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**Assignment No 5**

**Problem Statement : 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.**

**package** Interface;

**import** java.util.\*;

**interface** printable{

**void** print();

}

**interface** Vehicles{

Scanner ***sc***=**new** Scanner(System.***in***);

**double** ***gear***=1;

**double** ***speed***=10;

**void** Gearchange();

**void** Speedup();

**void** applybreaks();

}

**class** bicycle **implements** Vehicles{

**public** **void** Gearchange() {

System.***out***.println("gear is not available to the bicycle");

}

**public** **void** Speedup() {

System.***out***.println("enter the speed you want ");

**double** s=***sc***.nextDouble();

System.***out***.println("speed is changed from "+***speed***+" to "+s);

}

**public** **void** applybreaks() {

System.***out***.println("breaks applied");

}

}

**class** bike **implements** Vehicles{

**public** **void** Gearchange() {

System.***out***.println("enter the gear to be ");

**double** g=***sc***.nextDouble();

System.***out***.println("gear is changed from: "+***gear***+" to "+g);

}

**public** **void** Speedup() {

System.***out***.println("enter the speed you want ");

**double** s=***sc***.nextDouble();

System.***out***.println("speed is changed from "+***speed***+" to "+s);

}

**public** **void** applybreaks() {

System.***out***.println("breaks applied\n");

}

}

**class** car **implements** Vehicles{

**public** **void** Gearchange() {

System.***out***.println("enter the gear to be ");

**double** g=***sc***.nextDouble();

System.***out***.println("gear is changed from: "+***gear***+" to "+g);

}

**public** **void** Speedup() {

System.***out***.println("enter the speed you want ");

**double** s=***sc***.nextDouble();

System.***out***.println("speed is changed from "+***speed***+" to "+s);

}

**public** **void** applybreaks() {

System.***out***.println("breaks applied\n");

}

}

**public** **class** demoInterface{

**public** **static** **void** main(String[] args) {

bicycle bmx=**new** bicycle();

car mustang=**new** car();

bike thunder=**new** bike();

**int** choice=0;

Scanner s=**new** Scanner(System.***in***);

**while**(choice!=4) {

System.***out***.println("1)for bicycle");

System.***out***.println("2)for bike");

System.***out***.println("3)for car");

System.***out***.println("to exit");

choice=s.nextInt();

**switch**(choice) {

**case** 1:**int** ch=0;

**while**(ch!=4) {

System.***out***.println("1)to gear change");

System.***out***.println("2)to speed up");

System.***out***.println("3)to apply breaks");

System.***out***.println("to exit");

System.***out***.println("enter choice ");

ch=s.nextInt();

**switch**(ch) {

**case** 1:bmx.Gearchange();

**break**;

**case** 2:bmx.Speedup();

**break**;

**case** 3:bmx.applybreaks();

**break**;

**default**:**break**;

}

}

**break**;

**case** 2:**int** c=0;

**while**(c!=4) {

System.***out***.println("1)to gear change");

System.***out***.println("2)to spped up");

System.***out***.println("3)to apply breaks");

System.***out***.println("4)to exit");

System.***out***.println("enter choice ");

c=s.nextInt();

**switch**(c) {

**case** 1:thunder.Gearchange();

**break**;

**case** 2:thunder.Speedup();

**break**;

**case** 3:thunder.applybreaks();

**break**;

**default**:**break**;

}

}

**break**;

**case** 3:**int** cho=0;

**while**(cho!=4) {

System.***out***.println("1)to gear change");

System.***out***.println("2)to spped up");

System.***out***.println("3)to apply breaks");

System.***out***.println("4)to exit");

System.***out***.println("enter choice ");

cho=s.nextInt();

**switch**(cho) {

**case** 1:thunder.Gearchange();

**break**;

**case** 2:thunder.Speedup();

**break**;

**case** 3:thunder.applybreaks();

**break**;

**default**:**break**;

}

}

**break**;

**case** 4:System.***out***.println("exit");

**break**;

**default**:**break**;

}

}

}

}

**Output :**

1)for bicycle

2)for bike

3)for car

to exit

1

1)to gear change

2)to speed up

3)to apply breaks

to exit

enter choice

1

gear is not available to the bicycle

1)to gear change

2)to speed up

3)to apply breaks

to exit

enter choice

2

enter the speed you want

16

speed is changed from 10.0 to 16.0

1)to gear change

2)to speed up

3)to apply breaks

to exit

enter choice

3

breaks applied

1)to gear change

2)to speed up

3)to apply breaks

to exit

1)for bicycle

2)for bike

3)for car

to exit

2

1)to gear change

2)to spped up

3)to apply breaks

4)to exit

enter choice

1

enter the gear to be

4

gear is changed from: 1.0 to 4.0

1)to gear change

2)to spped up

3)to apply breaks

4)to exit

enter choice

2

enter the speed you want

56

speed is changed from 10.0 to 56.0

1)to gear change

2)to spped up

3)to apply breaks

4)to exit

enter choice

3

breaks applied

1)to gear change

2)to spped up

3)to apply breaks

4)to exit

enter choice