

## 20BCS042 MOHD ADIL

### PROGRAM 9: Queue using LL

```
#include <stdio.h>
#include <stdlib.h>

struct QueueNode
{
    int data;
    struct QueueNode *QueueNext;
} *front = NULL, *rear = NULL;

int count=0;
void enqueue()
{
    struct QueueNode *temp = malloc(sizeof(struct
QueueNode));
    if (temp == NULL)
        printf("Heap Overflow\n");
    else
    {
        printf("Enter the Number : ");
        int x;
        scanf("%d", &x);
        temp->data = x;
        temp->QueueNext = NULL;
        if (front == NULL)
        {
            front = temp;
            rear = temp;
        }
        else
        {
            rear->QueueNext = temp;
            rear = temp;
        }
        count++;
    }
}
```

```

}
int dequeue()
{
    int x = -1;
    struct QueueNode *temp;
    if (front == NULL)
    {
        printf("Queue is Empty \n");
    }
    else
    {
        x = front->data;
        temp = front;
        front = front->QueueNext;
        free(temp);
        count--;
        return x;
    }
}
int isEmpty()
{
    if (front == NULL)
        return 1;
    return 0;
}
void Display()
{
    struct QueueNode *temp;
    temp = front;
    printf("Queue -> ");
    while (temp)
    {
        printf("%d | ", temp->data);
        temp = temp->QueueNext;
    }
    printf("\n");
}
int main()

```

```

{
    int choice;
    printf("\n1. Enqueue\n2. Dequeue\n3. Front and Rear
Element \n4. Isempty\n5. Total no of element\n6. Display\n7.
Exit\n");
    while (1)
    {
        printf("Enter the choice: ");
        scanf("%d", &choice);
        switch (choice)
        {
            case 1:
                enqueue();
                Display();
                break;
            case 2:
                printf("Dequeued element -> %d\n", dequeue());
                Display();
                break;
            case 3:
                printf("Front Element -> %d\n", front->data);
                printf("Rear Element -> %d\n", rear->data);
                break;
            case 4:
                printf("%d\n", isEmpty());
                break;
            case 5:
                printf("Total number of elements -> %d\n",
count);
                break;
            case 6:
                Display();
                break;
            case 7:
                printf("Exiting...");
                exit(0);
                break;
        }
    }
}

```

```

    }

    return 0;
}

```

## OUTPUT:

```

PS C:\Users\aadil\Desktop\CSE\dsalab> cd "c:\Users\aadil\Desktop\CSE\dsalab\" ; if ($?) { gcc program9.c -o program9 }

1. Enqueue
2. Dequeue
3. Front and Rear Element
4. Isempty
5. Total no of element
6. Display
7. Exit
Enter the choice: 1
Enter the Number : 1
Queue -> 1 |
Enter the choice: 1
Enter the Number : 2
Queue -> 1 | 2 |
Enter the choice: 1
Enter the Number : 3
Queue -> 1 | 2 | 3 |
Enter the choice: 3
Front Element -> 1
Rear Element -> 3
Enter the choice: 2
Dequeued element -> 1
Queue -> 2 | 3 |
Enter the choice: 3
Front Element -> 2
Rear Element -> 3
Enter the choice: 4
0
Enter the choice: 5
Total number of elements -> 2
Enter the choice: 6
Queue -> 2 | 3 |
Enter the choice: 7
Exiting...
PS C:\Users\aadil\Desktop\CSE\dsalab>

```