LAB 2

Suggested order: Complete part 1 before completing part 2

Part 1

After completing this week's practical, you should be able to read in a String representing a number using JOptionPane, and convert that String to a double, a float, or an int. You will also be able to use these numbers in computations.

In this practical you should write a program which asks the user for a radius value using a JOptionPane InputDialog pop-up window, computes the area of a circle with that radius, and returns the answer in a MessageDialog pop-up window. Your program should first put the radius value entered in the InputDialog into a String variable (everything entered in an InputDialog is a String, and so must go in a String variable), and should then convert that String into a double and put it in your radius variable (which should be of type double). See Lecture 6: "Reference types numbers and objects" for details on converting from a String to a double.

In asking the user to enter a radius value, your program should display the input request:

Enter circle radius:

To work out the area of a circle, your program should multiply the entered radius value by itself, and then by PI. You can take PI to be equal to 3.1416. You should store the computed circle area in a variable called area, which should be of type double.

In returning the area of a circle with the entered radius, your program should display the message:

Circle of radius ? has area ?

Where the first question mark represents the radius value entered by the user, and the second question mark represents the computed circle area.

Remember, to use JOptionPanes in your program, there must be a line at the start of your program importing the JOptionPane class (see Lecture 5: Communication with JOptionPanes). Finally, finish off your program with the System.exit(0); statement (to ensure that your pop-up windows close correctly and the program ends properly).

Your program should consist of a single class with a single main part, just as in the first "Welcome" program. You can give your program with the class name CircleArea. You should save your program in a file with the same name as the program's class name.

When you have written and saved your program, you should compile it and run it using the command prompt as in practical 1 (look at the part 2 of that practical for details on compiling and running programs). Make sure your program compiles and runs correctly; if any errors are produced by your program, fix them, save the file again, and recompile.

Part 2

In this part of the practical exercise you should write a program which computes the volume of a three-dimensional box. Your program should use three JOptionPane InputDialog pop-up windows to ask the user for the width of the box, the length of the box, and the height of the box. The program should store each value in a double variable. For each value the program will need to convert the String coming from the InputDialog into a double before putting that value in a double variable.
In asking the user to enter the box's width (and length and height), your program should display an input request like:

enter box width (in metres):

After getting the width, length, and height of the box from the user, the program should compute the box volume by multiplying those three values together. The program should then give the volume to the user in a MessageDialog, displaying a message as follows:

A box of width ? metres, length ? metres, and height ? metres has a volume of ? metres cubed.

where the first three question marks represents the width, length, and height values entered by the user, and the final question mark represents the computed box volume. (A tip: since this message is quite a complicated String is might be easier to build it and put it into a String variable, and then use the contents of that String variable in the JOptionPane MessageDialog. You can do this if you want, but you don't have to.)

Remember to finish off your program with the System.exit(0);statement (to ensure that your pop-up windows close correctly and the program ends properly).
Your program should consist of a single class with a single main part. You can give your program the class name BoxVolume. You should save your program in a file with the same name as the program's class name.

When you have written and saved your program, you should compile it and run it using the command prompt as in practical 1 (look at part 2 of that practical for details on compiling and running programs). Make sure your program compiles and runs correctly; if any errors are produced by your program, fix them, save the file again, and recompile.