

## Module 3 Lab Assignment.

In this lab assignment, you will develop a Student Engagement Calculator application. All form controls and variables that you include in your project MUST have a proper and relevant name. For each improper naming, 0.05 point will be deducted.

If you have any questions, doubts, or if you need any assistance about this assignment, please feel free to post in Module 4's *Slack* channel.

The interface of this application consists of four GroupBox controls to calculate student engagement in four categories: Readings, Discussions, Videos, and Quizzes. Each GroupBox will have several textboxes to allow the users indicator values. The name of the indicators will be shown in the labels just right to the textboxes. At the bottom part of the GroupBox controls, a label should be placed to display an initial message to users. These labels later should show the engagement scores for the group that they belong to.

At the bottom of the form, there should be a button and a label. Users will need to click this button to calculate the engagement scores. A default text should be set for the label. When the computations are done, the label should display the overall engagement score.

The screenshot shows a Windows application window titled "Student Engagement Calculator". The interface is divided into four colored sections for different engagement categories: Readings (orange), Discussions (light blue), Videos (light green), and Quizzes (light blue). Each section contains three input fields and a status label. At the bottom, there is a label for the overall engagement score and a "Calculate Engagement Scores" button.

Category	Indicator	Input Field	Status Label
Readings	Number of page views :	<input type="text"/>	Reading engagement score is not calculated yet.
	Number of highlights :	<input type="text"/>	
	Number of unread pages :	<input type="text"/>	
Discussions	Number of questions :	<input type="text"/>	Discussion engagement score is not calculated yet.
	Number of comments :	<input type="text"/>	
	Number of unread posts :	<input type="text"/>	
Videos	Average minutes watched :	<input type="text"/>	Video engagement score is not calculated yet.
	Number of play/pause :	<input type="text"/>	
	Minutes skipped :	<input type="text"/>	
Quizzes	# of failed questions :	<input type="text"/>	Quiz engagement score is not calculated yet.
	Average quiz score :	<input type="text"/>	
	Average # of attempts :	<input type="text"/>	

Overall engagement score will be displayed here.

Below is an example screen with engagement scores calculated. In all calculations per each group, the sum of the values in the first two textboxes will be divided by the value in the third textbox. For example, for Readings, the formula will be like this: **(pageviews + highlights) / unreadpages**.

Note that all labels showing scores should change their font colours to blue when the scores are calculated. A sample code for changing font colour is: `lbl_videoScore.ForeColor = Color.Blue;`

Any field that shows an average score should be stored inside a `double` variable. Other variables can be stored as `int`. For calculations that involve `double` values (e.g., video engagement score) please keep only two decimal places using **Math.Round()** method. For example, `Math.Round(5.5555, 2)` will return 5.55, whereas `Math.Round(5.13, 1)` will return 5.1.

The screenshot shows a Windows application titled "Student Engagement Calculator". The interface is divided into four colored panels: Readings (orange), Discussions (light blue), Videos (white), and Quizzes (light blue). Each panel contains input fields for specific metrics and a calculated score displayed in blue text. At the bottom, a "General engagement score" is shown, and a "Calculate Engagement Scores" button is highlighted with a blue border.

Category	Metric	Value
Readings	Number of page views	55
	Number of highlights	12
	Number of unread pages	3
Discussions	Number of questions	25
	Number of comments	41
	Number of unread posts	2
Videos	Average minutes watched	25,22
	Number of play/pause	41
	Minutes skipped	2
Quizzes	# of failed questions	12
	Average quiz score	8,2
	Average # of attempts	5,2

Readings score is : 22

Discussion score is : 33

Video score is : 33,11

Quiz score is : 1,72

General engagement score : 89,83

Calculate Engagement Scores

If there is an invalid entry in any of the group boxes, an error message should be displayed only in the group box where an invalid entry is made. For example, in the following screen, *Number of unread pages* is entered wrong, and an error message is shown in red font only in the *Readings* group box, while the scores in other group boxes are calculated.

**Student Engagement Calculator**

**Readings**

Number of page views :

Number of highlights :

Number of unread pages :

Invalid entry in the Reading box.

**Discussions**

Number of questions :

Number of comments :

Number of unread posts :

Discussion score is : 33

**Videos**

Average minutes watched :

Number of play/pause :

Minutes skipped :

Video score is : 33,11

**Quizzes**

# of failed questions :

Average quiz score :

Average # of attempts :

Quiz score is : 1,72

General engagement score : 67,83

[Calculate Engagement Scores](#)

To achieve this, you can place each code block that calculates an engagement score in a different try-catch statements. In total, you would have four try-catch statements. Inside the catch blocks, you should show the custom error message and set the font colour of the label to red.

## Grading Schema

Task	Points
Computing the engagement score in each box	$0.2 \times 4 = 0.8$
Showing custom error messages in each box	$0.2 \times 4 = 0.8$
Setting the error message colour to red	$0.05 \times 4 = 0.2$
Computing the general engagement score	0.2