

### LAB PROGRAM :- 3

#### ORDINARY QUEUE:

```
#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=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 queue\n");
```

```

for(i=front;i<=rear;i++)
{
    printf("%d\n",q[i]);
}
}
int main()
{
    int choice;
    for(;;)
    {
        printf("1:insertrear 2:deletefront 3:display 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);
                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:exit (0);
        }
    }
}

```

```

    }
}
}

```

## SCREENSHOTS OF PROGRAM AND OUTPUT:

The screenshot shows a Replit IDE window with the following components:

- Files Panel:** Shows a file named `main.c`.
- Code Editor:** Contains the following C code:
 

```

1 #include<stdio.h>
2 #include<stdlib.h>
3 #define QUE_SIZE 3
4 int item,front=0,rear=-1,q[10];
5 void insertrear()
6 {if(rear==QUE_SIZE-1)
7 {
8     printf("queue overflow\n");
9     return;
10 }
11 rear=rear+1;
12 q[rear]=item;
13 }int deletefront()
14 {if (front>rear)
15 {front=0;
16 rear=-1;
17 return -1;
18 }return q[front++];
19 }void displayQ()
20 {int i;
21 if (front>rear)
22 {

```
- Terminal:** Shows the compilation and execution process:
 

```

> clang-7 -pthread -lm -o main main.c
> ./main
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
1
enter the item to be inserted
10
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
1
enter the item to be inserted
20
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
1
enter the item to be inserted
30
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
3
contents of queue
10
20
30
1:insertrear 2:deletefront 3:display 4:exit

```

The screenshot shows the continuation of the Replit IDE window with the following components:

- Files Panel:** Shows a file named `main.c`.
- Code Editor:** Contains the continuation of the C code:
 

```

23     printf("queue is empty\n");
24     return;
25 }
26 printf("contents of queue\n");
27 for(i=front;i<=rear;i++)
28 {
29     printf("%d\n",q[i]);
30 }
31 int main()
32 {
33     int choice;
34     for(;;)
35     {
36         printf("1:insertrear 2:deletefront 3:display
37         4:exit\n");
38         printf("enter the choice\n");
39         scanf("%d",&choice);
40         switch(choice)
41         {
42             case 1:printf("enter the item to be
43             inserted\n");

```
- Terminal:** Shows the continuation of the execution:
 

```

enter the item to be inserted
30
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
3
contents of queue
10
20
30
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
2
item deleted=10
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
2
item deleted=20
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
3
contents of queue
10
20
30
1:insertrear 2:deletefront 3:display 4:exit
enter the choice

```

```
main.c
38 scanf("%d",&choice);
39 switch(choice)
40 {
41     case 1:printf("enter the item to be
42             inserted\n");
43             scanf("%d",&item);
44             insertrear ();
45             break;
46     case 2:item=deletefront();
47             if(item!=-1)
48                 printf("queue is empty\n");
49             else
50                 printf("item deleted=%d\n",item);
51             break;
52     case 3:displayQ();
53             break;
54     default:exit (0);
55 }
56
57
58
```

```
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
1
enter the item to be inserted
20
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
1
enter the item to be inserted
30
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
3
contents of queue
10
20
30
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
2
item deleted=10
1:insertrear 2:deletefront 3:display 4:exit
enter the choice
2
item deleted=20
```

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Lab Program 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 = rear + 1;
    q[rear] = item;
}
int deletefront()
{
    if(front > rear)
    {
        front = 0;
        rear = -1;
        return -1;
    }
}
```

```
return q[front++];  
}  
void display Q()  
{  
    int i;  
    if (front > rear)  
    {  
        printf("queue is empty\n");  
        return;  
    }  
    printf("contents of queue\n");  
    for (i = front; i <= rear; i++)  
    {  
        printf("%d\n", q[i]);  
    }  
}  
int main()  
{  
    int choice;  
    for(;;)  
    {  
        printf("1: insert rear 2: delete front 3: display 4: exit\n");  
        printf("enter the choia\n");  
        scanf("%d", &choice);
```

```
switch(choice)
```

```
{
```

```
case 1: printf("Enter the item to be inserted\n");
```

```
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: exit(0);
```

```
}
```

```
}
```