ECS769P Advanced Object - Oriented Programming

Lab 4: Data Structures 1 (in-lab assessment in week 7)

Exercise 1: Examples in lecture (basic exercise)

Complete all examples introduced in the lecture. Try to write the code yourself without looking at the notes. Successfully compile and run the programs.

Exercise 2: Implement Queue using Class Template (core exercise)

Write a Queue Class Template using *deque*. (please refer to the Stack example in the lecture). Create an integer queue *IntQueue* and a string queue *StringQueue* using the Queue Class Template.

Exercise 3: Integer List (core exercise)

Write a program that inserts 10 random integers from 0-100 in order in a linked list object. The program should calculate the sum of the elements and the average of the elements.

Notes:

- Use Custom Template to build your own generic lists.
- Use appropriate data types.

Exercise 4: Concatenating Lists (challenging exercise)

Write a program that concatenates two linked list objects of strings. The program should include function `concatenate`, which takes references to both list objects as arguments and concatenates the second list to the first list.

Notes:

- Use custom template to build your own generic lists.