Practical 8[B]

AIM: Implement a Queue using Linked List and perform the Queue operations: Enqueue, Dequeue and Print using Menu Driver Program such as 1.Add, 2.Delete and 3.Print and 4. Exit.

Program:-

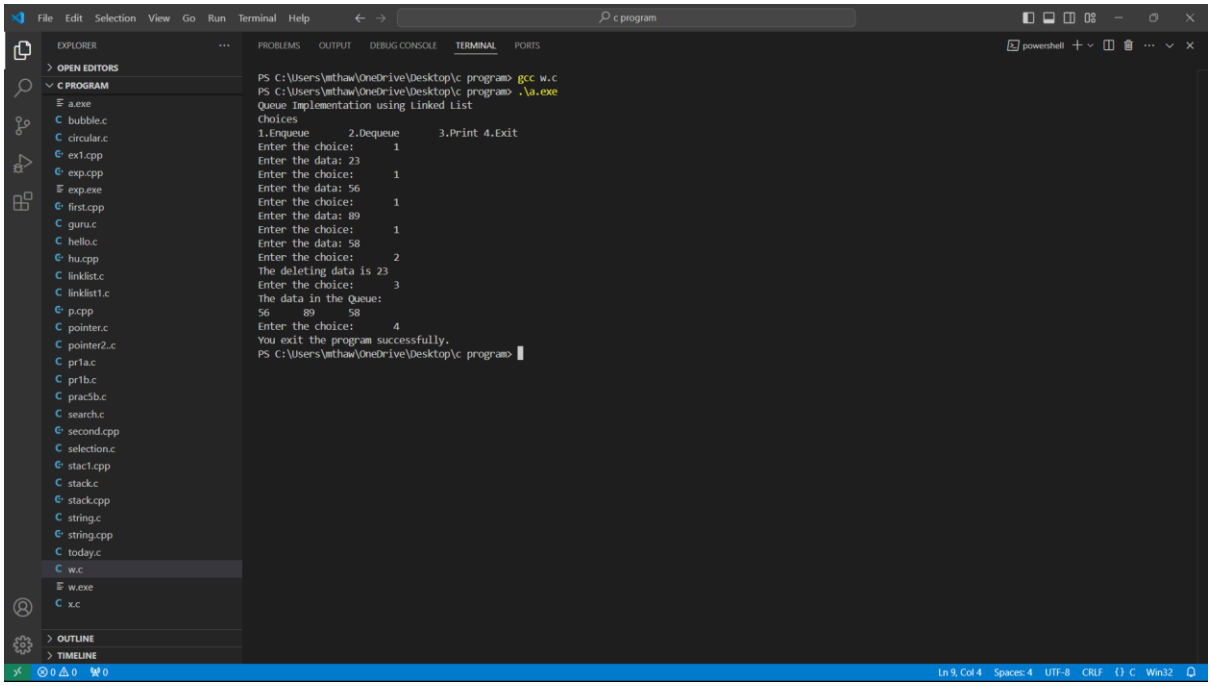
```
//Queue Implementation using linked list

#include<stdio.h>

#include<stdlib.h>


//Structure of the node

struct node{

  int data;

  struct node* next;

};

int data;

struct node* front = NULL;

struct node* rear = NULL;


//Inserting data in queue.(Enqueue function):

int enqueue(){

  //Creating the node first

  struct node* p;

  p = (struct node*)malloc(sizeof(struct node));

  if(p == NULL){

    //Checking the queue is overflow or not

    printf("The Queue is overflow\n");

  }

  printf("Enter the data:\t");

  scanf("%d", &p->data);

  p->next = NULL; // Initialize new node's next to NULL


  if (front == NULL && rear == NULL)

  {


    // First element in queue

    front = rear = p;

  }
```

```
    else
    {
        // Add to the end of the queue
        rear->next = p;
        rear = p;
    }

    return 0;
}

// Deleting data in queue.(Dequeue function):
int dequeue(){
    struct node* p;
    if(front == NULL && rear == NULL){
        printf("The Queue is underflow\n");
    }
    else
    {
        struct node *p = front;
        printf("The deleting data is %d\n", front->data);
        front = front->next;

        if (front == NULL)
        {
            // If queue becomes empty, update rear to NULL
            rear = NULL;
        }
        free(p);

    }

    return 0;
}

void display(){
    struct node* display;
```

```
    display = front;
    if(front == NULL){
        printf("The Queue is empty can not print the element.\n\n");
    }else{
    printf("The data in the Queue:\t\n");
    while(display != NULL){
        printf("%d\t", display -> data);
        display = display -> next;
    }
    printf("\n" );
    }
}

int main(){
    int choice;
    printf("Queue Implementation using Linked List\n");
    printf("Choices\n1.Enqueue\t2.Dequeue\t3.Print\t4.Exit\n");
    do
    {   printf("Enter the choice:\t");
        scanf("%d",&choice);

        switch (choice)
        {
        case 1:

            enqueue();
            break;
        case 2:
            dequeue();
            break;
        case 3:
            display();
            break;
        case 4:
            printf("You exit the program successfully.\n");
            break;
```

```
    default:
    printf("Please enter valid choice as mention\n");
      break;
    }

  } while (choice != 4);

  return 0;
}
```

Output:-



Github link :- https://github.com/MayurThaware122/DSA