Project Guideline 2022 /2023

Course Name	Data Structure
Project Title	Queue System
Duration	One Semester (October 2022 – January 2023)
Submission Date	Due Practical Exam
Doctor	Mohamed Sameh Hassanein
Responsible TAs	Heba Elgabri Mohamed Sabra Esraa Sherif

Objective(s)

The overall aim of this Project is to implement a C++Code that shows your understanding of C++ Data Structure concepts including Arrays, Structures, complier directives, Pointers, Dynamic and Static Allocations, Linked Lists, Stack, Queue, Recursion, Sorting and Searching Algorithms, and Trees.

Project's Phases:

Phase 1: Use compiler directives, functions and pointers to implement the main operations. Also Control statements and loops are going to be used in various parts as needed.

Phase 2: Enhance phase 1 using structures, Dynamic and Static Allocations, and Recursion concepts.

Phase 3: Enhance phase 2 using Queue based linked List.

Phase 4: Apply Sorting and Searching Algorithms upon your project.

Phase 5: Deploy stream and File Operations on your project.

Tool(s)

Visual Studio

Project Abstraction

Queue System shall maintain the main functions that can be performed in the queue as follows: search, quit, enqueue, dequeue, and update (Case VIP Client). Also Queue system shall show its functionalities on at least for 10 clients.

Main View for the user

E	Enqueue
D	Dequeue
P	**PA** · Print All Clients
	PV ·Print VIP Clients
S	Search
U	Update
Q	Quit

Instructions

Each Client should contain (Service Name, Mobile Number, Client No.)

- Service Name [check if it contains Letters Only]
- Mobile Number [check if it contains numbers and how many numbers]
- Client No.[contains client Number within the queue]

Queue List shows at least 10 clients; it can be more.

In search option it must allow search by (Service Name or Mobile Number)

Here is a template to facilitate the Implementation:

Phase 1: Coding

Phase 2: Results of the given test cases

Evaluation Criteria

Your Project is going to be judged according to the fulfillment of the following points:

1- Variable, Operators, Data types and complier directives
2- Functions' Interfaces
3- Functions, Conditional Statements and Loops
4- Pointers Dynamic and Static Allocations
5- Queue based Linked List
6- Recursion
7- Sorting and Searching Algorithms
8- File Streams (I/O)
9- Overall Presentation
10- Extra concept (Bonus)

Submission

1- Runnable source for the project.
2- Documentation as a PDF file containing phases' Illustration in details. (containing screenshots for every phase contents, your Group Number, Names and IDs)
3- **Sending Chat message in Microsoft Teams** containing a rar file that includes Project Source and Documentation as well with the following:
   a) **Subject**: "**Group (..) - Data Structure Project 2022/2023**"
   b) **To**: heba.reda@thebes.edu.eg
      mohamed.sabra@thebes.edu.eg
      esraa.sherif@thebes.edu.eg