LAB TASK WEEK-5

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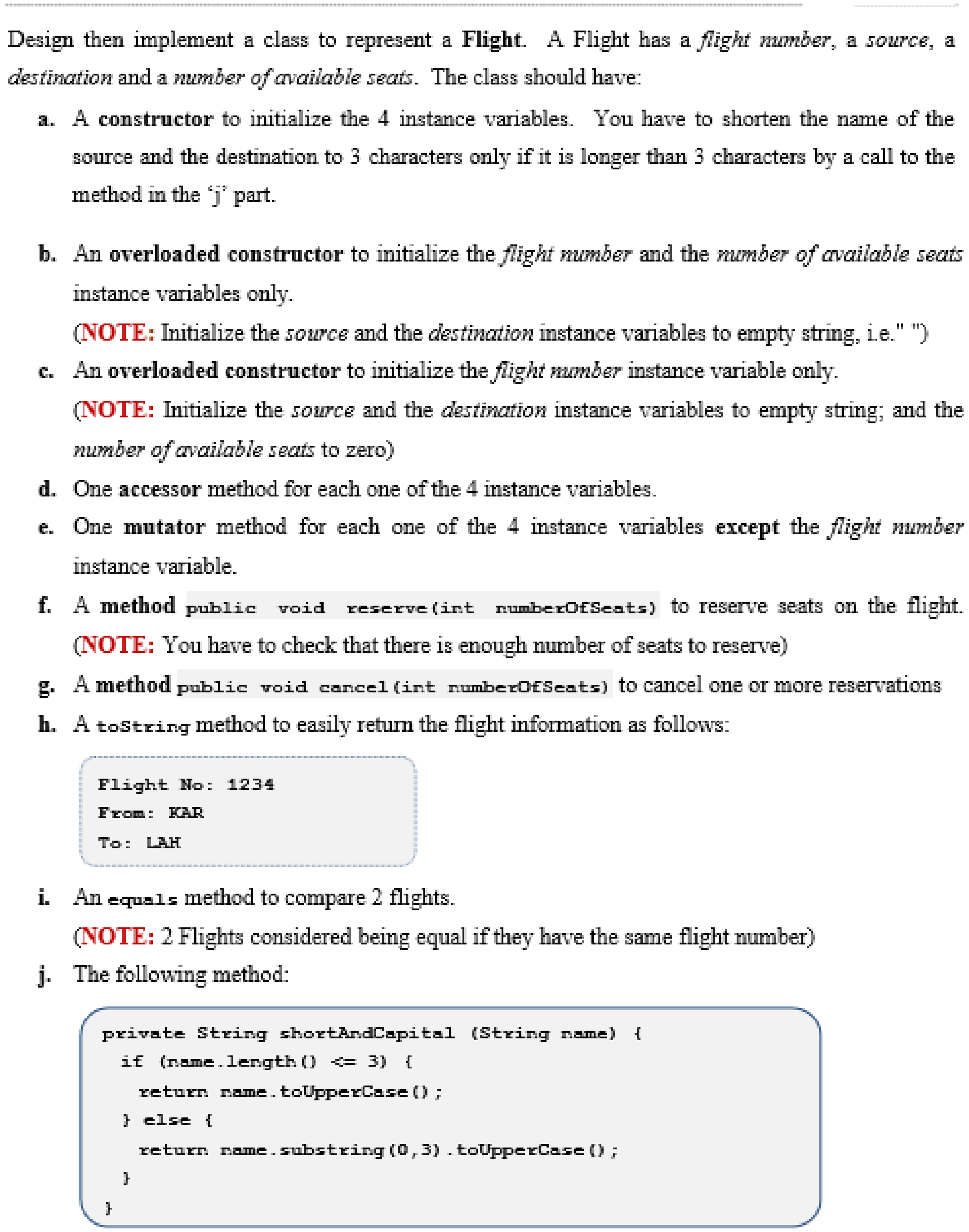
FESE-19052

Q #1.



Design then implement a class to represent a **Flight**. A Flight has a *flight number*, a *source*, a *destination* and a *number of available seats*. The class should have:

a. A **constructor** to initialize the 4 instance variables. You have to shorten the name of the source and the destination to 3 characters only if it is longer than 3 characters by a call to the method in the 'j' part.

b. An **overloaded constructor** to initialize the *flight number* and the *number of available seats* instance variables only.
(**NOTE:** Initialize the *source* and the *destination* instance variables to empty string, i.e." ")

c. An **overloaded constructor** to initialize the *flight number* instance variable only.
(**NOTE:** Initialize the *source* and the *destination* instance variables to empty string; and the *number of available seats* to zero)

d. One **accessor** method for each one of the 4 instance variables.

e. One **mutator** method for each one of the 4 instance variables **except** the *flight number* instance variable.

f. A **method** `public void reserve(int numberOfSeats)` to reserve seats on the flight.
(**NOTE:** You have to check that there is enough number of seats to reserve)

g. A **method** `public void cancel(int numberOfSeats)` to cancel one or more reservations

h. A `toString` method to easily return the flight information as follows:

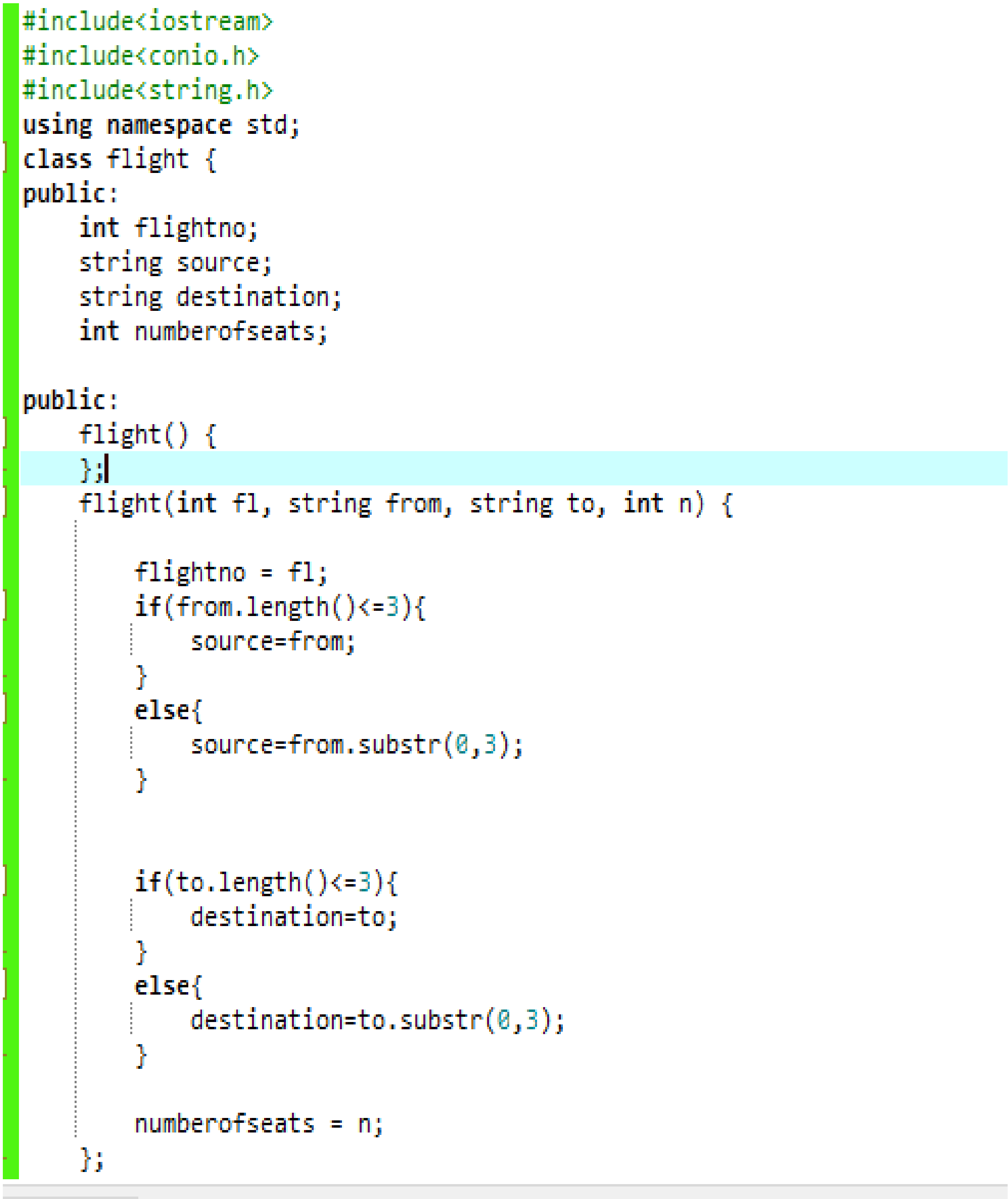
```
Flight No: 1234
From: KAR
To: LAH
```

i. An `equals` method to compare 2 flights.
(**NOTE:** 2 Flights considered being equal if they have the same flight number)

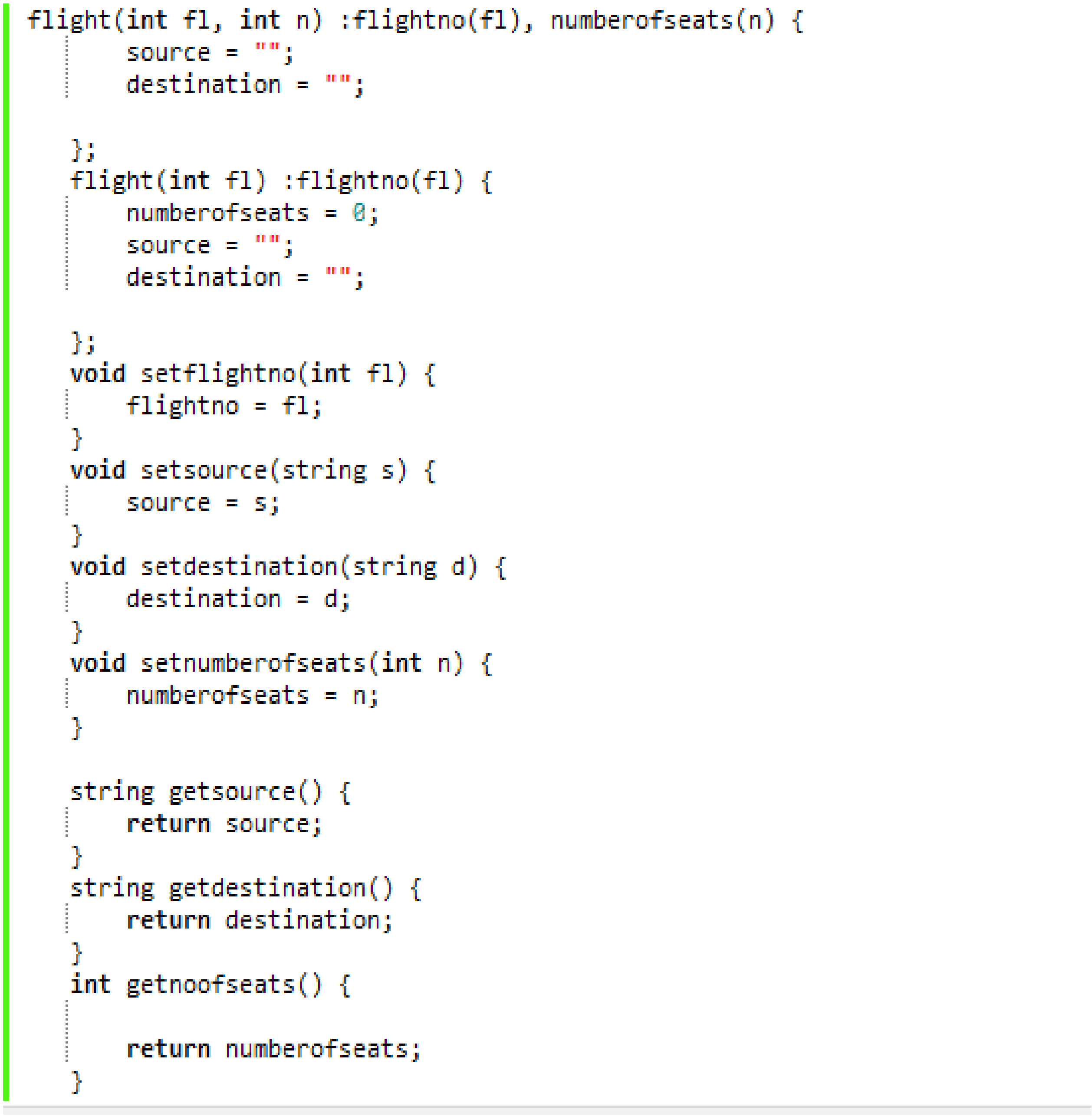
j. The following method:

```
private String shortAndCapital (String name) {
  if (name.length() <= 3) {
    return name.toUpperCase();
  } else {
    return name.substring(0,3).toUpperCase();
  }
}
```

