1 The Cylindrical Tank problem

Project assigned on: Friday, Feb 3rd 2012
Project due date: Thursday, Feb 9th, 11:59 p.m

1.1 Description

In this project you will output the volume of the larger cylindrical tank, in gallons of the larger of two cylindrical tanks, based on their radius and height, provided as user input. You will read in details of 2 cylinders, -radius and height- (in centimeters) using JOptionPane. A quick look at figure[1] figure[2] and figure[3] will give a good overall requirement of the project.

2 Learning Objectives

1. Learn how to use JOptionPane to read user input.
2. Learn how to work with numerical data types.
3. Learn how to use standard java classes String and Math.

3 Project Setup

Create a folder project2 in your cs180 folder. Save all your Java source files in the project2 folder. You will be turning in this folder when the project is completed.

Note: Use the following commands if needed.
\% cd cs180
\% mkdir project2
\% cd project2
\% pwd
/u/u9x/yourlogin/cs180/project2
\% drjava
4 Project Details

4.1 Input Details

Your program should read the radius and height of 2 cylindrical tanks as shown below.

1. Read the radius and height of the first cylindrical tank in centimeters. The radius and height should be separated by a space character.

2. Read the radius and height of the second cylindrical tank in centimeters. The radius and height should be separated by a space character.

3. Both the radius and height are decimal values.

4. Note: There is no need to handle invalid user input in this project.

4.2 Data Processing and Output

Use the collected data to print the output as shown in Figure 3.

1. The volume of the Cylinder is calculated using the following formula.
   \[ V = \pi r^2 h \], where ‘r’ is the radius and ‘h’ is the height of the cylinder.
2. Use the value of PI from the Math Class.

3. Find the maximum volume of cylindrical tank 1 and cylindrical tank 2.

4. Convert the maximum volume from cubic centimeters to gallons.
   
   1 cubic centimeter = 0.000264172052 US gallons

4.3 Displaying Output

Keep the following in mind when displaying the output

1. All decimal values should be formatted to exactly 3 digits of precision. Use the DecimalFormat class in the java.text package to do so.

2. Try to match your output exactly to figure 3.

5 Coding Standards

Make sure you follow the coding standards specified in the course website. Here.

6 Grading

<table>
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<th>Points</th>
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<tr>
<td>Data Input</td>
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<td>Calculations</td>
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7 Turnin

Make sure you have class level comments which clearly specifies your name, cs login, recitation section number, and date.

/*
 * name:
 * cs login:
 * recitation section
 * date
 */

To turnin first remove all the .class files from your project2 folder

% pwd
/u/u9x/yourlogin/cs180/project2
% rm -i *.class

Very Imp: change your current folder to your cs180 folder and only then run turnin command.

% cd ..
Find in the following table the recitation section you are enrolled in, and substitute XXX with the corresponding value of the column XXX.

<table>
<thead>
<tr>
<th>Section</th>
<th>Day</th>
<th>Time</th>
<th>Rec. TA</th>
<th>XXX</th>
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