**CMSC 203 Assignment 6**

**Pseudocode (Function1.java)**

1. Function1 extends Function
2. answerString method takes 4 double parameters (x, y, z, optVal).
   * return x, y, optVal as string.
3. fnValue method takes a double parameter x.
   * if x is less than or equal to 0, return the max value
   * Else, return (x / 8) + ((sqrt(4+(6 – x) ^ 2)) / 3)
4. getXVal method takes a double parameter x
   * return x
5. getYVal method takes a double parameter x
   * return sqrt(4+(6-x)^2)
6. getZVal method takes a double parameter x
   * return 0
7. toString method
   * Return "Minimize the time it takes to reach the island by running and swimming."

**Test Plan**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| # | Input | Expected Output | Actual Output | Remarks |
| 1 | Left extent: 0  Right extent: 10 | Run Distance:  5.20 mi  Swim Distance:  2. 15 mi  Time: 1.37 hours | Run Distance:  5.20 mi  Swim Distance:  2. 15 mi  Time: 1.37 hours | Yes |
| 2 | Left Extent: 0  Right Extent: 15 | Run Distance:  5.17 mi  Swim Distance:  2. 16 mi  Time: 1.37 hours | Run Distance:  5.17 mi  Swim Distance:  2. 16 mi  Time: 1.37 hours | Yes |
| 3 | Left Extent: 0  Right Extent: 3 | Run Distance:  5.18 mi  Swim Distance:  2. 16 mi  Time: 1.37 hours | Run Distance:  5.18 mi  Swim Distance:  2. 16 mi  Time: 1.37 hours | Yes |

**Learning Experience**

This assignment was very straight forward and easy to do as this is based on our previous assignment. This assignment was helpful in understanding inheritance, interfaces and polymorphism.

This assignment was very fun to do. Integrating the concepts from two classes( computer and math) was very convenient. It also helped me understand the mathematical concept better. Optimization is very useful in real life situation too and after doing this assignment, I feel I can find out optimum results for real life problems too.