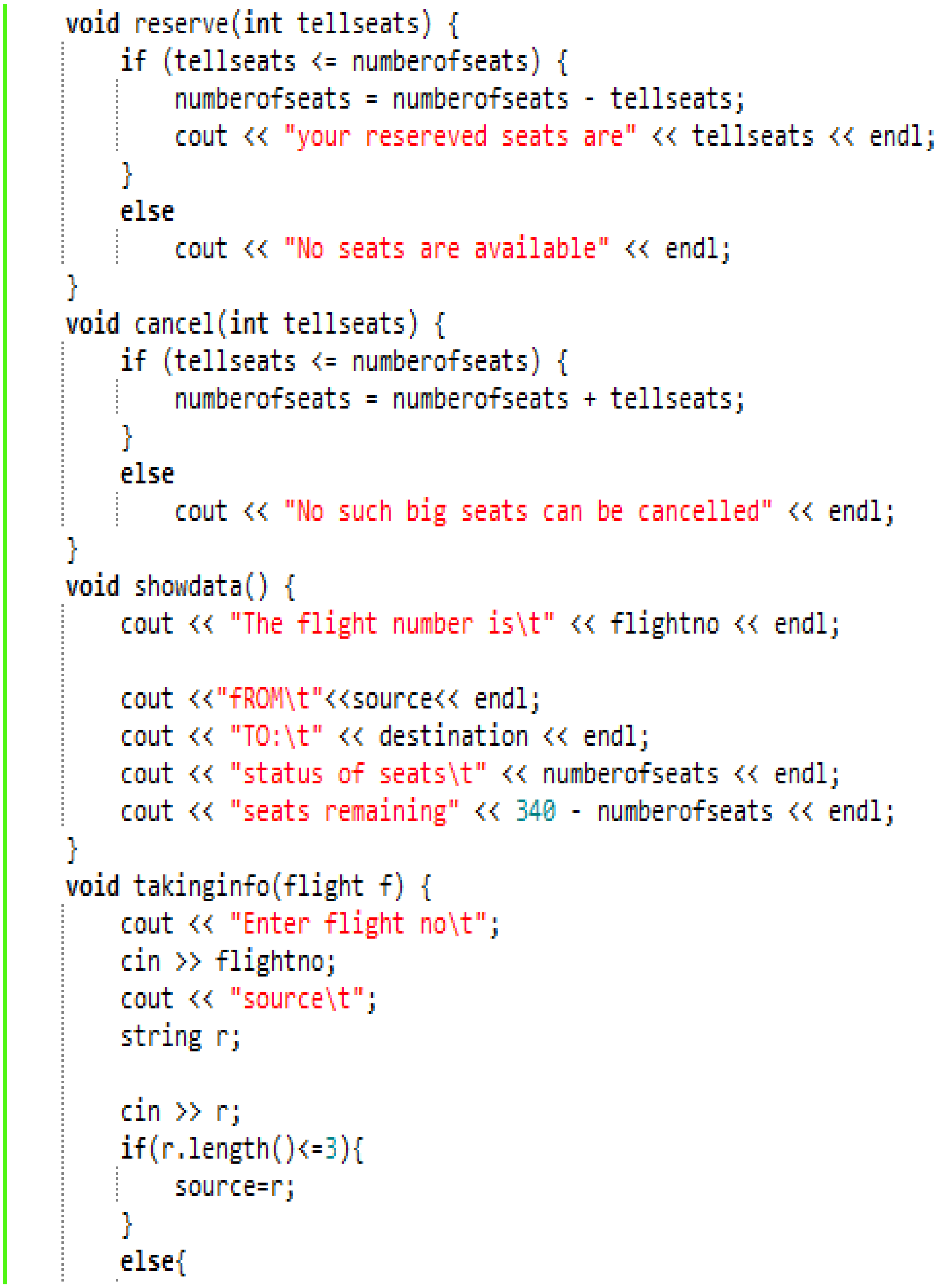
Create the object of the flight class and apply the defined methods.



