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Aim: Design and develop a context for given case study and implement an interface for Vehicles Consider the example of vehicles like bicycle, car, and bike. All Vehicles have common functionalities such as Gear Change, Speed up and apply breaks. Make an interface and put all these common functionalities. Bicycle, Bike, Car classes should be implemented for all these functionalities in their own class in their own way.

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Program:

import java.io.\*;

interface Vehicle {

void changeGear(int a);

void speedUp(int a);

void applyBrakes(int a);

}

class Bicycle implements Vehicle{

int speed;

int gear;

public void changeGear(int newGear){

gear = newGear;

}

public void speedUp(int increment){

speed = speed + increment;

}

public void applyBrakes(int decrement){

speed = speed - decrement;

}

public void printStates() {

System.out.println("speed: " + speed

+ " gear: " + gear);

}

}

class Bike implements Vehicle {

int speed;

int gear;

public void changeGear(int newGear){

gear = newGear;

}

public void speedUp(int increment){

speed = speed + increment;

}

public void applyBrakes(int decrement){

speed = speed - decrement;

}

public void printStates() {

System.out.println("speed: " + speed

+ " gear: " + gear);

}

}

class StartVehicle {

public static void main (String[] args) {

Bicycle bicycle = new Bicycle();

bicycle.changeGear(2);

bicycle.speedUp(3);

bicycle.applyBrakes(1);

System.out.println("Bicycle present state :");

bicycle.printStates();

Bike bike = new Bike();

bike.changeGear(1);

bike.speedUp(4);

bike.applyBrakes(3);

System.out.println("Bike present state :");

bike.printStates();

}

}

OUTPUT:

Bicycle present state :

speed: 2 gear: 2

Bike present state :

speed: 1 gear: 1