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# PROJECT Expense Tracker

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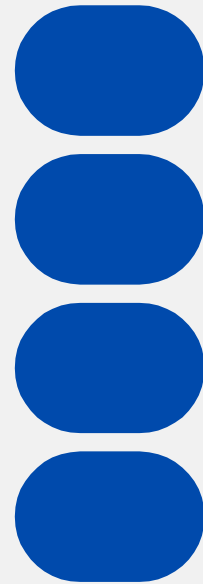
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## Problem Statement

### Implementing the Program

- Define a simple interface that prompts the user to enter an expense description and amount.
- Implement file operations to open a text file in append mode.
- Every time an expense is entered, append it to the file along with the current date and time.
- Provide an option to display all recorded expenses by reading from the file.

- Ensure the amount entered for expenses is a valid numeric value and not negative.

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# SOLUTION OVERVIEW

The solution overview for this program is:

1. Add an expense.
2. View all recorded expenses.
3. View the total amount of expenses.
4. Exit the application.

The program reads user inputs, validates them, records the expenses in a text file, and retrieves and displays the expenses upon request.

## Features

- **Adding Expenses:** Users can add a new expense by providing a description and amount. The expense is saved to a file along with the current date and time.
- **Viewing Expenses:** Users can view all recorded expenses.
- **Total Expenses:** Users can view the total sum of all recorded expenses.
- **User-Friendly Menu:** The application provides a menu for navigating through the options.

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# CHALLENGES AND RESOLUTIONS

- **Input Validation for Amount**

- **Challenge:** Ensuring that the entered amount is a valid positive number.
- **Resolution:** Implementing a loop that prompts the user until a valid input is provided.

- **File Handling**

- **Challenge:** Ensuring that expenses are correctly appended to the file and read back accurately.
- **Resolution:** Using `ofstream` for appending data and `ifstream` for reading data from the file.

- **Calculating Total Expenses**

- **Challenge:** Summing up the expenses correctly from the file.
- **Resolution:** Reading the file line by line and extracting the amount using a structured approach.

- **Date and Time Handling**

- **Challenge:** Capturing and formatting the current date and time for each expense.
- **Resolution:** Using the `time` and `localtime` functions from the C++ standard library

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# INSTRUCTIONS

- When the program runs, a menu is displayed with four options.
- Choose an option by entering the corresponding number and following the prompts.
- **Add an Expense:** Enter the description and the amount. The program validates the amount.
- **View Expenses:** Displays all expenses recorded in the file.
- **Total Expenses:** Displays the total sum of all recorded expenses.
- **Exit:** Closes the program.

