TMF1434 – Data Structure & Algorithms
Project – Borneo Hair Salon

1 Introduction

This is a **GROUP** project (continuation from assignment) that contributes to 20% of the total grade of this course. Each group shall consist of 4 members.

2 Objectives

- To evaluate student's skills at writing a program using C++ programming language.
- To apply linked list data structure together with stack or queue data structure to store and manage data.
- To utilize searching and sorting algorithms to support data manipulation.

3 Borneo Hair Salon

The Borneo Hair Salon offers services like hair washing, hair treatment, hair-cutting, hair-colouring, and hairstyling. They use the best products and latest technology in hairstyling. The Borneo Hair Salon needs a small system to manage and keep track the salon services offered to customers.

4 Project Requirements

Write a program in C++ to demonstrate your ability to apply stack or queue data structures, searching and sorting techniques in designing your solutions. This project is to create a system for the Borneo Hair Salon to manage the services offered by the salon and to generate reports based on different types of services offered to customers. You may reuse the codes created in your Assignment or build from scratch for this project.

Your program should meet all the requirement as below:

a) Create a **stack** or **queue** using linked-list implementation to support a serial of appointments made by customers. A customer is allowed to make reservation for any services offered by the salon, to cancel appointment and to edit the existing appointment [Only the appointments with pending status can be cancelled or edited];

b) Create one **(1)** or more **lists** using linked-list implementation to record all the details of service transaction for each completed appointment;

c) An appointment is considered completed when the salon has delivered requested services to the customer. The details of services types and charges will be recorded and added to the completed service transaction list created in (b);

d) Each completed service transaction should have an ID number and user is allowed to view all the service transactions and to view the details of a particular transaction by searching its transaction ID number;

e) Your system should be able to display **summary report** (Not list all transactions) of transaction summary sorted by Service Types and sorted by Total Incomes. You are free to choose any of the sorting techniques (Bubble, Selection, Insertion, Shell, Quick or Merge) to organize your summary report;

f) Your system should be able to provide all the functions as listed below continuously based on user selection. The key functions of your program interface are:

Functions	**Descriptions**
Menu	- Display main menu options
Manage Appointment	- Ability to manage appointment (including add, delete, edit and finalize appointment)
Searching	- Ability to apply linear search or binary search techniques to support the manage appointment and view transaction processes
View transaction	- Ability to perform both view all and view a particular completed transaction(s)
Summary Report	- Show summary report of transaction summary sorted by Service Types; - Show summary report of transaction summary sorted by Total Incomes
Exit	- Exit from the program

g) Your program should operate continuously until user chooses to terminate the program;

h) Create at least five (5) appointments as pre-set data (hard coded) in your program.

5 Project Presentation

Presentation: Each group is given 20 minutes to present their project. All group members **MUST** attend for the presentation.

6 Submission

- All documents must be submitted via the link provided in eLEAP latest by ~~**24 April 2020 (Friday) by 5.00pm**~~. Any late submission will get 20% of Assignment mark penalty deduction per day;
- Submit your answer in a zipped file containing only the working C++ source codes (*.cpp). Use the following zipped file naming format for submission:

  GroupNo#.zip *E.g: Group01.zip*
- Each group is required to submit *only* one copy of group assignment.
- Files submitted with *incorrect format* will *not be entertained*.
- Any plagiarism (similarity between two files more than 50%) will be graded as a zero for the two files.