import java.util.\*;

import java.io.\*;

abstract class Vehicle

{

protected Date purchase\_date;

protected int no\_wheels,no\_gears,year;

protected float tank\_capacity,price;

protected String color,model,maker,fuel\_type,owner,reg\_no,eng\_type;

public static int numVehicles;

public abstract float mileage\_cal();

public abstract int vehicle\_age();

public abstract float expenditure();

public void get(int no)

{

int m,d,y;

Scanner in=new Scanner(System.in);

System.out.println("Enter the details:");

System.out.println("Owner : ");

owner=in.next();

System.out.println("Purchase Date : ");

//System.out.println("Date : ");

d=in.nextInt();

System.out.println("Month : ");

m=in.nextInt();

System.out.println("Year : ");

y=in.nextInt();

year=y;

no\_wheels=no;

System.out.println("Registration number :");

reg\_no=in.next();

System.out.println("Engine type : ");

eng\_type=in.next();

System.out.println("No of gears : ");

no\_gears=in.nextInt();

System.out.println("Fuel type : ");

fuel\_type=in.next();

System.out.println("Price : ");

price=in.nextFloat();

System.out.println("Tank capacity : ");

tank\_capacity=in.nextFloat();

System.out.println("Color : ");

color=in.next();

System.out.println("Model : ");

model=in.next();

System.out.println("Maker : ");

maker=in.next();

GregorianCalendar cal=new GregorianCalendar(y,m-1,d);

purchase\_date=cal.getTime();

numVehicles++;

}

public void maker\_search(String mname)

{

if(maker.compareTo(mname)==0)

{

System.out.println("Owner : "+owner);

System.out.println("Registration number : "+reg\_no);

System.out.println("Purchase Date : "+purchase\_date.toString());

System.out.println("Model : "+model);

}

}

public void vehicle\_search(String c)

{

String city="";

for(int i=0;i<reg\_no.length();i++)

{

char b=reg\_no.charAt(i);

if(Character.isLetter(b))

city=city+b;

}

if(city.compareTo(c)==0)

{

System.out.println("Owner : "+owner);

}

}

public void display()

{

System.out.println("Owner : " + owner);

System.out.println("Purchase Date : "+ purchase\_date.toString());

System.out.println("No of wheels : "+ no\_wheels);

System.out.println("Engine type : "+ eng\_type);

System.out.println("No of gears : "+ no\_gears);

System.out.println("Fuel type : "+ fuel\_type);

System.out.println("Price : "+ price);

System.out.println("Tank capacity : "+tank\_capacity);

System.out.println("Color : "+ color);

System.out.println("Model : "+ model);

System.out.println("Maker : "+maker);

}

}

class Car extends Vehicle

{

public static int numCars;

public Car()

{

numCars++;

}

public float mileage\_cal()

{

int start,end;

float mil;

Scanner in=new Scanner(System.in);

System.out.println("Starting reading : ");

start=in.nextInt();

System.out.println("Ending reading : ");

end=in.nextInt();

mil=(end-start)/tank\_capacity;

return mil;

}

public int vehicle\_age()

{

int y,age;

Calendar calendar = Calendar.getInstance();

y=calendar.get(Calendar.YEAR);

age=y-year;

return age;

}

public float expenditure()

{

float f,r,s,a,b;

Scanner in=new Scanner(System.in);

System.out.println("Enter the details:");

System.out.println("Fuel consumption : ");

f=in.nextFloat();

System.out.println("Repair Charges : ");

r=in.nextFloat();

System.out.println("Service charges : ");

s=in.nextFloat();

System.out.println("Accessories : ");

a=in.nextFloat();

System.out.println("Battery or gas consumption : ");

b=in.nextFloat();

return f+r+s+a+b;

}

}

class Bike extends Vehicle

{

public static int numBikes;

public Bike()

{

numBikes++;

}

public float mileage\_cal()

{

int start,end;

float mil;

Scanner in=new Scanner(System.in);

System.out.println("Starting reading : ");

start=in.nextInt();

System.out.println("Ending reading : ");

end=in.nextInt();

mil=(end-start)/tank\_capacity;

return mil;

}

public int vehicle\_age()

{

int year,y,age;

Calendar calendar = Calendar.getInstance();

year=calendar.get(Calendar.YEAR);

y=purchase\_date.getYear();

System.out.println(y);

age=year-y;

return age;

}

public float expenditure()

{

float f,r,s;

Scanner in=new Scanner(System.in);

System.out.println("Enter the details:");

System.out.println("Fuel consumption : ");

f=in.nextFloat();

System.out.println("Repair Charges : ");

r=in.nextFloat();

System.out.println("Service charges : ");

s=in.nextFloat();

return f+r+s;

}

public void display()

{

System.out.println("Owner : " + owner);

System.out.println("Purchase Date : "+ purchase\_date.toString());

System.out.println("No of wheels : "+ no\_wheels);

System.out.println("Engine type : "+ eng\_type);

System.out.println("No of gears : "+ no\_gears);

System.out.println("Fuel type : "+ fuel\_type);

System.out.println("Price : "+ price);