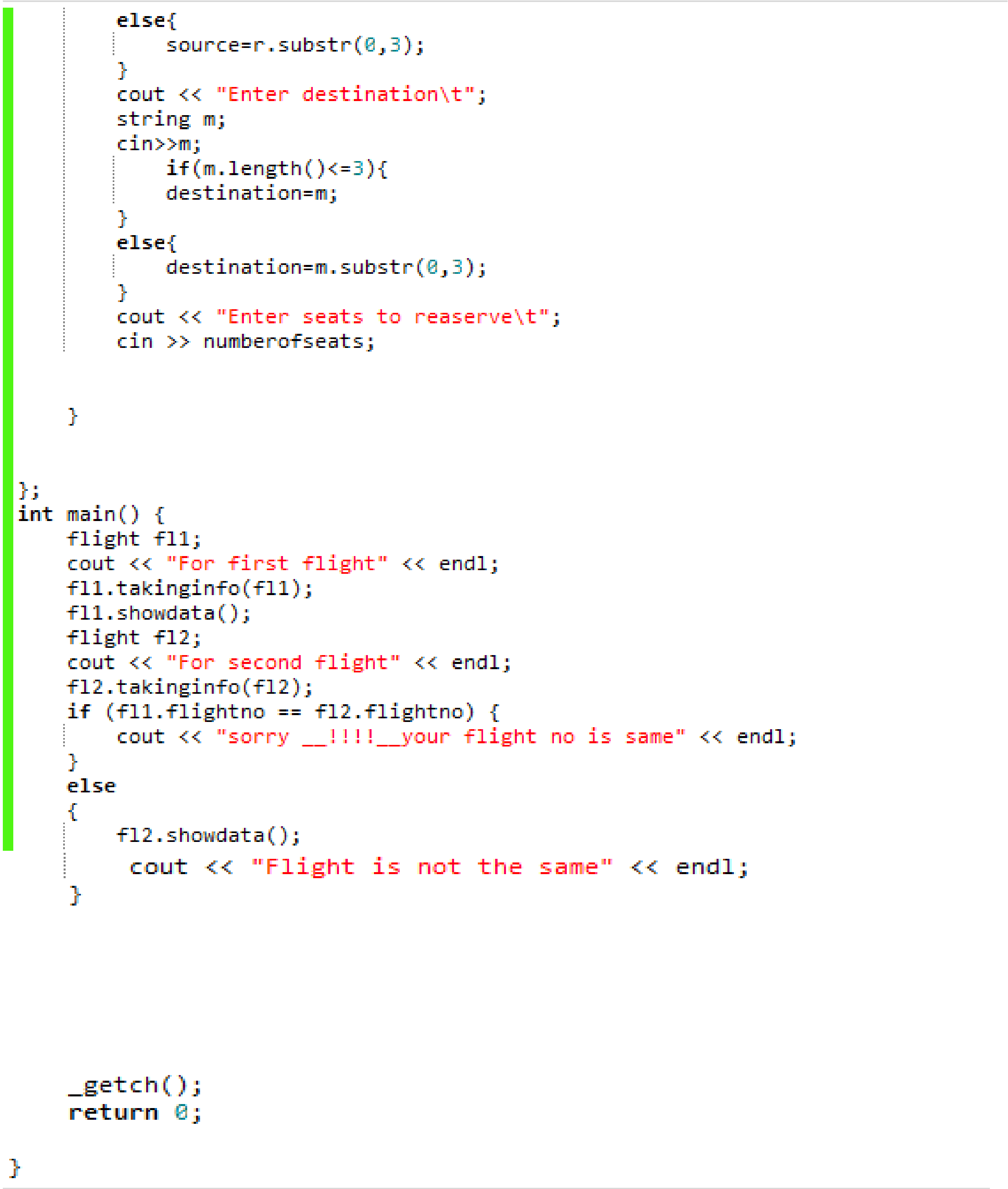
```cpp
#include<iostream>
#include<conio.h>
#include<string.h>
using namespace std;
class flight {
public:
    int flightno;
    string source;
    string destination;
    int numberofseats;

public:
    flight() {
    };
    flight(int fl, string from, string to, int n) {

        flightno = fl;
        if(from.length()<=3){
            source=from;
        }
        else{
            source=from.substr(0,3);
        }


        if(to.length()<=3){
            destination=to;
        }
        else{
            destination=to.substr(0,3);
        }

        numberofseats = n;
    };
```



```
flight(int fl, int n) :flightno(fl), numberofseats(n) {
       source = "";
       destination = "";

   };
   flight(int fl) :flightno(fl) {
       numberofseats = 0;
       source = "";
       destination = "";

   };
   void setflightno(int fl) {
       flightno = fl;
   }
   void setsource(string s) {
       source = s;
   }
   void setdestination(string d) {
       destination = d;
   }
   void setnumberofseats(int n) {
       numberofseats = n;
   }

   string getsource() {
       return source;
   }
   string getdestination() {
       return destination;
   }
   int getnoofseats() {

       return numberofseats;
   }
```

