CMIS 141: Introduction to Programming

Project 2: 3D Solids Volume and Surface Area

Summary:

Project 2 is worth 100 points or 20% of the points for the course. The point assignment on this project will be about 50% of the points assigned to the Design Phase and the other 50% to the Implementation Phase. Even if your final program does not work you can acquire a majority of the points with a good design and a well documented program. This project focuses on demonstrating your understanding of sequential, selective and repetitive programming statements, methods, and modular programming. Before attempting this project, be sure you have completed all of the reading assignments listed in the syllabus to date, and thoroughly understand the examples throughout the chapters.

Requirements:

Create a cover sheet for this assignment to include your name, class, date submitted, and a title. This assignment is due at the beginning of the second class week 5 and is worth 50 points or 12.5% of your final grade. I will only grade this assignment once so please make sure you have attached all documentation that you would like me to grade. I only accept paper not emails on projects. Late assignments will be reduced 30% for each class period late.

For this project you will create a program to display the surface area or volume for at least three different 3-dimensional solids to include rectangular solid, cylinder, and sphere. The program should loop for multiple runs until an Exit sentinel value is entered.

Prompt the user for which solid and which calculation they would like to perform. Prompt the user for the linear units used for the dimensions. Appropriate dimensions need to be entered for the solid chosen. Calculate the answer using the appropriate formula for the solid.

Your program output must be done on the console utilizing either print, println, or printf methods. Display the input values and results including appropriate units formatted well.

Your program source code needs to be stored in a file called ***YourName*_Solids.java**
Your program needs to be implemented with a class called ***YourName*_Solids** and utilize at least seven different methods within the class to include the **`main`** method.

Submit by the Due Date: Week 5 Class 2

1. Create a program document ***YourName*_Solids.doc** with Title Page and create a Program Design section to include program specifications, test data, input/output design, and sequential design using flowcharts or pseudo-code for all methods. Attach all pseudo-code or flowcharts you created for your design.
2. Implement your program design using NotePad++ or Eclipse and name your file: ***YourName*_Solids.java**
   The program source code should be well documented to include your name.
3. Run your program and demonstrate your code runs without logic errors using your known test data.

4. Create a Program Implementation section in ***YourName*_Solids.doc** and copy and paste your source code in this section. Do a screen capture or text copy of the output of your program for six different runs using your known test data and paste these in this section as verification your program works.
5. Print out the ***YourName*_Solids.doc** word document and be ready to submit this for grading at the beginning of Class 2 – Week 5.

I will only grade this assignment once so please make sure you have attached all documentation that you would like me to grade. I only accept paper not emails on these assignments.

A grade of 80% will be awarded for fulfilling all program specifications in a minimal way. To exceed an 80% grade you must exceed the requirements and neatness does count. Late assignments will be reduced 30% for each class period late.