University of Technology, Jamaica
School of Computing and Information Technology (SCIT)
Programming II (CMP1025)
Semester 1 – 2022/2023
Researched-Based Group Project

Author: Mr. Kenrayan Whittle
Date Given: Week of September 26, 2022
Date Due: Week of November 28, 2022
Group Size: 2 – 3 Persons

Background

This project is designed to test your ability to implement the concepts learnt in this course. Specifically, you will have to demonstrate the proper use of arrays, modularity, structures, pointers and files. The grading scheme at the end of this document is designed to measure how well you have implemented each of the above concepts.

The Challenge

Doctor Mitchell owns and operates a medical center in his name. In the existing manual system, patients would turn up to the medical center to make an appointment. The receptionist would register the patient and based on the nature of the visit prepare a receipt. Over the years, some patients have complained about not having the option to make appointments prior to their visits online. Other patients have argued that having an idea of their cost per visit could help them plan in advance. Dr. Mitchell is now in the market for an online application that can enable efficient patient registration, preparation of medical bills and updating medical records. Before the medical center goes fully online, Dr. Mitchell wants you to write a simulation of how the organization's system will function.

Required

Using all the concepts you learnt in this Programming II course, write a complete menu-based C program to display a menu of choices to the user. The minimum choices in this menu should be: "Registration", "Create an appointment", "View an appointment", "Update an appointment", "Delete an appointment" and "Exit". However, you may add any other menu options you see fit.

Registration

Before a patient can interact with other features of the system, they must first register and be presented with an unique patient number. Upon registering, a patient must provide the following information: patient's name, age, gender, telephone number and email address. Append all new data to random access file called "***patient.dat***".

Create an appointment

The medical center operates five (5) days per week. Patients are allowed to make their appointments online for the period between 8:00 AM to 7:00 PM. Appointments are hourly based with the absence of minutes *(8:15 or 9:45 AM appointments are not allowed, only 8:00 or 9:00 AM)*. Before appointments are made, the patient must first enter their unique patient number. Once the patient is verified, the following information is required for a valid appointment: appointment date, appointment time, and type of visit. The appointment date must be entered in the format "***dd-mmm-yyyy***" (e.g. 01-feb-2022, 18-dec-2022). There can be only one appointment on the same date and time

The system should then ask the patient whether he/she has health insurance to offset the charges. The patient's age is used to determine the coverage percentage of the total charges. A medical receipt is generated after an appointment has been created. Use the tables below to determine the charges for each visit.

Table to Determine Charges for each Visit

Type of Visit	**Cost**
Consultation	$4500.00
Primary care	$8000.00
Follow-up visit	$9500.00
Urgent visit	$15,500.00

Table to Determine Coverage for Health Insurance

Age Group	**Coverage (%)**
0 – 11	40
12 – 18	35
19 – 25	30
26 – 45	25
46 – 100	20

Append all appointment for each patient along with its associated cost to a single sequential access file called "***appointment.txt***".

Search an appointment
When this menu option is selected, the user should be able to search by unique patient number and then display all the appointments on the screen.

Update an appointment
When this menu option is selected, the user should be asked to enter the unique patient number for the appointment to be updated. The user should be allowed to update either the appointment date, the appointment time or the type of visit. Consequently, any new cost should be reflected on the patient's medical receipt and the text file ***(appointment.txt)***.

Delete an appointment
When this activity is selected, the user should be asked to enter their unique patient number. The system should display all appointments and allow the user to delete by appointment date and time.

Exit
When this menu option is selected, the application should be terminated

Important
The system should be user-friendly and use error-messaging to display all validation and other errors. The system may also store data other than those explicitly stated above. Your code should incorporate the use of advanced data structures and file structures.

Submission

You are required to submit:

1. Prepare a cover sheet indicating the names and identification numbers of all group members, along with a detailed report outlining of each component (for example, function, structure, et cetera) of the project implemented by each group member.
2. Submit a signed copy (by each group member) of the "Declaration of Authorship" form.
3. Submit the source code.
4. Be present and on-time for an interview to defend your project solution.

Marking

Documentation:……..25%

- Algorithm (Pseudocode or Flow Chart) (20%)
- Code that is documented and indented correctly (5%)

Implementation of pseudocode solution using C……50%

- Use of structures (5%)
- Use of arrays (5%)
- Use of pointers (10%)
- Use of functions (10%)
- Use of files (10%)
- User interface (10%)

Correct functionality…….....10%

Interview – ability to explain code and logic approach taken.....15%

Total……100%

Marks may be deducted for the following:

1. Unauthorized late submission – 10% per day (weekend included). After three days, assignment will not be accepted.
2. Identical assignments. Please read your Student Handbook for the University's Policy on Academic Misconduct.
3. Lack of neatness and disorganization of the deliverables.
4. The inability of a group member to explain the code and logic approach taken. Note that any member of the group may be called upon to explain any area of the system regardless of the tasks performed in the project.
5. The inability of the group to follow the instructions of the project.
6. Unauthorized lateness or absence from interview will result in the project NOT being graded.
7. The program does not run and compile without syntax error it WILL NOT be graded.

NOTE:

1. Marks are individually assigned based on interview and member contribution to the development of the project in the group.
2. Groups exceeding 3 members will be penalized.