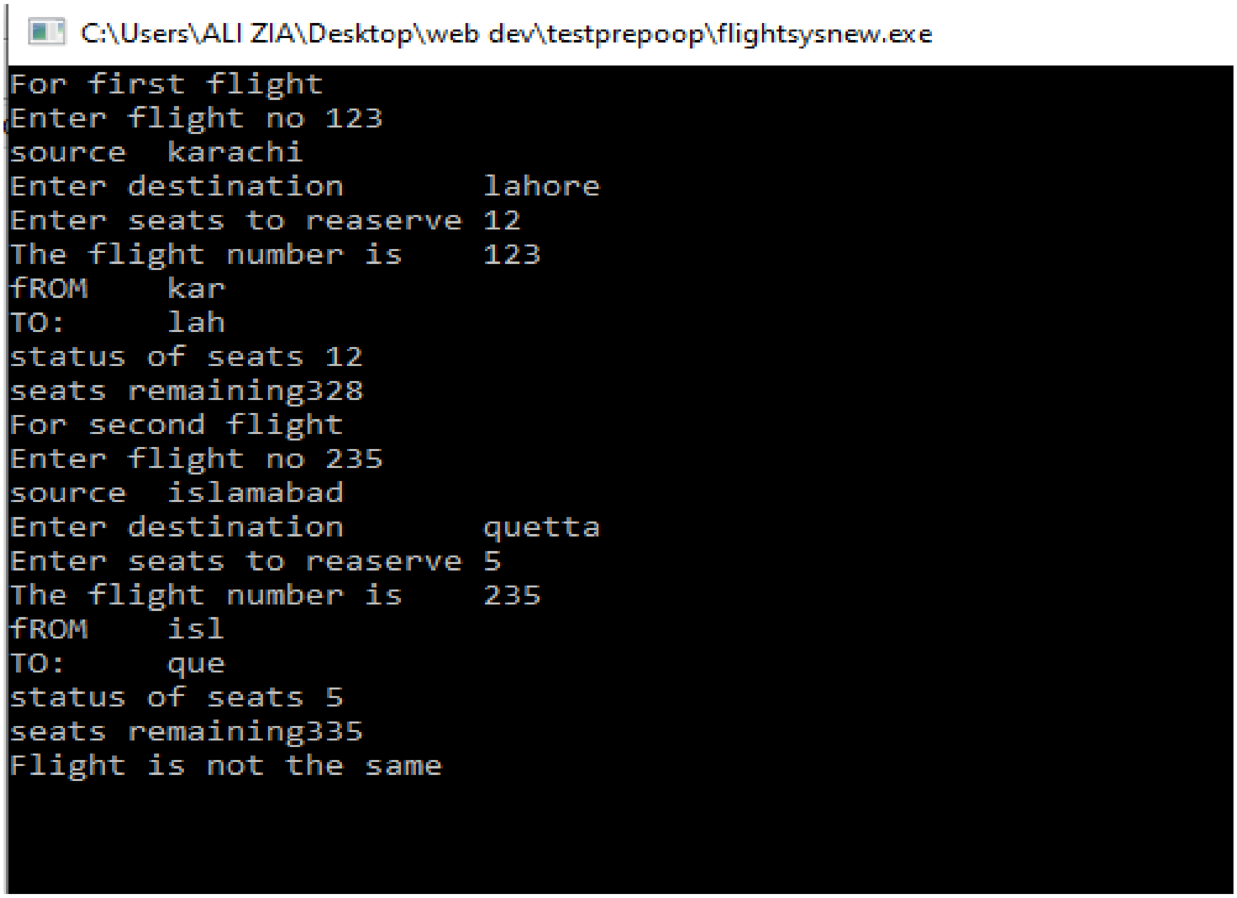


```cpp
void reserve(int tellseats) {
    if (tellseats <= numberofseats) {
        numberofseats = numberofseats - tellseats;
        cout << "your resereved seats are" << tellseats << endl;
    }
    else
        cout << "No seats are available" << endl;
}
void cancel(int tellseats) {
    if (tellseats <= numberofseats) {
        numberofseats = numberofseats + tellseats;
    }
    else
        cout << "No such big seats can be cancelled" << endl;
}
void showdata() {
    cout << "The flight number is\t" << flightno << endl;

    cout <<"FROM\t"<<source<< endl;
    cout << "TO:\t" << destination << endl;
    cout << "status of seats\t" << numberofseats << endl;
    cout << "seats remaining" << 340 - numberofseats << endl;
}
void takinginfo(flight f) {
    cout << "Enter flight no\t";
    cin >> flightno;
    cout << "source\t";
    string r;

    cin >> r;
    if(r.length()<=3){
        source=r;
    }
    else{
```



```
        else{
            source=r.substr(0,3);
        }
        cout << "Enter destination\t";
        string m;
        cin>>m;
            if(m.length()<=3){
            destination=m;
        }
        else{
            destination=m.substr(0,3);
        }
        cout << "Enter seats to reaserve\t";
        cin >> numberofseats;


    }


};
int main() {
    flight fl1;
    cout << "For first flight" << endl;
    fl1.takinginfo(fl1);
    fl1.showdata();
    flight fl2;
    cout << "For second flight" << endl;
    fl2.takinginfo(fl2);
    if (fl1.flightno == fl2.flightno) {
        cout << "sorry __!!!!__your flight no is same" << endl;
    }
    else
    {
        fl2.showdata();
         cout << "Flight is not the same" << endl;
    }




    _getch();
    return 0;

}
```

OUTPUT:



C:\Users\ALI ZIA\Desktop\web dev\testprepoop\flightsysnew.exe

```
For first flight
Enter flight no 123
source  karachi
Enter destination       lahore
Enter seats to reaserve 12
The flight number is    123
fROM    kar
TO:     lah
status of seats 12
seats remaining328
For second flight
Enter flight no 235
source  islamabad
Enter destination       quetta
Enter seats to reaserve 5
The flight number is    235
fROM    isl
TO:     que
status of seats 5
seats remaining335
Flight is not the same
```

Q#2.

Implement a class *Car,* that has the following characteristics:

a) *brandName*,

b) *priceNew,* which represents the price of the car when it was new,

c) *color*, and

d) *odometer*, which is milo meter shows number of mileage travelled by car

The class should have:

A. A method *getPriceAfterUse()* which should return the price of the car after being used according to the following formula:

$$\text{car price after being used} = priceNew \times \left(1 - \frac{odemeter}{600{,}000}\right)$$

B. A method *updateMilage(double traveledDistance)* that changes the current state of the car by increasing its mileage, and

C. A method *outputDetails()* that will output to the screen all the information of the car, i.e., brand name, price new, price used, color, and odometer.

Write a test class for the *Car* class above. You are required to do the followings:

a. Create an object of type *Car*.

b. Assign any valid values to the instance variables of the object created in '**A**'.

