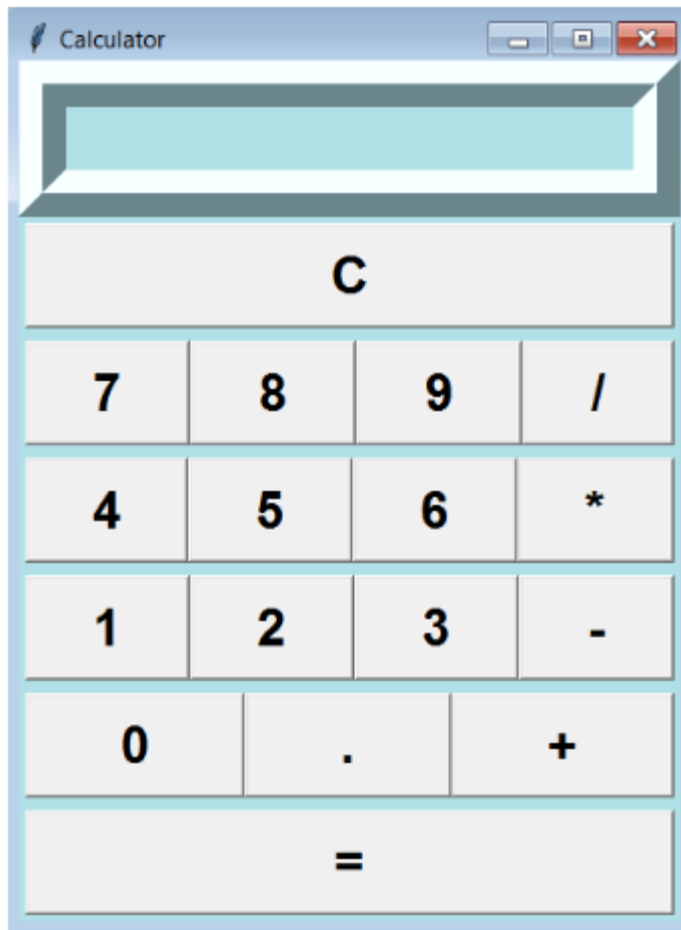


Laboratory Activity No. 11	
The Grid Manager	
Course Code: CPE103	Program: BSCPE
Course Title: Object-Oriented Programming	Date Performed: 05/04/25
Section: BSCpE – 1A	Date Submitted: 05/04/25
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1. Objective(s):	
This activity aims to familiarize students on how to implement geometry manager	
2. Intended Learning Outcomes (ILOs):	
The students should be able to: 2.1 Identify the main components in a GUI Application 2.2 Create a simple GUI Application using Grid manager	
3. Discussion:	
<p>A Graphical User Interface (GUI) application is a program that the user can interact with through graphics (windows, buttons, text fields, checkboxes, images, icons, etc..) such as the Desktop GUI of Windows OS by using a mouse and keyboard unlike with a Command-line program or Terminal program that support keyboard inputs only.</p> <p>Geometry managers are tools used to place widgets on the screen. There are three geometry managers available in tkinter—grid, pack, and place. The place manager provides complete control in the positioning of widgets, but is complicated to program</p> <p>Grids</p> <ul style="list-style-type: none"> A grid is an imaginary rectangle containing horizontal and vertical lines that subdivide it into rectangles called cells. The first row of cells is referred to as row 0, the second row is referred to as row1, and so on. Similarly, the first column of cells is referred to as column 0, the second column of cells is referred to as column 1, and so on. Each cell is identified by its row and column numbers. 	
4. Materials and Equipment:	
Desktop Computer with Pycharm Windows Operating System	
5. Procedure:	

General Instruction:

1. Redesign the interface of the standard calculator using grid () method:



2. Run the program and observe the output when the button is clicked.

6. Supplementary Activity:

1. Make a calculator program that can compute perform the Arithmetic operations as well as exponential operation, sin, cosine math functions as well clearing using the C button and/or clear from a menu bar.
2. Use Geometry manager grid()
3. Use bind () or command parameter in associating event to callback a function.

Questions

1. How do you configure rows and columns in PyCharm when using Tkinter's grid() manager?
 - By the use of "root.grid_rowconfigure()" and "root.grid_columnconfigure()" to set size and behavior of rows and columns
2. Why do widgets sometimes disappear when using grid() in PyCharm, and how can you fix it? –
 - Widgets may not show if the parent window is not sized correctly. Use ".grid()" properly and call "mainloop()".
3. How can message boxes be used to provide a better User Experience or how can message boxes be used to make a GUI Application more user-friendly? How can you align widgets across multiple frames using grid() in PyCharm?
 - Message boxes give users helpful messages or warnings. To align widgets, use "grid()" in each frame and match row/column settings

7. Conclusion:

In this laboratory activity, I discovered how to make a basic calculator using Tkinter in Python through the use of the "grid()" function to organize buttons and widgets into rows and columns. I also employed "grid_rowconfigure()" and "grid_columnconfigure()" to better manage the layout. I discovered that widgets may not be displayed if the window is not correctly configured, and thus properly employing ".grid()" and invoking "mainloop()" is crucial. In order to make the program more user-friendly, I incorporated message boxes for displaying useful messages and used "bind()" or "command" to bind buttons to actions. Through this, I created a clean and convenient interface.

8. Assessment Rubric: