CENTER FOR DIPLOMA STUDIES

COURSE CODE: DAT 21103

COURSE NAME: VISUAL PROGRAMMING

ASSESSMENT: GROUP PROJECT (15% contribution to course mark)

Theme: SCIENTIFIC CALCULATOR PROGRAM

Language: C#

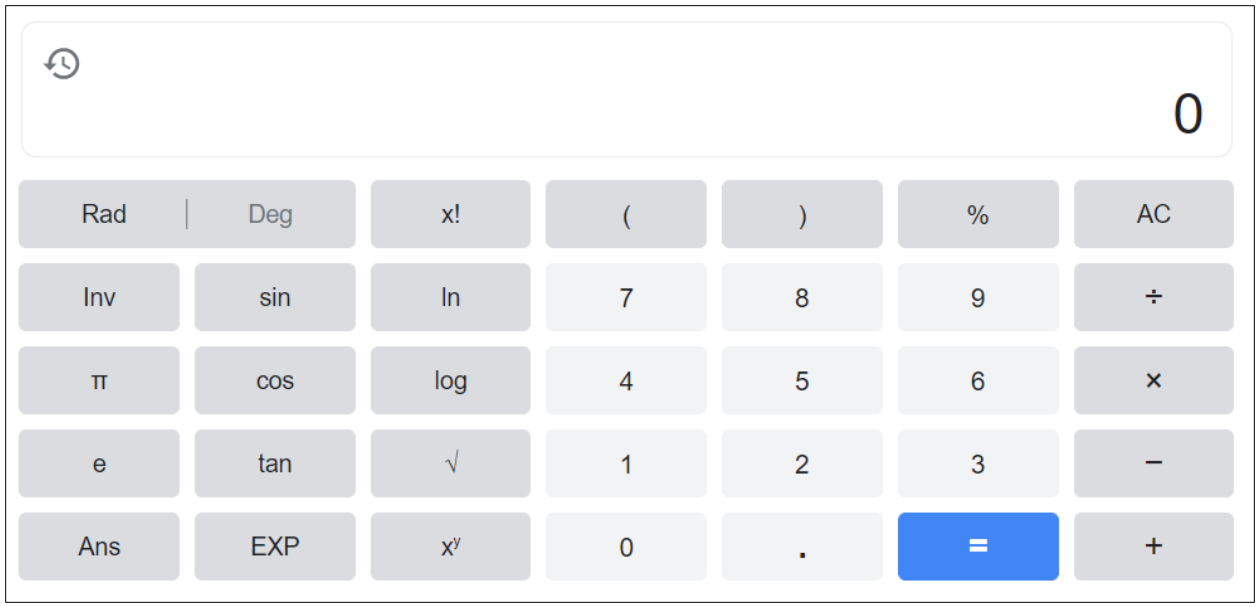
Web development framework: ASP .NET

IDE: Visual Studio

Question:

Write a Web Application Program for Scientific Calculator by using the with double-digit precision that supports both input by button click and keyboard. The functions that are available in your scientific calculator is based on your choice and creativity.

User Interface Example for Scientific Calculator



System requirements:

i. Interactive and user-friendly interface
    a. User convenient features
    b. Suitable controls
ii. Exception handling
iii. Input validation
iv. Different procedures – event, sub, function
v. Different control structures – selection, iteration, array

Report format and content:

a. Front page:
    i. Course code, name
    ii. Type of assessment - project
    iii. Project title
    iv. Section
    v. Members' names
b. Content: Font: 12-points Times New Roman
    i. Analysis-IPO
    ii. Design
        a. Interface (sketch with label of the object name and setting of user convenient features (when necessary))
        b. Algorithm (pseudocode)
            i. Procedures – event, sub, function.
            ii. Control structures – selection, iteration, array.
            iii. Exception handling
    iii. Development - interface (screenshot)
    iv. Test (screenshot) - sample input, output, input validation, exception handling

REPORT RUBRIC

CLO 1: Apply the principles of visual programming to solve a particular problem. (LOD4, PLO2, C3)

(5% contribution to continuous assessments)

Criteria	Cognitive level	0	1 Beginning	2 Needs improvement	3 Acceptable	4 Accomplished	Score
Analysis -simple English, don't copy n paste from code -Separate by page i.e. 1 row 1 page so easier to see the point for each page							
Input and output	C2						
Processes -not just formula, but the whole algo, -Process column also include the I and O for the page i.e. its basically the flow of the process	C3						
Design							
Flow of user interface	C1						
Sketch of user interface - NOT screenshots of finished site, but pencil on paper style, use word or online drawing tools - Show name of controls, state user convenience features present in a webpage (see slides to know examples of user convenience features) - Figures numbered (Figure 1, Figure 2, etc), captioned (below figure, centralized)	C3						