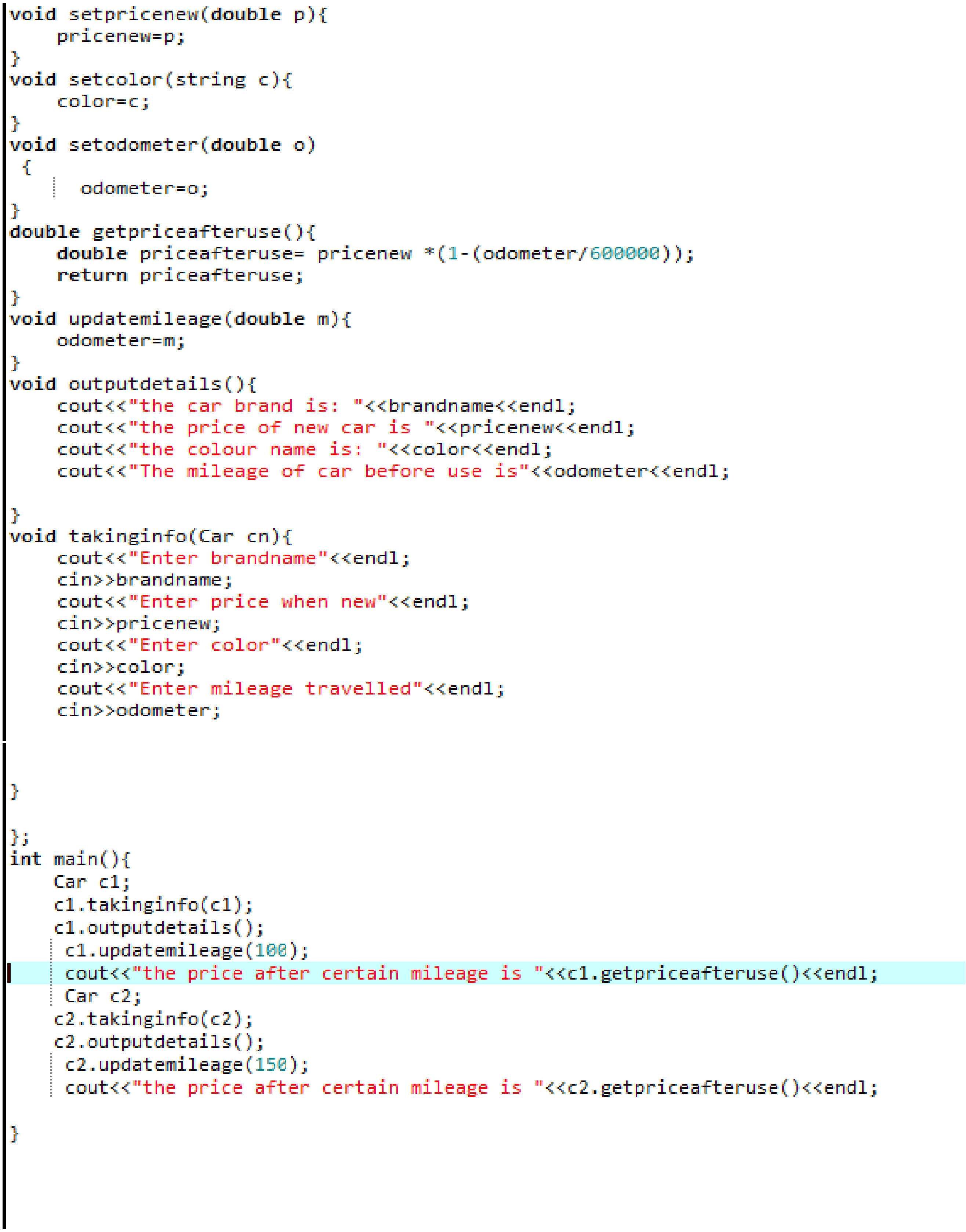
c. Use the method *getPriceAfterUse* on the object created in '**A**' then output the result to the screen.

d. Use the method *updateMilage* on the object created in '**A**' by passing a valid value.

e. Do part '**C**' again.

