AMERICAN INTERNATIONAL UNIVERSITY BANGLADESH
FACULTY IF SCIENCE AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE
C++ PROBLEMS

Problem 1:

Create an application which will have 2 classes called "MozilaaFirefox", "InternetExplorer". Both the classes will have the following properties:

Data Members:

i. an integer which represent the number of user

Member Functions:

i. A setvalues() function to set the private data member of the class
ii. Getvalue() function to return the private member variable of the class.

Write a function called '**void compare(MozillaFirefox m, InternetExplorer i)**' [this will not be a member of any of the class] that will be able to print which search engine is less popular based on their number of user.

Now, from main function ask the user to give input for the number of users of each class and set the value of each class. Then call the compare function to print the result.

Problem 2:

Create the following class named Point:

Class: Point

Data members: double x, y //Cartesian co-ordinates of a line

Member functions:

Point()	//initialize x and y to 0
Point(double m, double n)	//initialize x and y with m and n
double getx()	//return x
double gety()	//return y
double r_value()	//return r value of polar co-ordinates of the point $r = \sqrt{x^2 + y^2}$
Double theta_value()	//return theta value of polar co-ordinates of the point $theta = \tan^{-1}\frac{y}{x}$
bool onx()	//return true if the point is on x axis
bool ony()	//return true if the point is on y axis
double distance(Point p)	// return distance between two points [distance between calling object and received object] **If there are two points (x1, y1) and (x2, y2) , distance between them:** $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
Bool samepoint(Point p)	//return true if the calling object and received object have the same x and y co-ordinates.
void shiftby(int x, int y)	// Suppose a point is p1(3, 4).

Calling p1.shiftBy(2, 6)will shift p1 to (5, 10).

Main function is given below:

```
int main()
{
   point p, q;
   point r(2,3);
   cout<<"p.x:"<<p.getx()<<" p.y:"<<p.gety()<<endl;
   cout<<"r.x:"<<r.getx()<<" r.y:"<<r.gety()<<endl;
   cout<<r.r_value()<<endl;
   cout<<r.theta_value()<<endl;
   cout<<p.onx()<<" "<<p.ony()<<endl;
   cout<<r.onx()<<" "<<r.ony()<<endl;
   cout<<p.distance(r)<<endl;
   cout<<p.samepoint(q)<<endl;
   cout<<r.samepoint(p)<<endl;
   p.shiftby(2,3);
   cout<<"p.x:"<<p.getx()<<" p.y:"<<p.gety()<<endl;
   return 0;
}
```

Problem 3:

Can you apply default argument in the previous program? If you can, please modify it accordingly.