

Calculator

Rev.	Date	Description	Issued	Reviewed	Approved
01	29/04/2025	Initial document	EF		
02	09/05/2025	Add Visual Studio as development	EF		



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1 Overview

This exercise involves the development of a basic calculator implemented in the C++ programming language. The program must allow simple arithmetic operations such as addition, subtraction, multiplication and division, requesting two numerical values from the user through the console.

Each entered number and each calculated result must be stored in a custom structure that records:

- The numeric value.
- The Number is even or odd.
- The order in which it was entered into the system.

These records are stored during runtime in a matrix represented by a vector of structures (`std::vector<NumberInfo>`). Upon exiting the program, the matrix is printed to the console as a summary of the operation history.


2 Project Structure

The codebase can be organized into separate files (header, source files), following the principles of modular design, or into a single file, as you see fit. The project must be implemented using Visual Studio.

3 Functionality

The user interacts with an English-language menu that offers operation choices. After selecting an operation, the user inputs two numbers. These values, along with the result, are stored in memory with their order and classification (even/odd).

When the exit option is selected, the program prints a well-formatted table to the screen, displaying all recorded entries and results.

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4 Proposed Enhancements

To extend and enhance the functionality of the program into a more robust and professional application, the following improvements are proposed:

1. **Save the matrix to a file:**
 - Implement functionality to save the contents of the matrix to a text (.txt) or binary (.bin) file to preserve the session history beyond program execution.
2. **Read from file and restore previous sessions:**
 - Allow the user to load data from a previously saved file, restoring the matrix into memory for further operations or review.
3. **Data filtering features:**
 - Add filtering capabilities to view only even numbers, odd numbers, or results from a specific operation type.
4. **Operation descriptions:**
 - Associate each result with a descriptive string representing the operation performed (e.g., "5 + 3 = 8").