North South University
Department of Electrical and Computer Engineering
CSE 215L: Programming Language II Lab
Lab – 9 Topic(s): Polymorphism

Lab Task:

1. Shape class has two subclasses named: Rectangle and Circle. Your main task is to apply polymorphism knowledge here. Convert the following UML diagrams into Codes.

```
                    Shape
─────────────────────────────────────────
- color: String
─────────────────────────────────────────
// constructors
// setters
// getters
+ getArea(): double // unknown
+ getPerimeter(): double // unknown
+ toString(): String
```

```
                 Rectangle
─────────────────────────────────────────
- length: double
- width: double
─────────────────────────────────────────
// constructors
// setters
// getters
+ getArea(): double // l*w
+ getPerimeter(): double // 2*(l+w)
+ toString(): String
```

```
                  Circle
─────────────────────────────────────────
- radius: double
─────────────────────────────────────────
// constructors
// setters
// getters
+ getArea(): double // PI*r*r
+ getPerimeter(): double // 2*PI*r
+ toString(): String
```

Now write a test program that performs the following steps:

- Create an instance of Shape, Rectangle and Circle class respectively
- Print their properties, area and perimeter using the given methods