Lab Assignment-4

4. Programming Exercises on Operator Overloading

4.1 Design a class Polar which describes a point in the plane using polar coordinates radius and angle. A point in polar coordinates is shown in the figure below. Use the overload + operator to add two objects of Polar.

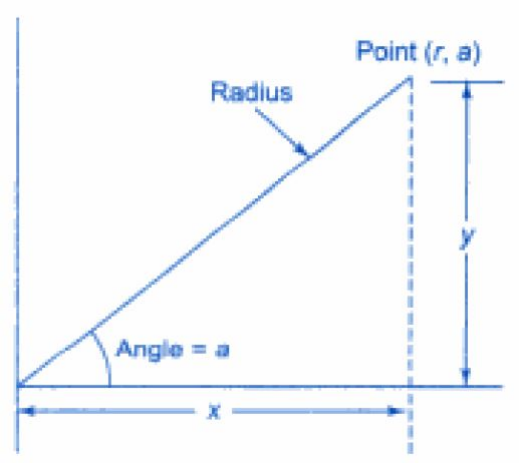

Figure 1: Polar coordinates of a point

Note that we cannot add polar values of two points directly. This requires first the conversion of points into rectangular coordinates, then adding the respective rectangular coordinates and finally converting the result back into polar coordinates. You need to use the following trigonometric formula:
x = r * cos(a);
y = r * sin(a);
a = atan(y/x); //arc tangent
r = sqrt(x*x + y*y);

4.2 Write a program to show how the increment operator (++) is overloaded.

4.3 Crate a class FLOAT that contains one float data member. Overload all the four arithmetic operators so that they operate on the objects of FLOAT.