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 1 /**
 2  * Name: Sunil Sunichura
 3  * Student ID: 991578383
 4  * Assignment 2
 5  * Date: 2019-09-28
 6  */
 7
 8 /*
 9  * This program completes calculations for the user based on the inputs
10  * provided. First the user has a choose between 1,2,3 for the shape.
11  * Then the user has to provide numbers for the parameters.
12  * Then finally, the program will provide information about the shape
13  * constructed.
14  */
15 package theshape;
16
17 import java.util.Scanner;
18
19 public class TheShape {
20
21     public static void main(String[] args) {
22
23         Scanner k = new Scanner(System.in); // Scanner that reads user input
24         /*
25          1 is for Triangle calculation
26          2 is for Rectangle calculation
27          3 is for Circle calculation
28          */
29         System.out.print("1 for a Triangle calculation "
30                 + "\n2 for a Rectangle calculation"
31                 + "\n3 for a Circle calculation"
32                 + "\nEnter a selection from 1 to 3: ");
33         int num = k.nextInt();
34
35         if (num < 1 || num > 3) {   // no var num less than 1/var num > 3
36             System.out.println("Invalid number, must be from 1 to 3");
37         }
38         /*If the corresponding number is selected (1 to 3), the program will
39         execute that part of the program and ask for user input for
40         calculation purposes. It will also check to ensure no negative
41         numbers are inputted.
42         */
43         else {
44             if (num == 1) {
45                 System.out.print("Enter a number for height: ");
46                 double x = k.nextDouble();
47                 double height = x >= 0 ? x : -1; // conditional operator
48                 if (height < 0) {
49                     System.out.println("Height cannot be a negative number");
50                 } else {
51                     System.out.print("Enter a number for base: ");
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52                      double base = k.nextDouble();
53                      if (base < 0) {
54                          System.out.println("Base cannot be a negative number");
55                      } else {
56                          double triArea = 0.5 * height * base;
57                          System.out.println("The area of the Triangle is: "
58                                  + triArea);
59                      }
60                  }
61              }
62              else if (num == 2) {
63                  System.out.print("Enter a number for width: ");
64                  double width = k.nextDouble();
65                  if (width < 0) {
66                      System.out.println("Width cannot be a negative number");
67                  } else {
68                      System.out.print("Enter a number for length: ");
69                      double length = k.nextDouble();
70                      if (length < 0) {
71                          System.out.println("Length cannot be a negative "
72                                  + "number");
73                      } else {
74                          double recArea = length * width;
75                          double perimeter = 2 * (length + width);
76                          System.out.println("The area of the rectangle is: "
77                                  + recArea + " and the perimeter is: "
78                                  + perimeter);
79                      }
80                  }
81              }
82              else {
83                  System.out.print("Enter a number for radius: ");
84                  double radius = k.nextDouble();
85                  if (radius < 0) {
86                      System.out.println("Radius cannot be a negative number");
87                  } else {
88                      double diameter = 2 * radius;
89                      System.out.println("The diameter of the circle is: "
90                              + diameter);
91                  }
92              }
93          }
94          System.out.println("Name: Sunil Sunichura "
95                  + "\nStudent ID: 991578383");
96      }
97
98  }
```