

circ\_queue.c (circular\_queue) - Code::Blocks 20.03

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Debug <global> display(): void

INT\_MAX

Management Projects Files FSymbols

Workspace

- one
- Sources
  - linear\_queue
  - queue.c
  - circular\_queue
  - Sources
    - circ\_queue.c

```
1 #include<stdio.h>
2 #include<stdlib.h>
3 #define SIZE 3
4 int front = -1, rear = -1, cqueue[SIZE];
5
6 void insert(int n);
7 int delete_element();
8 void display();
9
10 int main()
11 {
12     int opt, n, val;
13     while(1)
14     {
15         printf("\nEnter your choice to perform circular queue operation:\n");
16         printf("Enter:\n1.Inserting element\n2.Deleting element\n3.Displaying queue elements\n4.Exit\n");
17         scanf("%d", &opt);
18         switch(opt)
19         {
20             case 1: printf("Enter the element to insert:");
21                     scanf("%d", &n);
22                     insert(n);
23                     break;
24             case 2: val = delete_element();
25                     if(val != 0)
26                     {
27                         printf("Deleted element is %d\n", val);
28                     }
29                     break;
30             case 3: display();
31                     break;
32             case 4: exit(0);
33         }
34     }
35     return 0;
36 }
37
38 void insert(int n)
39 {
40     if(front == rear + 1 || (front == 0 && rear == SIZE - 1))
```

Logs & others

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\Common Files\Oracle\Java\javapath;C:\Windows\System32\WindowsPowerShell\v1.0;C:\Windows\System32\OpenSSH;C:\Program Files\CodeBlocks\MinGW\bin;C:\Users\Admin\Downloads\mongosh-1.6.2-win32-x64 (1)\mongosh-1.6.2-win32-x64\bin;C:\Users\Admin\Downloads\mongodb-atlas-cli\_1.4.0\_windows\_x86\_64\bin;C:\Program Files\Java\jdk-19\bin;C:\Program Files\Git\cmd;C:\Program Files\Docker\Docker\resources\bin;C:\Program Files\nodejs;C:\ProgramData\chocolatey\bin;C:\Users\Admin\anaconda3;C:\Users\Admin\anaconda3\Library\mingw-w64\bin;C:\Users\Admin\anaconda3\Library\usr\bin;C:\Users\Admin\anaconda3\Library\bin;C:\Users\Admin\anaconda3\Scripts;C:\Program Files\MySQL\MySQL Shell 8.0\bin;C:\Users\Admin\AppData\Local\Microsoft\WindowsApps;C:\Program Files\MySQL\MySQL Workbench 8.0;C:\Users\Admin\AppData\Local\Programs\Microsoft VS Code\bin;D:\MONGODB\mongosh-1.6.2-win32-x64\mongosh-1.6.2-win32-x64;D:\MONGODB\mongosh-1.6.2-win32-x64\bin;C:\Users\Admin\AppData\Roaming\npm\mongosh-1.6.2-win32-x64\bin;C:\Users\Admin\AppData\Local\GitHubDesktop\bin;C:\Users\Admin\AppData\Local\Programs\mongosh;C:\Program Files\R\R-4.3.3\bin;C:\Users\Admin\AppData\Roaming\npm

Executing: "C:\Program Files\CodeBlocks\cb\_console\_runner.exe" "D:\IBM23CS245\linear\_queue\bin\Debug\linear\_queue.exe" (in D:\IBM23CS245\linear\_queue\.)

Process terminated with status 0 (1 minute(s), 22 second(s))

D:\IBM23CS245\circular\_queue\circ\_queue.c

C/C++ Windows (CR+LF) WINDOWS-1252 Line 82, Col 31, Pos 1758 Insert Read/Write default

