**CMSC214 Project 1**

**Content: Project 1 |**

**Lessons Learned, UML diagram, Test Plan, Screenshots for test cases, Checklist**

**Class: CMSC214 - CRN: 22626**

**Instructor: Mark Estep**

**Description: A program that designs a class named Octagon that extends GeometricObject and implements the Comparable and Cloneable interfaces.**

**Due: 09/13/2020**

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**Lessons Learned**

In this project, I could practice my knowledge on super and subclasses, abstract super classes, writing additional methods in the subclass.

I used clone() method of the Object class for the first time and its use was quite straight forward. I learned that since clone() is an Object class method and its return type is also Object type, I needed to type cast the cloned object to Octagon in order to have a clone with the Octagon data type.

I spend some with finding the correct way to throw an exception for the negative side values. Finally, I learned that I could make use of IllegalArgumentException type for this purpose. I declared that the main test method may throw an IllegalArgumentException. In addition, I used an if clause to check the side value and was able to print an exception message saying the value should be a positive value. I still feel like I should dig into various exception types and the ways to handle them. I think the related unit in the book gives me a good foundation to do that.

For the compareTo() method, I learned that I could basically write any condition in my method to decide what I want to compare, in this case I compared the area’s of different objects and returned -1, 0 , 1 for these situations.

**UML diagram**

**A screenshot of a cell phone

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**Test Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cases** | **Input** | **Expected Result** | **Actual Result** | **Did it pass?** |
| 1 | sideValue = 5 | o1 and o2 are equal | o1 and o2 are equal | Yes |
| 2 | sideValue = -2 | Exception in thread "main" java.lang.IllegalArgumentException:  Side value cannot be 0 or negative | Exception in thread "main" java.lang.IllegalArgumentException:  Side value cannot be 0 or negative | Yes |
| 3 | O1 sideValue = 2  O2 sideValue = 6 | o2 is bigger than o1 | o2 is bigger than o1 | Yes |
| 4 | O1 sideValue = 8  O2 sideValue = 6 | o1 is bigger than o2 | o1 is bigger than o2 | Yes |

**Screenshots**

**Case 1:**

**A screenshot of a cell phone

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**Case 2:**

**A picture containing clock

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**Case 3:**

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**Case 4:**

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**Checklist**

|  |  |  |  |
| --- | --- | --- | --- |
| **#** |  | **Y/N** | **Comments** |
|  | Source java files |  |  |
|  | Files: |  |  |
|  | FirstInitialLastName\_Project01.zip | **Y** |  |
|  | FirstInitialLastName\_Project01.doc | **Y** |  |
|  | Program compiles | **Y** |  |
|  | Program runs | **Y** |  |
|  | Checklist is completed and included in the Documentation | **Y** |  |
|  | Documentation file: |  |  |
|  | Comprehensive Test Plan | **Y** |  |
|  | Screenshots based on Test Plan | **Y** |  |
|  | UML diagram | **Y** |  |
|  | Lessons Learned | **Y** |  |
|  | Checklist | **Y** |  |