Department of
Computer Science & Engineering
University of Liberal Arts Bangladesh

Open-ended Experiment - 2

Course Title: Data Structure Lab	**Section:** 03
Course Code: CSE1302	**Semester:** Fall 2023
Total Marks: 24	**Submission Deadline:** December 12, 2023

General Instructions:
- This is an open-ended experiment. Students are expected to develop their own experiments;
- Show each step of your experimental procedure, data, and calculations;
- Discuss your results with relevant theories;
- The originality of the work is a must;
- Please refer to the assessment rubrics while preparing the report;
- Symbols, notations, and abbreviations carry their usual meanings.

	Descriptions	Domain/ level of learning taxonomy
CO1	Demonstrate various basic data structures and their operations	Psychomotor/L2, Affective / L2
CO2	Apply appropriate data structure for solving real-world problems	Psychomotor/L2, Affective / L2
CO3	Develop applications using various data structures	Psychomotor/L2, Affective / L2

Problem
You are brought on board to oversee the maintenance of a service management system. This system is responsible for storing vital information about customers, such as their name, age, gender, contact number and email address. However, during your review of the current setup, you noticed that all customer data is currently consolidated in a single repository.

Open-ended features:
- Use any of the suitable data structures to store the data (Arrays, Linked List, Stack, Queue etc.)
- Use your preferred programming language (Python, Java, C++, etc.)
- The output can be a text-based interface or a graphical interface

Task No.	CO	Marks
1: Select and implement the most suitable data structure for the service management system. Justify your choice with a clear explanation.	CO1	6
2: The administration wants to maintain separate queues for male and female customers. To achieve this, they need two dedicated repositories exclusively for female and male customers. Now, your task is to create and develop this system to fulfill their requirement. Additionally,	CO2	6
3: Develop a system for appointment management, where a customer can book an appointment for a specific day. For this system, you need to implement an appropriate data structure to manage the appointments. In this system, the customers will be served on a first-come, first-served basis.	CO3	6
4: Compile a report on the stated problem including the justifications, codes, simulations, inputs/outputs.		6