10:57 23-10-2024

Code editor window showing the implementation of a circular queue in C. The file is named `circ_queue.c` and is part of a project named `linear_queue`.

```
37
38 void insert(int n)
39 {
40     if(front == rear + 1 || (front == 0 && rear == SIZE - 1))
41     {
42         printf("overflow");
43         return;
44     }
45
46     if (front == -1 && rear == -1)
47     {
48         front = 0;
49         rear = 0;
50     }
51     else{
52         rear = (rear + 1) % SIZE;
53     }
54     cqueue[rear] = n;
55     printf("inserted element = %d\n", cqueue[rear]);
56 }
57
58 int delete_element()
59 {
60     if(front == -1 && rear == -1)
61     {
62         printf("underflow");
63         return 0;
64     }
65     int val = cqueue[front];
66     if (front == rear)
67     {
68         front = -1;
69         rear = -1;
70     }
71     else
72     {
73         front = (front + 1) % SIZE;
74     }
75     return val;
76 }
```

The code implements a circular queue with the following logic:

- Insertion:** Checks for overflow conditions. If the queue is full (either `front == rear + 1` or `front == 0 && rear == SIZE - 1`), it prints "overflow" and returns. Otherwise, it handles the initial state (`front == -1 && rear == -1`) by setting `front = 0` and `rear = 0`, or increments `rear` modulo `SIZE`. The element `n` is then stored at `cqueue[rear]`, and a message is printed.
- Deletion:** Checks for underflow conditions. If the queue is empty (`front == -1 && rear == -1`), it prints "underflow" and returns 0. Otherwise, it retrieves the value at `cqueue[front]`. If `front == rear`, it sets `front = -1` and `rear = -1`. Otherwise, it increments `front` modulo `SIZE`. The value is then returned.

The bottom panel shows the execution log, indicating that the program terminated successfully with status 0.

Code:Blocks X Search results X Cccc X Build log X Build messages X CppCheck/Vera++ X CppCheck/Vera++ messages X Cscope X Debugger X DoxyBlocks X Fortran info X Closed files list X Thread search X

Executing: "C:\Program Files\CodeBlocks\cb\_console\_runner.exe" "D:\1BM23CS245\linear\_queue\bin\Debug\linear\_queue.exe" (in D:\1BM23CS245\linear\_queue\.)

Process terminated with status 0 (1 minute(s), 22 second(s))

D:\1BM23CS245\circular\_queue\circ\_queue.c C/C++ Windows (CR+LF) WINDOWS-1252 Line 82, Col 31, Pos 1758 Insert Read/Write default ENG IN 10:57 23-10-2024

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```
56 }
57
58 int delete_element()
59 {
60     if(front == -1 && rear == -1)
61     {
62         printf("underflow");
63         return 0;
64     }
65     int val = cqueue[front];
66     if (front == rear)
67     {
68         front = -1;
69         rear = -1;
70     }
71     else
72     {
73         front = (front + 1) % SIZE;
74     }
75     return val;
76 }
77 void display()
78 {
79     int i;
80     if(front == -1 && rear == -1)
81     {
82         printf("queue is empty\n");
83         return;
84     }
85     printf("Circular Queue:\n");
86     for (i = front; i != rear; i = (i+1) % SIZE)
87     {
88         printf("%d\t", cqueue[i]);
89     }
90     printf("%d", cqueue[i]);
91 }
92
93
94
```

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C/C++ Windows (CR+LF) WINDOWS-1252 Line 82, Col 31, Pos 1758 Insert Read/Write default

10:58 23-10-2024

```
D:\1BM23CS245\circular_queue\bin\Debug\circular_queue.exe
enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
2
underflow
enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
3
queue is empty
enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
1
enter the element to insert:11
inserted element = 11

enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
1
enter the element to insert:22
inserted element = 22

enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
1
enter the element to insert:33
inserted element = 33

enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
3
Circular Queue:
11    22    33
enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
2
```



```
D:\1BM23CS245\circular_queue\bin\Debug\circular_queue.exe
4.exit
1
enter the element to insert:33
inserted element = 33

enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
3
Circular Queue:
11    22    33
enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
2
deleted element is 11

enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
1
enter the element to insert:44
inserted element = 44

enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
3
Circular Queue:
22    33    44
enter your choice to perform circular queue operation:
enter:
1.inserting element
2.deleting element
3.displaying queue elements
4.exit
4

Process returned 0 (0x0)   execution time : 62.984 s
Press any key to continue.
```



Search

