Assignment 3 (Due: Dec 16) [CLO 2]

In this assignment you will learn about using ADTs for implementing solutions for real-life problems. For this particular assignment, you will use the forward_list or list ADT available in the STL for storing data. You will develop an information system of your choice (e.g., for a mobile shop, boutique, library, groceries store, beauty parlor, or any business of your choice). The main functionality of the system would be to main records of the business you choose.

1. Your program will start using the command line, if no command line argument is passed, the main menu of the program will open which will allow the user to interact with the system (e.g., adding new items or updating/deleting/searching existing items, etc.). Each record should have a unique ID, duplicate records should be avoided.
2. Whenever the user gives some input to the system, make sure the input is validated. Your program should be able to handle unexpected inputs.
3. All the records will be kept in the list. However, whenever there is a change in the data or the program quits, all the data should be stored in a binary file as well. When the program starts, it should load data from the file. If the file for storing data does not exist, it should be created. Whenever a record is changed (created, updated, or deleted), the file should be updated accordingly.
4. If the command line argument of **import** followed by a file name is given, e.g., **info.exe import items.csv**, the program should import the records from the CSV file. If the command line argument of **export** followed by a file name is given, e.g., **info.exe export items.csv**, the program should export the records to a CSV file. CSV files should only be used for importing and exporting data. Actual data used by the system should be stored in binary files.
5. If the command line argument of help is given (e.g., **info.exe help**), the help for using the program should be displayed.
6. Ensure that file handling is done properly.
7. Write a manual (in MS Word) which explains how the system should be used. Do not use LLMS (gemini, ChatGPT, etc. for generating/editing the documentation or code)
8. Prepare a presentation in which you will explain your system and how it can be used.

Instructions:

- Start from day 1. Submit to MS Teams before due time. Do not delay submission for the last moment. Late submissions will not be accepted.
- Before submission, remove all the debugging and temporary files (in visual studio select menu *Build → Clean Solution*). Only submit the .cpp and .h files (no visual studio or other files). Delete the .vs hidden folder before submission.
- Select .cpp and .h files and compress them using your full registration number and name, (e.g., `04071512007-Ali-Ahmad.zip`).
- Avoid using conio.h, as it is not part of standard C++. Don't use clear screen function. Don't use getch function.
- The source code should be properly indented and commented.

Any genuine efforts in each part, would result in at least 50% marks (for that part). Make sure you put your best efforts to solve every part. Each part carries its own marks. You are getting 50% marks for any genuine efforts in all the parts to encourage you to learn, even if your program does not compile and is full of bugs. Therefore, please do not plagiarize! Plagiarism includes taking or giving help in any form including but not limited to code, concept or idea for the solution, algorithm, or pseudocode. Taking help from any source including but not limited to classmates, seniors, internet, or LLMs is strictly prohibited. In case your code is plagiarized, you'll get -50% absolute marks of the whole assignment. For example, if the assignment is of 50 marks, you will get -25 marks. **Even a single plagiarized statement will count as plagiarism for the whole assignment**. Plagiarism in two assignments may result in getting failed in the course.