Algorithm - Do NOT copy n paste code - Convert code to simple English form - Imagine each line in code commented. The series of comments is the algo. - Avoid using programming language syntax e.g. Movie=! "" - Assume the reader does not know anything about algo and programming	C3						
Development							
Flow of user interface - Follow flow in site - 1 screenshot per page i.e. dont split - Figures numbered (Figure 1, Figure 2, etc), captioned (below figure, centralized)	C1						
Explanation of user interface - Figures explained AND referred BEFORE the figure	C2						
Test							
Flow of input and output -follow flow of webpages in site	C1						
Explanation of sample input and output -explain input and output for EACH process -if correct input, click button to next page what is displayed (output)?	C2						
Flow of input validation -follow flow of webpages in site and flow of control in a webpage	C1						
Explanation of input validation -if incorrect input, click button to next page what and how error message displayed? -if a control have multiple input validations, test for EACH validation e.g. blank, data type, range	C2						

Flow of exception handling -follow flow of possible exception from 1st webpage to last i.e. screenshot each try catch in program	C1						
Explanation of exception handling -cause of exception -how it is handled (what n how error msg displayed)	C2						
Formatting -font type -font size -alignment of paragraphs (justified), figures (below, centralized), tables (top, centralized) -figure/table numbering (1, 2, 3, etc), caption, referral (before table/figure)	C1						
						Total	

Scale:

0 Unable to accomplish

1 Able to accomplish. But, much incorrect

2 Able to accomplish correctly but not clear or some incorrect

3 Able to accomplish correctly and clearly

4 Able to accomplish extraordinarily

PRODUCT RUBRIC

CLO 2: Follow the rules of chosen visual programming language to produce computer program using suitable compiler or IDE. (LOD9, PLO6, P4)

(5% contribution to continuous assessments)

Criteria		Psychomotor level	0	1 Beginning	2 Needs improvement	3 Acceptable	4 Accomplished	Score
User interface	Control selection	P1	All controls used are unsuitable	Many controls used are unsuitable	Some controls used are suitable	Most controls used are suitable	All controls used are suitable	
	User convenience features e.g. tooltip, tab control, default buttons, set focus	P2	None of user convenience features used	Many user convenience features unused	Some user convenience features used	Most user convenience features used	All user convenience features used	
Code	Code readability	P2	All code lines uncommented	Many code lines uncommented	Some code lines commented	Most code lines commented	All code lines commented	
		P2	All identifiers are improper	Many identifiers are improper	Some identifiers are proper	Most identifiers are proper	All identifiers are proper	
	Code efficiency	P4	All pages did not work as they should	Most pages did not work as they should	Some pages work as they should	Most pages work as they should	All pages work as they should	
	Input validation efficiency	P3	No input validation	Many input unsuccessfully validated	Some input successfully validated	Most input successfully validated	All input successfully validated	
	Exception handling efficiency	P3	No exception handling	Improper exception handling at DB and non-DB code segment	Proper exception handling at DB/non-DB code segment	Improper exception handling at DB and non-DB code segment	Proper exception handling at DB and non-DB code segment	
	Output	P3	Most pages display proper output	Many pages display improper output	Some pages display proper output	Most pages display proper output	All pages display proper output	
							Total	/32

PRESENTATION RUBRIC

CLO 3: Perform the acquired knowledge to respond to the current technology in visual programming. (LOD13, PLO9, A3)

(5% contribution to continuous assessments)

Criteria	Affective level	1	2	3	4	Score
Use proper delivery style along presentation session	A1	Poor style (long pauses reading speech, "Umm…" and other mannerisms, poor eye contact, monotone, etc.)	Either fluent delivery but reading, or awkward delivery but spontaneous	Generally good delivery; but could improve spontaneity	Excellent style involving matching verbal and nonverbal style, good projection with inflection, spontaneous speaking	
Demonstrate understanding on program design	A3	Able to explain a little program design	Able to explain some program design	Able to explain entire program design correctly as it is	Able to explain program design correctly and provide alternative solutions	
Demonstrate cooperation from all group members	A3	Forced cooperation through intervention	Demonstrate cooperation after intervention	Demonstrate cooperation through personal dominance	Demonstrate cooperation through group hierarchy	
Defend on project outcome with reasonable reason	A4	Able to explain a program outcome, but incorrect argument	Able to explain some program outcome or with confusing argument	Able to explain entire program outcome correctly as it is	Able to explain program outcome extraordinarily with strong argument	
					Total	/16