DCP5201 Object Oriented Programming
Trimester 2, 2021/2022

GROUP ASSIGNMENT 2 [20%]

1. Identify the topic from the following list based on the **last digit of your Group Number**.

Last digit of Group Number	Topic
0	Restaurant/Eatery
1	Retail Outlet
2	Cinema/Entertainment Outlet
3	Hotel/Chalet
4	Manufacturing (products, employees)
5	Transportation (air, land, sea)
6	Tourism (travel locations, packages)
7	Sports Activity (bookings, membership)
8	Hospital/Clinic
9	School/College/University

2. Create a program based on the topic assigned. You are free to create any program related to the topic as long as it fulfils the minimum requirements. For example:
   - A program for customers to book different types of hotel rooms.
   - A program for factory management to calculate the salary and bonus of different employee grades.

3. Your program must have ALL of the following MINIMUM requirements:
   - At least one (1) base class.
   - At least two (2) derived classes inherited from the base class.
   - At least one (1) object for each class and one (1) has to be an array of objects.
   - At least one (1) default or parameterized constructor for each class.
   - At least one (1) friend function.
   - Apply dynamic memory allocation using keyword new and delete for any object or array of objects.
   - Must prompt user for input. (It is assumed that a user will input text and numbers in good faith and will not purposely enter text into a number field and will not key in non-alphanumeric characters for text fields.)
   - Must be written in standard C++ code using only standard libraries.
   - Write sufficient comments in the script to explain your program.

4. Deliverables:
   - **Source code** in one file.
     Name it as *DCP5201_[LabSection]_[GroupNumber]_ Assignment2.cpp*.
     (E.g. DCP5201_TT1V_Group01_Assignment2.cpp)
   - A **softcopy report** to:
     - Introduce the purpose and usage of the program.
     - Explain the program details (using flowcharts and diagrams if necessary).
     - Compile the screenshots of the program output.
     - Name it as *DCP5201_[LabSection]_[GroupNumber]_Assignment2.pdf*.
       (E.g. DCP5201_TT1V_Group01_Assignment2.pdf)
     - Include a cover page to show the Lab Section (TL1V, TL2V, TL3L, TL4L), Group number, Name & ID, and name of the program you have created.

5. Submit your deliverables to GitHub Classroom
   [https://classroom.github.com/a/MNz1TjoN].
   Only one (1) group member needs to do the submission as representative.
   The due date is on **3rd April 2022** (Week 13).

6. A **virtual short demo session** (about 5 minutes) of your completed program will be arranged in **Week 14** where everyone in the group will need to be in the session. Only for code demo, no presentation slides needed.

7. Honour code:
   - You may consult any sources for ideas but COPYING and/or SUBMITTING others' codes are strictly NOT ALLOWED.
   - If plagiarism is detected, all parties involved will get 0 mark.

EVALUATION FORM (For reference)

Lab Section	
Group Number	
Member 1 (Name & ID)	
Member 2 (Name & ID)	
Member 3 (Name & ID)	

Part A: Program Source Code

No.	Item	Marks
1	Define base class: - Class structure - Data members and member functions - Functions logic	/4
2	Define derived classes (minimum 2) - Class structure - Data members and member functions - Functions logic	/8
3	Usage of object and array of objects	/3
4	Constructor (default or parameterized)	/3
5	Friend function	/2
6	Dynamic memory allocation (new and delete)	/1
7	Sufficient comments to explain code and easy to understand	/1
8	Program run successfully without any error	/1
9	Program is well written and formatted with indentation	/1
10	Program output is neat and clear	/1
	Total:	**/25**

Part B: Report and Demo

No.	Item	Marks
1	Report - Program introduction - Program details - Program output screenshots	/3
2	Demo and Q&A	/2
	Total:	**/5**

CALCULATION

Total marks of assignment = **30 marks**

Marks gained = $\boldsymbol{x}$

Coursework percentage $= \left(\frac{\boldsymbol{x}}{\boldsymbol{30}} \times \boldsymbol{20}\right)\%$