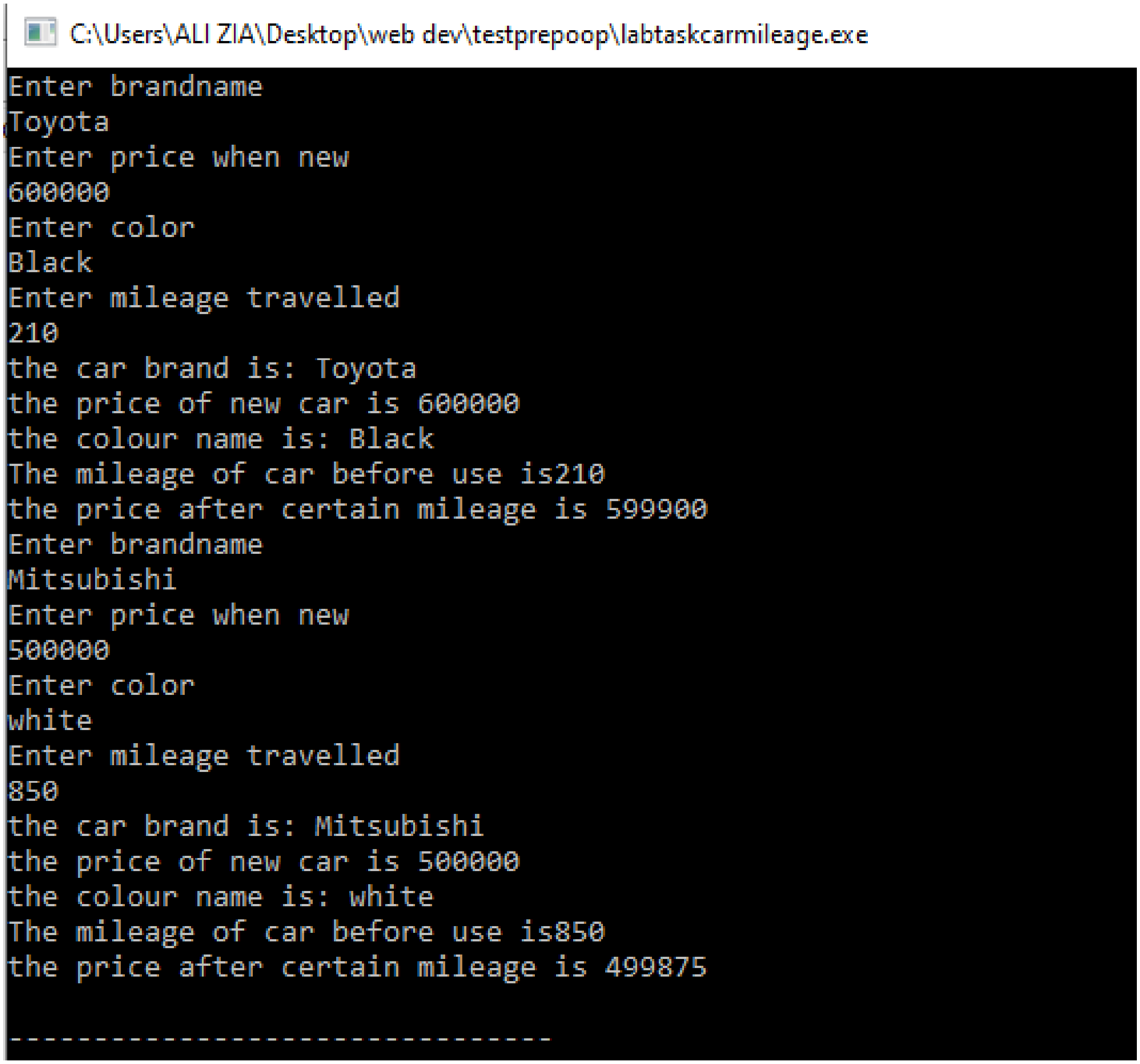
f. Use the method *outputDetails* on the object created in '**A**'.

```
#include<conio.h>
#include<iostream>
#include<string.h>
using namespace std;
class Car{
private:
    string brandname;
    double pricenew;
    string color;
    double odometer;
public:
    Car()
    {
    };
Car(string b,double p,string c,double o):brandname(b),pricenew(p),color(c),odometer(o){

};
string getbrandname(){
    return brandname;
}
double getpricenew(){
    return pricenew;
}
string getcolor(){
    return color;
}
double getodometer(){
    return odometer;
}
void setbrandname(string b){
    brandname=b;
}
```



```
void setpricenew(double p){
    pricenew=p;
}
void setcolor(string c){
    color=c;
}
void setodometer(double o)
 {
      odometer=o;
}
double getpriceafteruse(){
    double priceafteruse= pricenew *(1-(odometer/600000));
    return priceafteruse;
}
void updatemileage(double m){
    odometer=m;
}
void outputdetails(){
    cout<<"the car brand is: "<<brandname<<endl;
    cout<<"the price of new car is "<<pricenew<<endl;
    cout<<"the colour name is: "<<color<<endl;
    cout<<"The mileage of car before use is"<<odometer<<endl;

}
void takinginfo(Car cn){
    cout<<"Enter brandname"<<endl;
    cin>>brandname;
    cout<<"Enter price when new"<<endl;
    cin>>pricenew;
    cout<<"Enter color"<<endl;
    cin>>color;
    cout<<"Enter mileage travelled"<<endl;
    cin>>odometer;



}

};
int main(){
    Car c1;
    c1.takinginfo(c1);
    c1.outputdetails();
     c1.updatemileage(100);
     cout<<"the price after certain mileage is "<<c1.getpriceafteruse()<<endl;
     Car c2;
    c2.takinginfo(c2);
    c2.outputdetails();
     c2.updatemileage(150);
     cout<<"the price after certain mileage is "<<c2.getpriceafteruse()<<endl;

}
```

OUTPUT:



C:\Users\ALI ZIA\Desktop\web dev\testprepoop\labtaskcarmileage.exe

```
Enter brandname
Toyota
Enter price when new
600000
Enter color
Black
Enter mileage travelled
210
the car brand is: Toyota
the price of new car is 600000
the colour name is: Black
The mileage of car before use is210
the price after certain mileage is 599900
Enter brandname
Mitsubishi
Enter price when new
500000
Enter color
white
Enter mileage travelled
850
the car brand is: Mitsubishi
the price of new car is 500000
the colour name is: white
The mileage of car before use is850
the price after certain mileage is 499875

--------------------------------
```

Coffee Outlet runs a catalog business. It sells only one type of coffee beans. The company sells the coffee in 2-lb bags only and the price of a single 2-lb bag is $5.50. when a customer places an order, the company ships the order in boxes. The boxes come in 3 sizes with 3 different costs:

