TMF1414 Introduction to Programming
Project (20%)
Due Date: 16th January 2023, before 5:00 pm

Learning Outcomes:

To demonstrate the ability of students to:

- Distinguish the basic problem-solving techniques in developing algorithms and programs for given problems. [C4]
- Construct complete programs based on a given specification. [P4]
- Construct the process of top-down, stepwise refinement to benefit all related software construction task. [P4]
- Justify the solution clearly and confidently. [A3, TS]

Objectives:

To demonstrate the ability of students to:

- design and develop a **console program** that receives inputs from user and display correct outputs;
- apply **modular programming** to solve given problem effectively using functions; and
- use appropriate **derived data types** to manage data for the project. For instance, array, structure and files.

Problem Statement(s):

Roll & Bowl is a bowling center in Kuching. This bowling center offers different charges for customer based different categories and special offer packages. You are required to write a C program to manage this 10 lanes of nine-pin bowling center. The following are the charges for each package:

Categories/Packages		**Normal Hour (10am-6pm)**	**Peak Hours (7pm-10pm)**	**Midnight Special (10pm-12pm)**
Student	Weekday	RM5.00	RM8.00	RM8.00 2 + free 1
	Weekend	RM7.00	RM10.00	RM10.00 2 + free 1
	Public Holiday	RM9.00	RM12.00	RM12.00
	School Holiday Special	RM7.00 2 + free 1	-	-
Adult	Weekday	RM8.00	RM12.00	RM10.00 2 + free 1
	Weekend	RM10.00	RM14.00	RM12.00 2 + free 1

	Public Holiday	RM12.00	RM16.00	RM14.00
Bowling Shoes Rental: RM4.00 per Pair				

Requirements:

This program mainly calculates charges for every games and the monthly income of a bowling center. Your system should be able to calculate and print out:

a) the receipt for every bowling game;
b) Summary of daily transactions by categories;
c) Summary of monthly avenue report.

You are free to design your input, interface or any related components that your group thinks are necessary to be included in your system.

You should show program modularity in your solution using functions, and also demonstrate ability in passing argument(s) to and returning value from called function in your program. Besides, your project **MUST** apply the following mechanisms to store and organize the data for your project:

a) Array / Pointer
b) Basic Data Structure
c) File Operations

Deliverables:

A set of bug-free program (source code). LGNo_RegisteredGroupNo.c – eg: *LG12_Group01.c* (LG – Lecture Group)

i. Project cover page
ii. Screenshots (sample run of your program) with explanation.
iii. Proof of discussion (WhatsApp or meeting record/pics).

Remarks:

- This project must be done in group of **FOUR (4) to FIVE (5)** members;
- Plagiarizing will be penalized; no mark will be given;
- The project must be submitted through **eleap.unimas.my** (C source codes) as one zip file and name it with your **L**ecture**G**roupNumber_RegisteredProjectGroupNo, for example "LG12_Group01.zip". You must upload it to **eleap.unimas.my** **by Monday, 16th January 2023, before 5.00pm;**
- Any late submission will only receive 50% of the marks given for your program; and
- All projects **MUST** be presented and all group members should present during the presentation session.