Topic: Java GUI using Swing

Question 1

Develop a java program using Swing to perform temperature conversion. The interface will look as in Figure Q1.

Figure Q1

The interface has two labels, two text boxes and two buttons. txtC textbox contains degrees in Centigrade, txtF contain degrees in Fahrenheit. If the button C2F is clicked, it converts degrees from centigrade to Fahrenheit. If the button F2C is clicked, it converts degrees from Fahrenheit to centigrade. The program should be able to handle the exceptions for invalid data entered in the two textboxes and display an error message of your choice in the dialogBox as explained in the lecture notes.

Question 2

Develop a java program using Swing to perform simple calculations (addition, subtraction, multiplication and division of two double numbers. The interface will look as in Figure Q2.
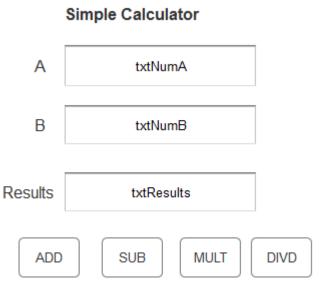

Figure Q2

The interface has Four labels (Simple Calculator, A, B and Result) and three textboxes txtNumA, txtNumB and txtResults. txtResults should be uneditable field, and user has to supply two numbers in txtNumA and txtNumB. Note that the label **Simple Calculator** is bold.

- When ADD button is clicked, it should find the sum of two numbers and display the result.
- When SUB button is clicked, it should find the difference (A-B) of two numbers and display the result.
- When MULT button is clicked, it should find the Product of two numbers and display the result.
- When DIVD button is clicked, it should find the quotient (A/B) of two numbers and display the result.
- The label **Results** should change depending on the operation performed. For Example if the valid sum is displayed, it should change from Results to A+B. Likewise for other operations it should change to A-B, A*B and A/B. Otherwise it should display Results.
- The result should be displayed to 3 decimal places.
- The program should handle exceptions for invalid entries including division by zero, and it should popup an error message of your choice for invalid entries.

Question 3

Develop a java program using Swing to perform simple registartion. The interface will look as in Figure Q3. The interface contains labels and textboxes as shown. The password and confirm password inputs should be JPasswordField. *Find out from various resources including Java API documentation on how to use JPasswordField.* Sex and Country fields are ComboBoxes. Sex should contain an array of: NotSelected, Male and Female strings. Country should contain an array of following countries: NotSelected, Tanzania, Kenya, Uganda, Burundi, Rwanda, Zambia, Mozambique, Malawi and Congo (Zaire).

- The top string for combo boxes should be **NotSelected** which is the default value when the application is run. This means by that time the user has not selected the sex and also country.
- The maximum number of viewable countries should be 5 (including NotSelected). That means there will be vertical scrollbar to see other countries.
- When user clicks Register button, the program should check if the entered data are valid according to the following conditions. That means all the 5 conditions should be met.
  - (i) The fullname should have at least two names
  - (ii) The password should have at least 4 characters

(iii)　The two passwords (password and confirm Password) should match and should be case sensitive

(iv)　Sex should not be NotSelected

(v)　Country should not be NotSelected

If any of the above 5 conditions is not satisfied, then display the error message in the label marked Error Label. The error message should be "Please check your fields, something is wrong". Before clicking the Register button, the Error Label should show blank (i.e. nothing is displayed).

If all five conditions are satisfied, then display the entered values in the popup window (diaologBox) in the form:
Fullname:………, Password: …………, Sex:……, Country:………..

The title of the dialog box should be: Registered Info.   Test all the scenarios in your form (e.g. blank, fields, length of fields do not meet the criteria, etc).

Registration Form

Full Name	txtFullName
Password	●●●●●●●●●●●
Conf. Pwd	●●●●●●●●●●●●●
Sex	NotSelected ▼
Country	NotSelected ▼
	Register

Error Label

Figure Q3

==END==