

Date :- 28 October 2020, Name :- Shritik Singh, USN :- IBM19CS063.

DS Lab :-

Double Ended Queue :-

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

int is full()
{
    return (r == q_size - 1) ? 1 : 0;
}

int isempty()
{
    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 (isempty())
    {
        printf("item deleted is null\n", q[f] + +);
    }
}
```

Date: 28 October 2020, Name: Trilok Singh, USN: 1BM19CS063.

```
if (f > r)
```

```
{ f = 0;
```

```
g = -1;
```

```
}
```

```
void insert - front()
```

```
{
```

```
if (f == 0)
```

```
{
```

```
f = f - 1;
```

```
q[f] = item;
```

```
return;
```

```
}
```

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

```
{
```

```
q[++(r)] = item;
```

```
}
```

```
else
```

```
printf ("insertion is not possible \n");
```

```
}
```

```
void delete - rear()
```

```
{
```

```
if (is empty ())
```

```
{
```

```
printf ("queue is empty \n");
```

```
return;
```

```
}
```

if (f > r)

printf ("item deleted is .\n", q[(r)-1]);

```
{
```

```
f = 0;
```

```
g = -1;
```

Scanned with CamScanner

Date: 28 October 2020, Name: Hritik Singh, JSN:- IBM 19CS063.

```

    {
}

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_f
            \n 5. display \n 6. exit \n");
        scanf("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;
            case 4: delete_f();
                break;
            case 5: display();
                break;
            case 6: exit(0);
        }
}

```

Date :- 28 October 2020, Name :- Sribhushan Singh, V/N :- IBM 23 CS063

```

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

```

### Output:-

1. insert\_rear

2. insert - front

3. delete - rear

4. delete - front

5. display

6. exit

Enter choice.

1

Enter the item

11.

Enter choice.

1.

Enter the item

12.

Enter choice.

1

Enter the item

13.

Enter choice

1

Enter the item

14

queue overflow.

Enter choice.

5

11

12

13.

Enter choice

3

Item deleted is 13

Enter choice

5

11

12

Enter choice

4

Item deleted is 11.

Enter choice

5

12

Enter choice.

2

Enter the item

15

Date:- 28 October 2020 Name:- Jyoti Singh. USN:- 1BM19CS063.

Enter the choice

5

15

12.

Enter the choice.

5 1

3 Enter the item.

go

Enter choice 5.

15

12

go.

Enter choice

1

Enter the item

45

Item overflow

main.c [dequeue] - Code::Blocks 17.12

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

Debug

Management X

Projects Sources main.c

Workspace dequeue Sources main.c

main.c X

```
24     q[r]=item;
25   }
26 void delete_front()
27 {
28   if(isempty())
29   {
30     printf("queue empty\n");
31     return;
32   }
33   printf("item deleted is %d\n",q[(f++)]);
34   if(f>r)
35   {
36     f=0;
37     r=-1;
38   }
39 }
40 void insert_front()
41 {
42   if(f==0)
43   {
44     f=f-1;
45     q[f]=item;
46     return;
47   }
48   else if((f==0)&&(r==-1))
49   {
50     q[++(r)]=item;
      }
```

C:\dequeue\bin\Debug\dequeue.exe

```
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
11
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
12
1.insert_rear
2.insert_front
3.delete_rear
4.delete_front
5.display
6.exit
enter choice
1
enter the item
13
```

Logs & others

Code::Blocks Search results Ccc Build log Build messages CppCheck/Vera++ CppCheck/Vera++ messages Cscope Debugger Doxygen Fortran info

0 error(s), 3 warning(s) (0 minute(s), 1 second(s))

----- Run: Debug in dequeue (compiler: GNU GCC Compiler) -----
Checking for existence: C:\dequeue\bin\Debug\dequeue.exe
Executing: "C:\Program Files (x86)\CodeBlocks\cb\_console\_runner.exe" "C:\dequeue\bin\Debug\dequeue.exe" (in C:\dequeue\.)

C:\dequeue\main.c C/C++ Windows (CR+LF) WINDOWS-1252 Line 20, Col 34, Pos 288 Insert Read/Write default
Type here to search 100% ENG 28-10-2020 11:54 34

main.c [dequeue] - Code::Blocks 17.12

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

Management X main.c X

Projects Sources main.c

```
1 #include<stdio.h>
2 #include<conio.h>
3 #include<process.h>
4 #define qsize 3
5 int f=0, r=-1, ch;
6 int item, q[10];
7
8 int isfull()
9 {
10     return(r==qsize-1)?1:0;
11 }
12 int isempty()
13 {
14     return(f>r)?1:0;
15 }
16 void insert_rear()
17 {
18     if(isfull())
19     {
20         printf("queue overflow\n");
21         return;
22     }
23     r=r+1;
24     q[r]=item;
25 }
26 void delete_front()
27 {
28 }
```

C:\dequeue\bin\Debug\dequeue.exe

1.insert\_rear  
2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice  
5  
15  
12  
90  
1.insert\_rear  
2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice  
1  
enter the item  
45  
queue overflow  
1.insert\_rear  
2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice

Logs & others

Code::Blocks Search results Ccc Build log Build messages CppCheck/Vera++ CppCheck/Vera++ messages Cscope Debugger Doxygen Fortran info

0 error(s), 3 warning(s) (0 minute(s), 1 second(s))

----- Run: Debug in dequeue (compiler: GNU GCC Compiler) -----  
Checking for existence: C:\dequeue\bin\Debug\dequeue.exe  
Executing: "C:\Program Files (x86)\CodeBlocks\cb\_console\_runner.exe" "C:\dequeue\bin\Debug\dequeue.exe" (in C:\dequeue\.)

C:\dequeue\main.c

Type here to search C/C++ Windows (CR+LF) WINDOWS-1252 Line 20, Col 34, Pos 288 Insert Read/Write default 11:53 28-10-2020 34

main.c [dequeue] - Code::Blocks 17.12

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

Debug

Management X

Projects Sources main.c

main.c X

