Project Guidelines

This is a project group where students must develop a system using C++ language. The objective of this project is to evaluate students' understanding of implementing several algorithm concepts into the system. The system should be able to represent a good complete business task.

1. Project Title Registration.

a) The leader must register the title and the members details at the given link provided by the lecturer. The title will be entitled based on a first come first serve basis.
b) Due date: **14 May 2024 Tuesday (Week 8) before 5.00 pm**.
c) Only: 4 persons.
d) Only 1 or 2 groups with 3 members are allowed upon approval of the Lecturer.

2. Project Submission.

a) Softcopy (Submit to ebwise/Microsoft Team)
The group leader is responsible for the submission of these documents:
i. Project Evaluation Form.
ii. Final Report. (Example: GROUP_1_Online Banking System.pdf)
iii. The source code is in the .cpp file. Name the file according to your group number and title. (Example: GROUP_1 Online Banking System.cpp)
iv. The text files that contain the data of the data stored system (Example: product.txt).
v. Readme.txt file, which contains instructions of installation or login information.
vi. Other documents.

b) Due Date: **17 June 2024 Monday (Week 13) before 5.00 pm**.

3. Project Descriptions:

In this project, you are required to develop a mini-information system that consists of a collection of records. You should provide at least a total **50 existing records with a minimum of 1800 code lines (exclude comments or descriptions)**. Each group leaders, shall create a **GitHub account** and add in your members and your lecturer.

You may add any additional functions or algorithms to your system. Refer to the **Project Evaluation Form** for more details on extra functions that can be added. Your system should fulfil these requirements:

a) **Two modules**: Customer and Staff/Admin modules.

b) **Main Functions** for both modules:

	Staff	Customer
Registration	✓	✓
Login and Logout	✓	✓
Add new record	✓ -2 records & 6 data	✓ - 1 record & 6 data
Edit / update records	✓ - 2 records	✓ - 2 records
Display	✓ - 2 records	✓ - 2 records

Search	✓ - 2 records with 1 criterion at least	✓ - 2 records with 1 criterion at least
Sorting	✓ -2 sorting criteria	✓ -2 sorting criteria
Delete record	✓	✓
Display record (sorted and unsorted information)	✓ - 2 records	✓ - 2 records
Summary	✓	

1. Add new information/record.
   Example: add booking by user and add a new product by admin.
2. Edit information/record.
   Example: edit booking by user and edit a product by admin.
3. Sort information/record
   Example: sort order by user and admin.
4. Search Information/record
   Example: search product by user and admin.
5. Delete Information/record
6. Display record.
   Example: To be able to display record, unsorted and sorted data. Also include to display the results after searching functions.

Your system, should be able to complete a simple process where any add or update in any records, should be able to be seen by both the staff/admin and the customer. And vice versa.

c) **System requirements**:

1. Your system, should have these requirements

   - At least 8 Functions: inclusive 4 Overloading/Overriding Functions
   - 2 structures
   - 2 Class, 3 Inheritance Class & 4 friend functions
   - 2 Dynamic Memory Access
   - 1 sorting algorithm at least
   - 1 searching algorithm at least
   - 5 txt files -minimum
   - 1 dynamic non primitive (DNP) data structure.
   - 1 additional algorithm which is useful to your system.

2. For each of the main functions above, you must select at least ONE algorithm for each category listed below:

   i) 1 dynamic non-primitive data structure.

   - Stack
   - Queue
   - Linked List
   - Hash Table
   - Linked Stack
   - Linked Queue

ii) 1 Sorting algorithms

- Merge Sort
- Selection Sort
- Insertion Sort
- Bubble Sort
- Quick Sort

iii) 1 Searching algorithms

- Binary
- Hashing

Report Guidelines:

A. **Format**
- PDF file.
- Font – Times New Roman at 12pt
- Header, Footer and Page Number – Times New Roman at 9pt
  - ✓ Header: Group no - Title (left), Subject code (right)
  - ✓ Footer: Page number (right)
- Bold, italic and underline text can be applied appropriately.
- Use numbering for title, subtitle, table and figure accordingly.

B. **Content of the report:**
- Cover Page.
- Table of Content
- List of Figures & Tables

Part 1: Introduction
- This section describes the topic selection and explains the system that you have developed. This includes your system description, project objectives, scope and limitations, and system features.

Part 2: Data Structure of The System
- This section, students must mention how they plan and organize their data in the memory, what type of dynamic non primitive data structure and algorithms they use. They must draw the relations between the files, dynamic non primitive data structure and the algorithm. Students can include any additional algorithms used in their system which is not covered in either the assignment or the chapters.

Part 3: Screenshots of The System Features & Output
- This section includes screenshots of all your system. Indicate the input entered and the output display. Please include all system features screenshots. Include all scenarios exist or supported by your system.

Part 4: Code Segments Requirements
- This section should include the code segments requirements listed. Include also a description and the line code to your .cpp file.

Part 5: Conclusions

- The conclusion describes a summary of your system development journey and features, issues you would like to highlight, and your thoughts, and demonstrates the importance of your ideas and the success of delivering the project by including concepts and the algorithms selected. Good to give a positive ending to give a good impression note of your system.

Part 6: Appendices

- List of URL addresses, reference books, or bibliography entries. This includes any AI tools used to generate the code such as ChatGPT.
- **git log**. The git log command displays committed snapshots. It lets you list the project history, filter it, and search for specific changes. Please refer to the report template. Please show all the members contributions and logs to your system.

Summary

Students need to write a complete report including a cover page and the contents of the document must consist of:

1. Overview. Describe the current technologies or trends related to your project. This section describes a general understanding of the system and relates it to the data structure concept.
2. Describe the function with their algorithm. The selection of an algorithm for each of the functions used in the system must be clearly explained in detail.
3. Result/output. Include the screenshot of the system, the text file, and its description.
4. Appendices – List of URL addresses, reference books, or bibliography entries.
5. **git log**. The git log command displays committed snapshots. It lets you list the project history, filter it, and search for specific changes. Please refer to the report template. Please show all the members contributions and logs to your system.

4. Presentation:

The presentation will be in week 13 and 14 and the duration is at least 30-45 minutes for each group. You must briefly introduce your project and demo the system. All members should be involved in the presentation. Attire is formal. Your respective lecturer shall discuss on the time and date of the presentation.

Reminder:

***No late submission is accepted.**

***Copying or other forms of cheating is forbidden (0 marks to all members involved).**