**Calculator Algorithm**

1. Create a **.cpp** file to store the main code and a header file to store all of the functions.
2. Go to the header file 🡪 Create all of the functions for the calculations needed. 🡪 Define the number **PI** in the header file for later use.
3. Go to the source file 🡪 Include all the needed libraries.
4. Create a struct to save all of the results for each shapes and its volume.
5. Create the prototypes for all of the functions.
6. Create the main function.
7. Create an ofstream variable.
8. Create all of the needed variables.
9. Set **cout.precision to 15** to get better results when calculating.
10. 1st Welcome menu. 🡪 Output a message to the user asking for their first and last name separated by a space. 🡪 Get the name and output it on a welcome screen in all caps. (use transform function).
11. 2nd Welcome menu, aka Calculator Selection Menu. 🡪 Output to the user the option of going into an algebraic calculator, geometric calculator, or exiting the application.
12. Get the user’s input 🡪 Check for a condition which will decide where we’re going next.
13. **Whenever the user inputs a number that is not part of the given options. 🡪 Output an error asking the user to try again.**
14. If the user selects the algebraic calculator:
    1. Output the Algebraic Menu 🡪 Output the two pages with choices on each and the choice to go back to the calculator selection menu🡪 Get the page number and check for a condition to see which page the user selected 🡪 Output the choices of the selected page 🡪 Get the calculation the user selected 🡪 Output a message (“Please enter a number to calculate”) 🡪 Get the number 🡪 Store the number in the variable being used by the functions 🡪 Use the functions to calculate the desired results. 🡪 Give the user the option to go to the main menu or the selected calculator’s menu.
15. If the user selects the geometric calculator:
    1. Output the Geometric Menu 🡪 Output the two choices, area and volume, and the choice to go back to the calculator selection menu🡪 Get the user’s selection number and check for a condition to see which page the user selected 🡪 Output the choices of the selected option 🡪 Get the calculation the user selected 🡪 Output a message (“Please enter a number to calculate”) 🡪 Get the number 🡪 Store the number in the variable being used by the functions 🡪 Use the functions to calculate the desired results. 🡪 Give the user the option to go to the main menu or the selected calculator’s menu.
16. Close the ofstream variable before exiting.