Lab program 3

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

#define N 5
int queue[N];
int front = -1;
int rear = -1;

void enque(int x)
{
   if (rear == N - 1)
   {
      printf("Queue Overflow\n");
   }
   else if (front == -1 && rear == -1)
   {
      front = rear = 0;
      queue[rear] = x;
      printf("inserted element=%d",x);
   }
   else
   {
      rear++;
      queue[rear] = x;
      printf("inserted element=%d",x);
   }
}

void deque()
{
```

```
    if (front == -1 && rear == -1)
    {
        printf("Queue is empty\n");
    }
    else if (front == rear)
    {
        printf("Deleted element = %d\n", queue[front]);
        front = rear = -1;
    }
    else
    {
        printf("Deleted element = %d\n", queue[front]);
        front++;
    }
}

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

```
}

void peek()
{
   if (front == -1 && rear == -1)
   {
      printf("Queue is empty\n");
   }
   else
   {
      printf("Front element = %d\n", queue[front]);
   }
}

int main()
{
   int ch, x;
   while (1)
   {
      printf("\nEnter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit ");
      scanf("%d", &ch);
      switch (ch)
      {
      case 1:
         printf("Enter element to insert: ");
         scanf("%d", &x);
         enque(x);
         break;
      case 2:
         deque();
         break;
```

```
        case 3:
            display();
            break;
        case 4:
            peek();
            break;
        case 5:
            exit(0);
        default:
            printf("Choice out of range\n");
        }
    }
    return 0;
}
```

```
inserted element=20
Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 1
Enter element to insert: 30
inserted element=30
Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 3
Queue elements: 10 20 30

Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 4
Front element = 10

Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 2
Deleted element = 10

Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 2
Deleted element = 20

Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 2
Deleted element = 30

Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 2
Queue is empty

Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 3
Queue is empty

Enter your choice:1. Enqueue 2. Dequeue 3. Display 4. Peek 5. Exit 5

Process returned 0 (0x0)   execution time : 39.150 s
Press any key to continue.
```