

Date: 28 October 2020, Name: Hritik Singh, USN: IBM19CS063.

DS Lab ::

Double Ended Queue ::

```
#include <stdio.h>
#include <conio.h>
#include <process.h>
#define qsize 3
int f = 0, r = -1;
int item, q[10];

int is_full()
{
    return (r == qsize - 1) ? 1 : 0;
}

int is_empty()
{
    return (f > r) ? 1 : 0;
}

void insert_rear()
{
    if (is_full())
    {
        printf("queue overflow\n");
        return;
    }
    r = r + 1;
    q[r] = item;
}

void delete_front()
{
    if (is_empty())
    {
        printf("item deleted is %d\n", q[f]++);
    }
}
```

Date: 28 October 2020, Name: Jyotik Singh, USN: 1BM19CS063

```

if (f > r)
{
    f = 0;
    r = -1;
}
}

```

```

void insert-front()
{

```

```

    if (f != 0)
    {

```

```

        f = f - 1;

```

```

        q[f] = item;

```

```

        return;
    }

```

```

    else if ((f == 0) && (r == -1))
    {

```

```

        q[++(r)] = item;

```

```

        return;
    }

```

```

    else

```

```

    { printf("insertion is not possible \n");
    }

```

```

void delete-rear()
{

```

```

    if (is empty())
    {

```

```

        printf("queue is empty \n");

```

```

        return;
    }

```

```

    printf("item deleted is %d \n", q[(r)--]);

```

```

    return;
}

```

```

printf("item deleted is %d \n", q[(r)--]);

```

```

if (f > r)
{

```

```

    f = 0;

```

```

    r = -1;

```

```

}

```

Date: 28 October 2020, Name: - Hritik Singh, JN: - 19M19CS063.

```

}
}
void display()
{
    int i;
    if (is empty())
    {
        printf("queue empty \n");
        return;
    }
    for (i = f; i <= r; i++)
        printf("%d \n", q[i]);
}

void main()
{
    for(;;)
    {
        printf("1. insert-rear \n 2. insert-front \n 3. delete-rear \n 4. delete-front \n 5. display \n 6. exit \n");

        printf("enter choice \n");
        scanf("%d", &ch);
        switch(ch)
        {
            case 1: printf("enter the item \n");
                    scanf("%d", &item);
                    insert-rear();
                    break;
            case 2: printf("enter the item \n");
                    scanf("%d", &item);
                    insert-front();
                    break;
            case 3: delete-rear();
                    break;

```

Date :- 28 October 2020, Name :- Jhritika Singh, VIN :- 18M13CS063

```

case 4 : delete - front ();
break;
case 5 : display ();
break;
default : exit (0);
}
}
getch();
}

```

Output:-

1. insert_rear	queue overflow.
2. insert - front	Enter choice.
3. delete - rear	5
4. delete - front	11
5. display	12
6. exit	13.
Enter choice.	Enter choice
1	3
Enter the item	Item deleted is 13
11.	Enter choice
Enter choice.	5
1.	11
Enter the item	12
12.	Enter choice
Enter choice.	4
1	Item deleted is 11.
Enter the item	Enter choice
13.	5
Enter choice	12
1	Enter choice.
Enter the item	2
14	Enter the item
	15

Date:- 28 October 2020 , Name:- Jyoti Singh, USN:- 1BN19C5063

Enter the choice

5

15

12.

Enter the choice.

5 1

Enter the item.

30

Enter choice 5.

15

12

30.

Enter choice

1

Enter the item

45

Queue overflow









