

LAB PROGRAM 3 (DS)

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

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

```
#define QUE_SIZE 3
```

```
int item,front=0,rear=-1,q[10];
```

```
void insertrear()
```

```
{
    if(rear==QUE_SIZE-1)
    {
        printf("QUEUE OVERFLOW\n");
        return;
    }
    rear+=1;
    q[rear]=item;
}
```

```
int deletefront()
```

```
{
    if(front>rear)
    {
        front=0;
        rear=-1;
        return -1;
    }
    return q[front++];
}
```

```
void displayQ()
```

```
{
    int i;
    if(front>rear)
    {
        printf("QUEUE IS EMPTY\n");
        return;
    }
    printf("Contents of the queue:\n");
    for(i=front;i<=rear;i++)
    {
        printf("%d\n",q[i]);
    }
}
```

```

void main()
{
    int choice;
    for(;;)
    {
        printf("\n1:Insert Rear\n2:Delete Front\n3:Display Queue\n4:EXIT\n");
        printf("Enter your choice: ");
        scanf("%d",&choice);
        switch(choice)
        {
            case 1:printf("\nEnter the value to be inserted: ");
                    scanf("%d",&item);
                    insertrear();
                    break;
            case 2:item=deletefront();
                    if(item== -1)
                        printf("QUEUE IS EMPTY\n");
                    else
                        printf("Item Deleted= %d\n",item);
                    break;
            case 3:displayQ();
                    break;
            default:return;
        }
    }
}

```

OUTPUT:-

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main.c

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 #define QUE_SIZE 3
4
```

Input

```
1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 1
Enter the value to be inserted: 10
1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 1
Enter the value to be inserted: 20
1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 1
Enter the value to be inserted: 30
1:Insert Rear
2:Delete Front
```

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main.c

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 #define QUE_SIZE 3
4
```

Input

```
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 1
Enter the value to be inserted: 40
QUEUE OVERFLOW
1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 3
Contents of the queue:
10
20
30
1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 2
Item Deleted= 10
1:Insert Rear
2:Delete Front
```

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```
1 #include<stdio.h>
2 #include<stdlib.h>
3 #define QUE_SIZE 3
4
```

The program implements a queue using an array. The output of the program is shown in the terminal area:

```
1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 2
Item Deleted= 20

1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 2
Item Deleted= 30

1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 2
QUEUE IS EMPTY

1:Insert Rear
2:Delete Front
3:Display Queue
4:EXIT
Enter your choice: 4
```

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