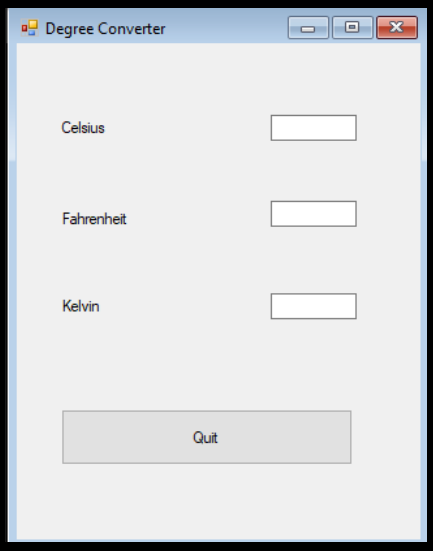
EGG202

Lab 4: Degree Converter

Description

For this program, you will create a windows form application that converts a degree amount between the 3 degree types (Fahrenheit, Celsius, and Kelvin). In the program any of the three degree types would be read in, and you have to output the equivalent of the other two. For example, if the user enters an amount of Fahrenheit, your program outputs the Celsius and Kelvin amount, if the user enters a Celsius amount, the program computes the amount in Fahrenheit and Kelvin, and lastly if the user enters an amount in Kelvin, your program computes and outputs the amount in Fahrenheit and Celsius. The following screen shot is how you want your program to be set up.



In the form, the quit button just exists the program. Each text box is used to read input (Celsius, Fahrenheit, and Kelvin). Each text box will need to have an update event (when a text box is modified, the event is triggered), i.e. if I write numbers into the Celsius text box, that event is triggered, so you would compute the equivalent Fahrenheit and Kelvin amount and write that into the other text boxes. The way you can write into a text box is similar how you write to a label, assume that you have textboxes called `txtCelsius`, `txtFahrenheit`, and `txtKelvin`, you can write to a text box using the following code

```
txtFahrenheit.Text = dblVar.ToString();
```

You might need to create some boolean variables (at the class level, i.e. "global" variables), because if each text box has its own event, then having the following line `txtFahrenheit.Text = fahrenheit.ToString();` would trigger the `txtFahrenheit` object's changed event, so you want to make sure that when you write to a different text box from a text box changed event, when the other text box's event is triggered, nothing should be done. The formulas needed for each event is shown below

- In Celsius changed event

$$\text{Kelvin} = \text{Celsius} + 273.15 \tag{1}$$

$$\text{Fahrenheit} = \text{Celsius} \times (9/5) + 32 \tag{2}$$

- In Fahrenheit changed event

$$\text{Kelvin} = (\text{Fahrenheit} - 32) * (5/9) + 273.15 \tag{3}$$

$$\text{Celsius} = (\text{Fahrenheit} - 32) * (5/9) \tag{4}$$

- In Kelvin changed event

$$\text{Fahrenheit} = (\text{Kelvin} - 273.14) * (9/5) + 32 \tag{5}$$

$$\text{Celsius} = \text{Kelvin} - 273.14 \tag{6}$$

Sample Run

Check the exe file linked on canvas for sample run

Submission

Compress your project files into a zip file and upload to the canvas site by the deadline