



Course number : 420-CT2-AS

OBJECT ORIENTED PROGRAMMING

Teacher : Maftai Mihai

Weighting : 17% out of 30%
 Points number: 60/100
 Duration : 1h 15 min

Group : 07194
 Date : 2023-03-02
 Session : Winter 2023

STATEMENT OF THE COMPETENCY

- To use object-oriented development approach (016T)

REQUIRED COMPETENCIES FOR THE EXAMS

- To create an object model
- Refine the object model.
- To program a class
- To ensure that the class functions correctly

DIRECTIVES

Create a C# Windows form application (.NET Framework), the class (same class as for console app.) you need to call it in different controls (buttons) , test the application, compress the folder of the solution and submit it on LEA of Omnivox before time limit (115 minutes).

- Open book and notes.
- Please don't cheat – it is in your own interest.**

INSTRUCTIONS

This Windows Form section of the exam has design section of 20 points and code sections of 20 points for controls code + 20 points for declaring and using the class.

The section 3 of the exam has two main sections:

(Design, & Coding for Windows Form application in C#), evaluated like this:

Presentation level - design	Business level – Class code	Total
20 points	20 + 20 points	60 p

Metric			US or Imperial
1 metre [m]	100 cm	→	1.0936 yd
1 kilometre [km]	1000 m	→	0.6214 mile

This is the conversion table for lengths

Section Presentation level - design– 20 points

Create a C# Form application similar with the one in the images below, by adding the appropriate controls and modifying their default properties values and respecting the alignment and proportions and sizes.

The application will calculate and display the results of length conversions from Metric to US. From meter to centimeter and then to inch and from kilometers to meter then to miles. The form should look like this:

Add following controls to your form, and change/add the values to the properties:

Default name	Property	Setting
Form1	Name	frm_ConvertLegth
	Text	Student ID (7 digits)
label1	Text	Enter the value of metric length you want to convert
	Font Size	14
	Font Bold	True
label2	Text	Metric m :
label3	Text	cm :
label4	Text	: US yd
label5	Text	Metric km :
label6	Text	m :
label7	Text	: US mile
textBox1	Name	textBox1
	TextAlign	Center
	TabIndex	0
	Text	0
textBox2	Name	textBox2
	ReadOnly	True
	Text	0
	TabStop	False
	TextAlign	Center
textBox3	Name	textBox3
	ReadOnly	True
	Text	0
	TabStop	False

	TextAlign	Center
textBox4	Name	txtBox4
	Text	0
	TabIndex	2
	TextAlign	Center
textBox5	Name	txtBox5
	ReadOnly	True
	Text	0
	TabStop	False
	TextAlign	Center
textBox6	Name	txtBox6
	ReadOnly	True
	Text	0
	TabStop	False
	TextAlign	Center
button1	Name	btnMYd
	Text	&1st conversion
	TabIndex	1
button2	Name	btnKmMile
	Text	&2nd conversion
	TabIndex	3
button3	Name	btnReset
	Text	&Reset
	TabIndex	4
button4	Name	btnExit
	Text	E&xit
	TabIndex	5

Section Business level - code – 20 points + 20 points (class creation)

Add code to your C# Form application (business or middle level) to calculate and present the results using a class (**ConvertLegth**) following those rules:

Method	Description
frm_ConvertLegth_Load()	Sets the all textBox fields to their default values and default read only properties.
btnMYd_Click()	Performs the conversion from the entered value in Metric textBoxes to the US textBoxes. Change the property readOnly of Metric to true, and change the focus to the next Metric field. Use object and method of ConvertLegth class.
btnKmMile_Click()	Performs the conversion from the entered value in Metric textBoxes to the US textBoxes. Change the property readOnly of Metric to true, and change the focus to the next Metric field. Use object and method of ConvertLegth class.

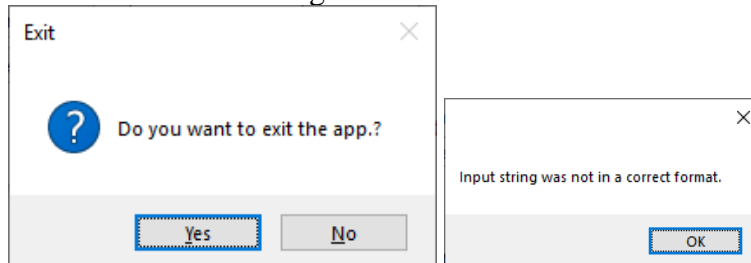
btnReset_Click()	Sets the textBox fields to their default values and default read only properties.
btnExit_Click()	Close the application if the user click YES , and set the values and properties to their default values if the user click NO , use the interrogation logo into the MessageBox.

Store (save) all the entered values from the textboxes into appropriate data types **private** fields of the object(s) by using their **public** properties (**set**, **get**) or the constructors of a **ConvertLegth** class, and then, present all the calculated information using **public** methods.(use appropriate names like **mToYd()** and **KmToMile()**) (**similar like in the preparation for Midterm Exam**)

Use **try** and **catch** for the entered (converted) values from the user and if you have an Exception, show the MessageBox with appropriate message, and place the cursor into the appropriate textbox (textBoxName.Focus()).

Test your code and format the output similar with the one from the image.

Create a similair MessageBoxes



When click on Exit button

When entered NAN

Identify yourself, enter the current date and have a short description of your work as a comment on the top section of your C# file. (**if not -2p**)

Test your application, theirs functionalities, save the C# solution, compress the folder and send it by LEA of Omnivox before time limit (**a penalties of 1p. / 2min. will be applied for the late submissions**).

Thank you.