Chapter 10 Discussion

EXERCISE #1

Class Diagram

Square
- Side = integer
- Area = integer
- Perimeter = integer

Square ()
Square(side : integer)
getSide() = integer
setSide(side = integer)
getArea() = integer
getPerimeter() = integer

Pseudocode

```
class Square
        // Attributes
        integer side
        integer area
        integer perimeter
        this.side = 1
        CalculateAreaandPerimeter()

        //Area and perimeter
CalculateAreaandPerimeter():
        this.Area = this.Side * this.Side
        this.Perimeter= 4 * this.Side

        //Methods
Method getSide(side : integer) return side
        this.Side = side
Method setSide(side : integer)
        if side > 0
                this.Side = side
                CalculateAreaandPerimeter()
         else
                Put “Side must be greater than 0.” to output.
Method getArea() return area
        this.Area = area
Method getPerimeter() return perimeter
        this.Perimeter = perimeter
```

Class Diagram

Rectangle
- Side = integer
- longSide = integer
- Area = integer
- Perimeter = integer

Rectangle()
- Rectangle(side: integer)
- getSide() = integer
- getArea() = integer
- getPerimeter = integer

Pseudocode

```
class Rectangle
        //Attributes
        Integer side
        Integer longSide
        integer area
        integer perimeter
        this.side = 1
        this.longSide = 2
        CalculateAreaandPerimeter()

        //Area and perimeter
CalculateAreaandPerimeter()
        this.Area = this.Side * this.longSide
        this.Perimeter= 2 * this.Side + 2 * this.longSide

        //Methods
Method getSide(side : integer) return side
        this.Side = side
Method setSide(side : integer)
        if side > 0 and longSide != this.Side
                this.Side = side
                CalculateAreaandPerimeter()
         else
                Put “Side must be greater than 0.” to output
Method setlongSide( longSide : integer)
.       if longSide > 0 and longSide != side
                this.longSide = longSide
                CalculateAreaandPerimeter()
        else
                Put “Long side cannot be equal to side.” to output
Method getArea() return area
        this.Area = area
Method getPerimeter() return perimeter
        this.Perimeter = perimeter
```

EXERCISE #2

```
class Square
        side = 0
        constructorSquare()
        endconstructor

        method setSide(newSide)
                side = newSide
        end method

        methodgetSide()
                return side
        end method
end class

class Rectangle
        length = 0
        width = 0
        constructorRectangle()
        end constructor
        method setDimensions(newLength, newWidth)
                length = newLength
                width = newWidth
        end method
        method getLength()
                return length
        end method
        method getWidth()
                return width
        end method

end class

function main()
        Square square1 = newSquare()
        Square square2 = newSquare()

        Put “Square 1 side: “ to output
        Put square1.getSide() to output
        Put “Square 2 side: “ to output
        Put square2.getSide() to output

        Rectangle rect1= new Rectangle()
        Rectangle rect2 = newRectangle()

        Put “Rectangle 1 length: “ to output
        Put rect1.getLength() to output
        Put “, width: “ to output
        Put rect1.getWidth() to output
```

```
        Put “Rectangle 2 length: “ to output
        Put rect2.getLength() to output
        Put “, width: “ to output
        Put rect2.getWidth() to output

        square1.setSide(5)
        square2.setSide(7)

        rect1.setDimensions(4,6)
        rect2.setDimensions(8,10)

        Put “Updated Square 1 side: “ to output
        Put square1.getSide() to output
        Put “Updated Square 2 side: “ to output
        Put square2.getSide() to output
        Put “Updated Rectangle 1 length: “ to output
        Put rect1.getLength() to output
        Put “,width: “ to output
        Put rect1.getWidth() to output
        Put “Updated Rectangle 2 length: “ to output
        Put rect2.getLength() to output
        Put “,width: “ to output
        Put rect2.getWidth() to output
end function
```