

Lab - program - 4.

```
#include <stdio.h>
#include <stdlib.h>
int front = -1;
int rear = -1;
int queue[100];
int MAX;
void Enque(int);
void Deque();
void display();
int main()
{
    int choice, item;
    printf("Enter the maximum number of elements\nin the queue\n");
    scanf("%d", &MAX);
    do {
        printf("1. Insert into the queue\n");
        printf("2. Delete from the queue\n");
        printf("3. Display the contents of the\nqueue\n");
        printf("4. Exit\n");
        printf("Enter your choice:\n");
        scanf("%d", &choice);
        switch (choice)
        {
            case 1: if ((front == 0 && rear == MAX-1) || (front == rear+1))
                { printf("Queue is full\n"); }
            else
                { printf("Enter the element\n");
                  scanf("%d", &item);
                  Enque(item); }
        }
    }
```

break;

case 2: Deque(); break;

case 3: display();

break;

case 4: exit(0);

}

while (choice != 4);

return 0;

}

void Enque (int de)

{

rear = (rear + 1) % MAX;

queue[rear] = de;

if (front == -1)

front = 0;

return;

}

void Deque()

{ int item;

if ((front == -1) && (rear == -1))

{ printf("Queue is empty\n"); return;

}

else

{ item = queue[front];

if (front == rear)

{ front = -1;

rear = -1;

}

front = (front + 1) % MAX;

}

printf("Removed element from the queue is %d\n", item); return; }

```

void display()
{
    int i;
    if ((front == -1) && rear == -1)
    {
        printf("Queue is empty \n");
        return;
    }
    else
    {
        printf("Queue contents: \n");
        for (i = front; i != rear; i = (i+1) % MAX)
        {
            printf("%d\t", queue[i]);
        }
        printf("%d", queue[rear]);
        printf("\n");
        return;
    }
}

```