



FACULTY OF COMPUTER SCIENCES AND ENGINEERING
Ghulam Ishaq Khan Institute of Engineering Sciences and Technology, Topi

CS103L – Computer Programming Lab

Marks: 100

Final Project

Instructor: Engr. Jalees Ur Rahman

Deadline: 10/01/2022

Final Project: Help the Mess Lala/Khala

Instructions:

- **CHEATING is strictly prohibited. You will get an F grade for cheating.** Copying code from any resource without understanding is cheating.
- **If you do not understand the concept or logic of the project, you can ask Lab Instructor, Lab Engineer, or Course Instructor before the deadline.**

It is always hard and time-consuming for a mess Lala/Khala (record keeper) to maintain an “In/Out” record of every student on a register daily. There are also chances of human error during the record keeping. Hence, GIK Central Mess wants to digitize its record-keeping system of students’ data. Being a programmer, you are required to design a C++ program for a mess Lala/Khala to automate “In/Out” record keeping. Record of a student includes student **registration number, name, billing information, “In/Out” status, and total number of “In” days.** Your program will perform the following functionalities.

- Register a new student.
- Search a student record.
- Change student mess status (“In/Out”).
- Delete a student record.
- Show a total number of “In/Out” students.
- Calculate total bill.

Further details about each functionality are described below:

Register a new student: This functionality will add a new student record. Your program will ask about student name, registration number, and “In/Out” status. Initially, the current bill and number of “In” days will be zero, and by default, the mess status will be “Out.” After successful registration, your program will sort the whole table based on the registration numbers. Add an exception if a student is already registered.

Search a student record: This function will search a student from the record table based on the registration number. If the record is found, display all the details of the student. If no record is found, your program should inform the mess Lala/Khala and ask if registration is required or not.

Change student mess status ("In/Out"): In this chunk of code, your program will ask about a student registration number, display the current mess status and ask to change the status. After changing the status, you should update that student's status in the record table.

Delete a student record: Your program will delete a student record and update the data table accordingly. If Lala/Khala wants to delete a non-registered student record, add an exception.

Show a total number of "In/Out" students: If Lala/Khala wants to check the total number of "In" students or "Out" students, your program will help to show the information.

Calculate total bill: This function will keep record of total number of "In" days of a student. Each day will be multiplied with PKR 300/- per day. You are required to keep record of days. Add a day to total number of "In" days if a student changes its status from "Out" to "In".

Note: To save students' data in a computer's memory, use the concept of file handling. Initial empty file of students' data named "data.csv" is provided, which has comma separated values. You will update the data file when needed as per above mentioned functionalities. Use at least five functions for each above functionality. You can also use additional user-defined functions if you think so.

Concepts used in the project: You are required to have the following concepts in C++ to complete the project as per instructions:

1. Basic Elements of C++
2. Control Structures (Conditional + Repetition)
3. Arrays
4. Functions (Predefined + User-defined)
5. Exception Handling
6. File Handling
7. Sorting

Rules

Deadline:

Monday 10th January 2022 @11:59PM

Rubric:

Criteria		Maximum Marks
Coding part	Completed and error free code	40
	Code formatting	10
	Better Interface	10
Viva part	Questions regarding project's logics	30
	Questions regarding syntax	10

Submission Criteria:

You must submit a .cpp file on the Teams account before the above-mentioned deadline in the following format:

2020XXX_yourName_Project_Implementation.cpp

You will also submit the updated 'data.csv' file without changing the file name.

Note: There should not be any space in the name of the .cpp file. Only underscore is allowed.

Penalties:

- **Cheating (-200 marks)**
- Late submission (-10 marks per day)
- Compile errors (-40 marks)
- Compile warnings (-10 marks)
- Bad code formatting (-10 marks)
- Unable to give viva and project not working properly (up to -100 marks)
- Wrong /other than mentioned criteria of submitted files name (-5 marks)

Marks obtained = max (Total marks + penalties, -100)

Good Luck!