EC3051D: Data Structures using C++
Monsoon Semester 2019

Practice Questions - Set 4

1. Write a C++ program to Sort the given below array of ten integers using
   5 3 8 9 1 7 0 2 6 4
   a) Selection sort
   b) Merge sort

2. Write a C++ program to Sort the given below string using
   DataStructures
   a) Insertion sort
   b) Quick sort

3. Write a C++ program to sort n numbers entered by the user. Use dynamic memory allocation and any sorting algorithm.

4. Following is C++ like pseudo code of a function that takes a Queue as an argument, and uses a stack S to do processing.

```
void fun(Queue *Q)
{
   Stack S;  // Say it creates an empty stack S

   // Run while Q is not empty
   while (!isEmpty(Q))
   {
      // deQueue an item from Q and push the dequeued item to S
      push(&S, deQueue(Q));
   }

   // Run while Stack S is not empty
   while (!isEmpty(&S))
   {
     // Pop an item from S and enqueue the poppped item to Q
     enQueue(Q, pop(&S));
   }
}
```

   Write a C++ code for the same.

5. Write a C++ program to reverse a string using stack.

6. Given an array of elements, sort these elements using stack.

7. Given linked list of 10 numbers, write a C++ program to reverse the linked list. The program should be able to print the linked list before and after reversing the list.

8. Write a C++ program to Find the frequency of a given number in a linked list

9. Write a C++ program to dynamically create a linked list. The user should be able to insert an element, delete an element and also should be able to move the last element in the linked list to first.

10. Write a C++ program to implement a queue system for a polling station. The participants are allowed to enter their roll number and name to be part of the queue.

The system should be able to carry out the following.

   a) Build a master queue
   b) List the queue
   c) Entry into queue
   d) Exit out of queue