUp(int a){
    if(speed+a <= maxSpeed){
        speed += a;
    }
    else{
        System.out.println("Maximum Speed of Bicycle is " + maxSpeed);
    }
}

@Override
public void display(){
    System.out.println("Speed of Bicycle : " + speed);
    System.out.println("Gear of Bicycle : " + gear);
}

}
```

class Bike implements Vehicle{ private int gear; private int speed; final int maxSpeed = 180;

```java
@Override
public void changeGear(int a){
    if(a > 0){
        gear = a;
    }
    else{
        System.out.println("Gear cannot be Negative.");
```

```java
        }
    }

    @Override
    public void applyBreaks(int a) {
        speed -= a;
    }

    @Override
    public void speedUp(int a){
        if(speed+a <= maxSpeed){
            speed += a;
        }
        else{
            System.out.println("Maximum Speed of Bike is " + maxSpeed);
        }
    }

    @Override
    public void display(){
        System.out.println("Speed of Bike : " + speed);
        System.out.println("Gear of Bike : " + gear);
    }

}
class Car implements Vehicle{ private int gear; private int speed = 0; final int maxSpeed = 240;

    @Override
    public void changeGear(int a){
        if(a > 0){
            gear = a;
        }
        else{
            System.out.println("Gear cannot be Negative.");
        }
    }

    @Override
    public void applyBreaks(int a) {
        speed -= a;
    }

    @Override
    public void speedUp(int a){
        if(speed+a <= maxSpeed){
```

```java
            speed += a;
        }
        else{
            System.out.println("Maximum Speed of Car is " + maxSpeed);
        }
    }


    @Override
    public void display(){
        System.out.println("Speed of Car : " + speed);
        System.out.println("Gear of Car : " + gear);
    }

}
```

import java.util.Scanner; public class Main { public static void main(String[] args) { Scanner sc = new Scanner(System.in); Bicycle b1 = new Bicycle(); Bike b2 = new Bike(); Car c1 = new Car();

```java
    while(true){
        System.out.println("\nSelect");
        System.out.println("1.Change Gear");
        System.out.println("2.Speed Up");
        System.out.println("3.Apply Break");
        System.out.println("4.Display Speed and Gear");
        System.out.println("5.Exit\n");

        int choice;
        System.out.print("Enter Your Choice : ");
        choice = sc.nextInt();
        System.out.println("");
        switch (choice){
            case 1:
                int tempGear;
                System.out.print("Enter the Gear That You Want to Change to: ");
                tempGear = sc.nextInt();
                b1.changeGear(tempGear);
                break;
            case 2:
                int tempSpeed;
                System.out.print("Enter The Value of Speed: ");
                tempSpeed = sc.nextInt();
                b1.speedUp(tempSpeed);
                break;
            case 3:
                int temp;
                System.out.print("Enter The Value of Speed That You Want to Decrement: ");
```

```
                temp = sc.nextInt();
                b1.applyBreaks(temp);
                break;
            case 4:
                b1.display();
                break;
            case 5:
                System.out.println("Exiting The Program..");
                System.exit(0);
        }
    }
}
}
```

Output : Select 1.Change Gear 2.Speed Up 3.Apply Break 4.Display Speed and Gear 5.Exit

Enter Your Choice : 1

Enter the Gear That You Want to Change to: 4

Select 1.Change Gear 2.Speed Up 3.Apply Break 4.Display Speed and Gear 5.Exit

Enter Your Choice : 2

Enter The Value of Speed: 50

Select 1.Change Gear 2.Speed Up 3.Apply Break 4.Display Speed and Gear 5.Exit

Enter Your Choice : 3

Enter The Value of Speed That You Want to Decrement: 10

Select 1.Change Gear 2.Speed Up 3.Apply Break 4.Display Speed and Gear 5.Exit

Enter Your Choice : 4

Speed of Bicycle : 40 Gear of Bicycle : 4

Select 1.Change Gear 2.Speed Up 3.Apply Break 4.Display Speed and Gear 5.Exit

Enter Your Choice : 5

Exiting The Program..