Network Programming, Assignment-0
CSED, TIET Patiala

Instructions

- Please do not use any global variable unless you are explicitly instructed so.
- Please use proper indentation in your code and comment.

Write a C program to demonstrate the following:

1. Define a structure **QNode** that has two structure members, namely, **key** of *type integer* and **next** of *type QNode pointer*. Further, Use the *typedef* keyword to define a **node** for a given structure.
2. Define a structure **QueueStructure** that has two structure members, namely, **front** and **rear** of *type QNode pointer*. Further, Use the *typedef* keyword to define a **Queue** for a given structure.
3. Write a C function **node *createNode()** which will ask the user for an integer data and create a node for the given data.
4. Write a C function **Queue *createQueue()** to create a queue by initializing front and rear by NULL.
5. Write a C function **Queue *ENQUEUE(Queue* q, node* newnode)** to insert a newly created node to the queue.
6. Write a C function **int DEQUEUE(Queue* q)** to remove an element from the queue.
7. Write a C function **void displayQueue(Queue* q)** to display the values in the queue.
8. Write a C function **int countQueue(Queue* q)** to count the values in the queue.
9. The skeleton of void main () is given as follow
   - Define a **Queue** variable and call createQueue function to initialize its front and rear pointers.
   - Call createNode function to create a node and further call ENQUEUE function to insert this new node in the Queue.
   - Again call createNode function to create a node and further call ENQUEUE function to insert this new node in the Queue.
   - Call countQueue function

- Call displayQueue function to display the queue.
- Call DEQUEUE function
- Call DEQUEUE function
- Call countQueue function
- Call displayQueue function to display the queue.