

Lab Program 4

Q. Write a Program to simulate the working of a circular queue of integers using an array
Provide the following operations

- Insert
- Delete
- Display

The program should print appropriate messages for queue empty and queue overflow conditions

```
#include <stdio.h>
#include <stdlib.h>
int item, front = 0, rear = -1, q[Q_SIZE], count = 0;

void insertrear()
{
    if (count == Q_SIZE)
    {
        printf("QUEUE OVERFLOW\n");
        return;
    }
    rear = (rear + 1) % Q_SIZE;
    q[rear] = item;
    count++;
}

int deletefront()
{
    if (count == 0) return -1;
    item = q[front];
    front = (front + 1) % Q_SIZE;
    count = count - 1;
    return item;
}
```


Date ___/___/___



```
void display ()
```

```
{  
    int i;  
    if (count == 0)
```

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

```
    printf ("Contents of queue \n");  
    for (i = 1; i <= count; i++)
```

```
{  
        printf ("%d \n", q[front]);  
        front = (front + 1) % q[SIZE];  
    }
```

```
}
```

```
void main ()
```

```
{  
    int choice;  
    for ( ; ; )
```

```
    printf ("\n 1: insert rear \n 2: delete front \n 3: display \n 4: exit \n");
```

```
    printf ("Enter the choice \n");  
    scanf ("%d", &choice);  
    switch (choice)
```

```
{  
    case 1: printf ("Enter the item to be inserted \n");  
            scanf ("%d", &item);  
            insert_rear();  
            break;
```

```
    case 2: item = delete_front();  
            if (item == -1)
```

```
printf("Queue is empty \n");  
else  
printf("Item Deleted = %d \n", item);  
break;  
Case 3: display Q()  
break;  
default : exit(0);  
}
```

```
}
```

```
}
```