System.out.println("Tank capacity : "+tank\_capacity);

System.out.println("Color : "+ color);

System.out.println("Model : "+ model);

System.out.println("Maker : "+maker);

}

}

public class main3

{

public static void main(String str[])

{

int i,j=0,ch,choice=0;

float a;

String s;

Scanner in=new Scanner(System.in);

Vehicle[] v=new Vehicle[10];

do

{

System.out.println("\nEnter your vehicle\n1.Car\n2.Bike\n3.Search by maker name\n4.Search by city code\n5.Exit");

ch=in.nextInt();

switch(ch)

{

case 1:do

{

System.out.println("What do you want to do:\n1.Get the details\n2.Calculate mileage\n3.Calculate vehicle age \n");

System.out.println("4.Calculate expenditure\n5.Print the number of cars\n6.Print the details\n7.Exit");

choice=in.nextInt();

if(choice==1)

{

v[j]=new Car();

j++;

v[j-1].get(4);

}

if(choice==2)

{

a=v[j-1].mileage\_cal();

System.out.println("Mileage : "+a);

}

if(choice==3)

{

i=v[j-1].vehicle\_age();

System.out.println("Age : "+i);

}

if(choice==4)

{

a=v[j-1].expenditure();

System.out.println("Expenditure : "+a);

}

if(choice==5)

System.out.println("No of Cars : "+Car.numCars);

if(choice==6)

v[j-1].display();

}while(choice!=7);

break;

case 2:do

{

System.out.println("What do you want to do:\n1.Get the details\n2.Calculate mileage\n3.Calculate vehicle age \n4.Calculate expenditure\n5.Print the number of Bikes\n6.Print the details\n7.Exit");

choice=in.nextInt();

if(choice==1)

{

v[j]=new Bike();

j++;

v[j-1].get(2);

}

if(choice==2)

{

a=v[j-1].mileage\_cal();

System.out.println("Mileage : "+a);

}

if(choice==3)

{

i=v[j-1].vehicle\_age();

System.out.println("Age : "+i);

}

if(choice==4)

{

a=v[j-1].expenditure();

System.out.println("Expenditure : "+a);

}

if(choice==5)

System.out.println("No of Bikes : "+Bike.numBikes);

if(choice==6)

v[j-1].display();

}while(choice!=7);

break;

case 3:System.out.println("Enter the maker:");

s=in.next();

for(i=0;i<j;i++)

v[i].maker\_search(s);

break;

case 4:System.out.println("Enter the city code:");

s=in.next();

for(i=0;i<j;i++)

v[i].vehicle\_search(s);

break;

case 5:break;

}

}while(ch!=5);

}

}

SAMPLE INPUT AND OUTPUT:

C:\java>java main3

Enter your vehicle

1.Car

2.Bike

3.Search by maker name

4.Search by city code

5.Exit

1

What do you want to do:

1.Get the details

2.Calculate mileage

3.Calculate vehicle age

4.Calculate expenditure

5.Print the number of cars

6.Print the details

7.Exit

1

Enter the details:

Owner :

vaishnavi

Purchase Date :

21

Month :

4

Year :

2001

Registration number :

12gh

Engine type :

akerhgf

No of gears :

4

Fuel type :

petrol

Price :

2000

Tank capacity :

20

Color :

green

Model :

mazdas

Maker :

corolla

What do you want to do:

1.Get the details

2.Calculate mileage

3.Calculate vehicle age

4.Calculate expenditure

5.Print the number of cars

6.Print the details

7.Exit

2

Starting reading :

4000

Ending reading :

7000

Mileage : 150.0

What do you want to do:

1.Get the details

2.Calculate mileage

3.Calculate vehicle age

4.Calculate expenditure

5.Print the number of cars

6.Print the details

7.Exit

3

Age : 12

What do you want to do:

1.Get the details

2.Calculate mileage

3.Calculate vehicle age

4.Calculate expenditure

5.Print the number of cars

6.Print the details

7.Exit

4

Enter the details:

Fuel consumption :

200

Repair Charges :

20

Service charges :

30

Accessories :

2200

Battery or gas consumption :

3300

Expenditure : 5750.0

What do you want to do:

1.Get the details

2.Calculate mileage

3.Calculate vehicle age

4.Calculate expenditure

5.Print the number of cars

6.Print the details

7.Exit

5

No of Cars : 1

What do you want to do:

1.Get the details

2.Calculate mileage

3.Calculate vehicle age

4.Calculate expenditure

5.Print the number of cars

6.Print the details

7.Exit

6

Owner : vaishnavi

Purchase Date : Sat Apr 21 00:0

No of wheels : 4

Engine type : akerhgf

No of gears : 4

Fuel type : petrol

Price : 2000.0

Tank capacity : 20.0

Color : green

Model : mazdas

Maker : corolla

What do you want to do:

1.Get the details

2.Calculate mileage

3.Calculate vehicle age

4.Calculate expenditure

5.Print the number of cars

6.Print the details

7.Exit

7

Enter your vehicle

1.Car

2.Bike

3.Search by maker name

4.Search by city code

5.Exit