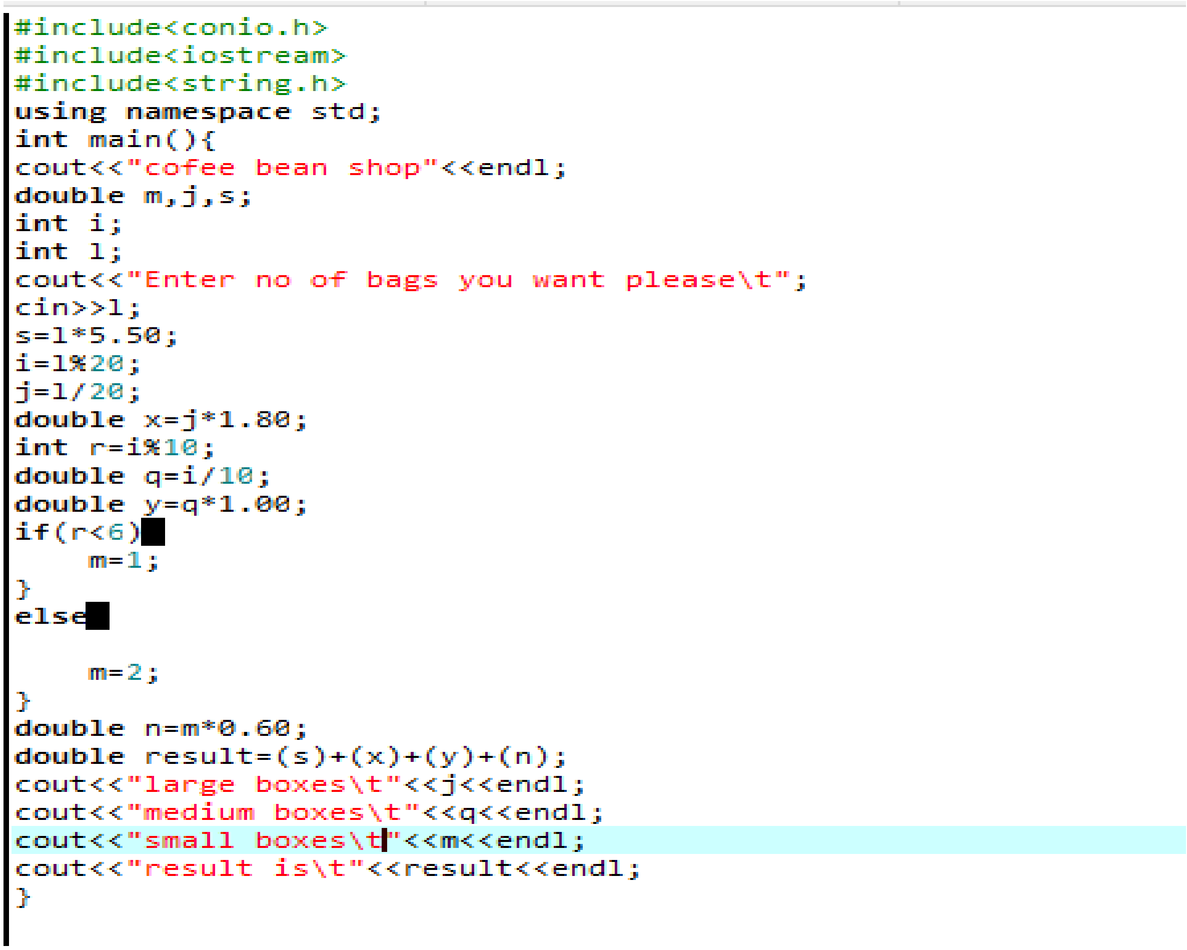
	Large box	Medium box	Small box
Capacity	20 bags	10 bags	5 bags
Cost	$1.80	$1.00	$0.60

The order is shipped using the least number boxes. For example, the order of 52 bags will be shipped in 2 boxes: 2 large boxes, 1medium and 1 small.

Develop an application that computes the total cost of an order.

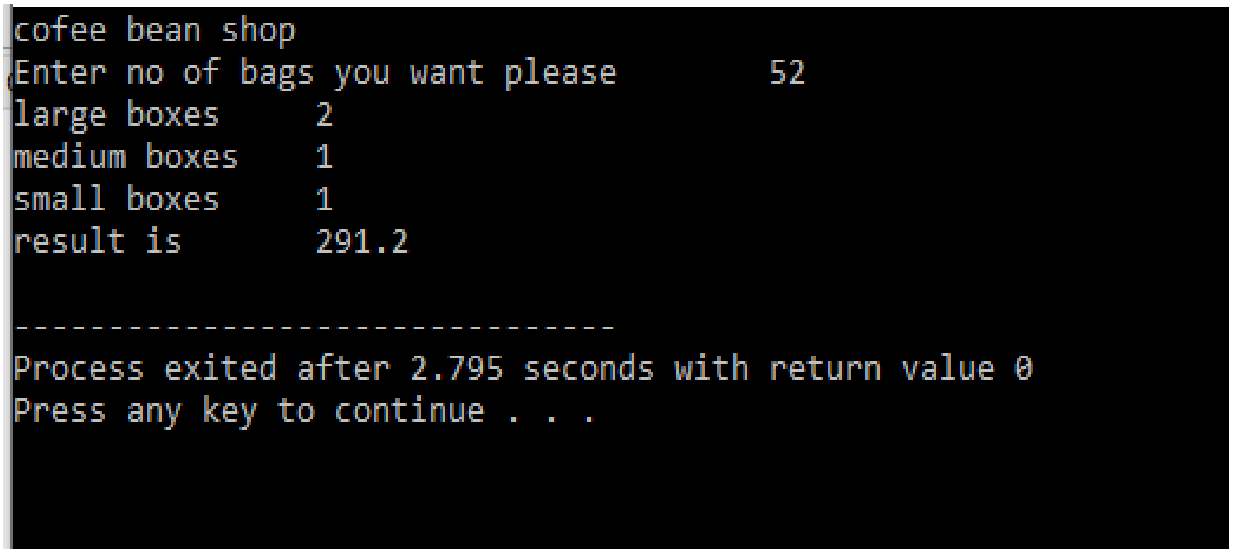
Sample out put:

```
Number of Bags Ordered: 52
The Cost of Order: $ 286.00

Boxes Used:
          2 Large  - $3.60
          1 Medium - $1.00
          1 Small  - $0.60

Your total cost is: $ 291.20
```



```
#include<conio.h>
#include<iostream>
#include<string.h>
using namespace std;
int main(){
cout<<"cofee bean shop"<<endl;
double m,j,s;
int i;
int l;
cout<<"Enter no of bags you want please\t";
cin>>l;
s=l*5.50;
i=l%20;
j=l/20;
double x=j*1.80;
int r=i%10;
double q=i/10;
double y=q*1.00;
if(r<6)█
    m=1;
}
else█

    m=2;
}
double n=m*0.60;
double result=(s)+(x)+(y)+(n);
cout<<"large boxes\t"<<j<<endl;
cout<<"medium boxes\t"<<q<<endl;
cout<<"small boxes\t"<<m<<endl;
cout<<"result is\t"<<result<<endl;
}
```

OUTPUT:



```
cofee bean shop
Enter no of bags you want please        52
large boxes     2
medium boxes    1
small boxes     1
result is       291.2


--------------------------------
Process exited after 2.795 seconds with return value 0
Press any key to continue . . .
```