```
84     for(;;)
85     {
86         printf("1.insert_rear\n2.insert_front\n3.delete_rear\n4.delete_front\n5.display\n6.exit\n");
87         printf("enter choice\n");
88         scanf("%d",&ch);
89         switch(ch)
90         {
91             case 1:printf("enter the item\n");
92                     scanf("%d",&item);
93                     insert_rear();
94                     break;
95             case 2:printf("enter the item\n");
96                     scanf("%d",&item);
97                     insert_front();
98                     break;
99             case 3:delete_rear();
100                break;
101             case 4:delete_front();
102                break;
103             case 5:display();
104                break;
105             default:exit(0);
106         }
107     getch();
108 }
109
110 }
```

Logs & others

C:\dequeue\bin\Debug\dequeue.exe

5.display  
6.exit  
enter choice  
1  
enter the item  
45  
queue overflow  
1.insert\_rear  
2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice

0 error(s), 3 warning(s) (0 minute(s), 1 second(s))

----- Run: Debug in dequeue (compiler: GNU GCC Compiler) -----  
Checking for existence: C:\dequeue\bin\Debug\dequeue.exe  
Executing: "C:\Program Files (x86)\CodeBlocks\cb\_console\_runner.exe" "C:\dequeue\bin\Debug\dequeue.exe" (in C:\dequeue\.)

C:\dequeue\main.c

Type here to search C/C++ Windows (CR+LF) WINDOWS-1252 Line 20, Col 34, Pos 288 Insert Read/Write default 11:56 28-10-2020 34

main.c [dequeue] - Code::Blocks 17.12

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins Doxygen Settings Help

Debug

Management X

Projects Sources main.c

Workspace deque

main.c

```
49     {
50         q[++(r)]=item;
51         return;
52     }
53     else
54         printf("insertion not possible\n");
55     }
56 void delete_rear()
57 {
58     if(isempty())
59     {
60         printf("queue is empty\n");
61         return;
62     }
63     printf("item deleted is %d\n",q[(r)--]);
64     if(f>r)
65     {
66         f=0;
67         r=-1;
68     }
69 }
70 void display()
71 {
72     int i;
73     if(isempty())
74     {
75         printf("queue empty\n");
    }
```

C:\deque\bin\Debug\deque.exe

enter choice  
5  
11  
12  
1.insert\_rear  
2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice  
4  
item deleted is 11  
1.insert\_rear  
2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice  
5  
5  
12  
1.insert\_rear  
2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice  
2

Logs & others

Code::Blocks Search results Ccc Build log Build messages CppCheck/Vera++ CppCheck/Vera++ messages Cscope Debugger Doxygen Fortran info

0 error(s), 3 warning(s) (0 minute(s), 1 second(s))

----- Run: Debug in dequeue (compiler: GNU GCC Compiler) -----  
Checking for existence: C:\deque\bin\Debug\deque.exe  
Executing: "C:\Program Files (x86)\CodeBlocks\cb\_console\_runner.exe" "C:\deque\bin\Debug\deque.exe" (in C:\deque\.)

C:\deque\main.c

Type here to search C/C++ Windows (CR+LF) WINDOWS-1252 Line 20, Col 34, Pos 288 Insert Read/Write default 100% 11:55 ENG 28-10-2020 34

main.c [dequeue] - Code::Blocks 17.12

File Edit View Search Project Build Debug Fortran wxSmith Tools Tools+ Plugins DoxyBlocks Settings Help

Management X

Workspace

dequeue

Sources main.c

main.c X

```
74     {
75         printf("queue empty\n");
76         return;
77     }
78     for(i=f;i<=r;i++)
79         printf("%d\n",q[i]);
80     }
81 void main()
82 {
83
84     for(;;)
85     {
86         printf("1.insert_rear\n2.insert_front\n3.delete_rear\n4.delete_front\n5.display\n6.exit\n");
87         printf("enter choice\n");
88         scanf("%d",&ch);
89         switch(ch)
90         {
91             case 1:printf("enter the item\n");
92                     scanf("%d",&item);
93                     insert_rear();
94                     break;
95             case 2:printf("enter the item\n");
96                     scanf("%d",&item);
97                     insert_front();
98                     break;
99             case 3:delete_rear();
100                break;
101         }
102     }
103 }
```

C:\dequeue\bin\Debug\dequeue.exe

2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice

Logs & others

Code::Blocks X Search results X Ccc X Build log X

0 error(s), 3 warning(s) (0 minute(s), 1 second(s))

----- Run: Debug in dequeue (compiler: GNU GCC Compiler)

Checking for existence: C:\dequeue\bin\Debug\dequeue.exe

Executing: "C:\Program Files (x86)\CodeBlocks\cb\_console\_runner"

enter the item  
90  
1.insert\_rear  
2.insert\_front  
3.delete\_rear  
4.delete\_front  
5.display  
6.exit  
enter choice

C:\dequeue\main.c

Type here to search

100% 11:55 ENG 28-10-2020 34