Due date: Apr 7, 11:59 PM

Project 2 Phase 1

Implement following requirement for the phase 1 of project 2.

Part 1. Create Shape abstract class
a, Contain member variable name
b, One Argument constructor
c, Display() pure virtual function
d, should create Shape.h, Shape.cpp files for this class

Part 2. Create Triangle class Inherit from Shape
a, Contain two edge member variable name a, b
b, Contain one Point member variable which is the vertex between a, b
c, Contain one double degree which is angle between a, b
d, Write one default constructor
e, Write four arguments constructor, which takes two edge, and one point, and one double for degree.
f, should create Triangle.h, Triangle.cpp files for this class

Part 3. Create Rectangle class Inherit from Shape
a, Contain one Point member variable which is the vertex of bottom left corner
b, Contain two edge member variable name width, height
c, Write one default constructor
d, Write three arguments constructor, which takes one point, and two double
e. should create Triangle.h, Triangle.cpp files for this class

Part 4. Create Circle class Inherit from Shape.
a, Contain one Point member variable which is center of circle
b, Contain one double member variable which is radius of circle
c, Write one default constructor
d, Write two arguments constructor, which takes one point, and one double for radius.
e. should create Circle.h, Circle.cpp files for this class

Part 5, Create a Point class.
a, contain two double member variable which represent x and y coordinate
b, mutator and accessor of x, y
c. should create Point.h, Point.cpp files for this class

Part 6, Create a Edge class.
a, contain one double member variable which represent the length of edge.
b, mutator and accessor of length
c. should create Edge.h, Edge.cpp files for this class

Due date: Apr 7, 11:59 PM

Part 7: Implement separate compilation for phase 1, create a makefile for the phase 1.

Use following main() to test your class.

```
int main(){
  Shape **a = new Shape*[3];
  a[0] = new Triangle(Edge(4),Edge(3),Point(2,3),90);
  a[1] = new Rectangle(Point(2,2),Edge(5),Edge(6));
  a[2] = new Circle(Point(3,3),10);
  for(int i=0;i<3;i++) {
    a[i]->Display();
    cout<<endl;
  }
  return 0;
}
```

Output from given main: (user input in **bold font**)

```
Name: Triangle
Length of Edge A: 4
Length of Edge B: 3
Coordinates of Vertex: (2, 3)
Angle (in degrees): 90

Rectangle Details:
Name: Rectangle
Width: 5
Height: 6
Bottom-left Coordinates: (2, 2)

Circle Details:
Center: (3, 3)
Radius: 10
```

Phase 1 file list:

```
Shape.h
Shape.cpp
Triangle.h
Triangle.cpp
Rectangle.h
Rectangle.cpp
Circle.h
Circle.cpp
Point.h
Point.cpp
Edge.h
```

Due date: Apr 7, 11:59 PM

```
Edge.cpp
Main.cpp
makefile
p2_report_phase1.txt
```

Point distribution:

```
Phase 1: 25 pt
```