

## Initial syntax errors:

gabriel@gabriel-Aspire-A515-54: ~/Documents/School/Fall 2020/CptS 223/MA's

```
File Edit View Search Terminal Help
gabriel@gabriel-Aspire-A515-54:~/Documents/School/Fall 2020/CptS 223/MA's$ code main.cpp
gabriel@gabriel-Aspire-A515-54:~/Documents/School/Fall 2020/CptS 223/MA's$ code testQueue.hpp
gabriel@gabriel-Aspire-A515-54:~/Documents/School/Fall 2020/CptS 223/MA's$ code testQueue.cpp
gabriel@gabriel-Aspire-A515-54:~/Documents/School/Fall 2020/CptS 223/MA's$ g++ -g -Wall -std=c++11 main.cpp testQueue.cpp
```

```
testQueue.cpp:2:1: error: 'queue' does not name a type
  2 |   queue::queue(int size)
    |   ^~~~~~
testQueue.cpp:12:1: error: 'queue' does not name a type
 12 |   queue::~queue()
    |   ^~~~~~
testQueue.cpp:19:6: error: 'queue' has not been declared
 19 |   void queue::dequeue()
    |      ^~~~~~
testQueue.cpp: In function 'void dequeue()':
testQueue.cpp:22:6: error: 'isEmpty' was not declared in this scope
 22 |   if (isEmpty())
    |      ^~~~~~
testQueue.cpp:24:3: error: 'cout' was not declared in this scope
 24 |   cout << "UnderFlow\nProgram Terminated\n";
    |   ^~~~
testQueue.cpp:25:8: error: 'EXIT_FAILURE' was not declared in this scope
 25 |   exit(EXIT_FAILURE);
    |   ^~~~~~
testQueue.cpp:25:3: error: 'exit' was not declared in this scope
 25 |   exit(EXIT_FAILURE);
    |   ^~~~~~
testQueue.cpp:28:2: error: 'cout' was not declared in this scope
 28 |   cout < "Removing " << arr[front] << '\n';
    |   ^~~~
testQueue.cpp:28:24: error: 'arr' was not declared in this scope
 28 |   cout < "Removing " << arr[front] << '\n';
    |                        ^~~~
testQueue.cpp:28:28: error: 'front' was not declared in this scope
 28 |   cout < "Removing " << arr[front] << '\n';
    |                            ^~~~~~
testQueue.cpp:30:24: error: 'capacity' was not declared in this scope
 30 |   front = (front + 1) % capacity;
    |                        ^~~~~~
testQueue.cpp:31:2: error: 'count' was not declared in this scope
 31 |   count--;
    |   ^~~~~~
testQueue.cpp: At global scope:
testQueue.cpp:35:6: error: 'queue' has not been declared
 35 |   void queue::enqueue(int item)
    |      ^~~~~~
testQueue.cpp: In function 'void enqueue(int)':
testQueue.cpp:38:6: error: 'isFull' was not declared in this scope
 38 |   if (isFull())
    |      ^~~~~~
testQueue.cpp:40:3: error: 'cout' was not declared in this scope
 40 |   cout << "Overflow\nProgram Terminated\n";
    |   ^~~~
testQueue.cpp:41:8: error: 'EXIT_FAILURE' was not declared in this scope
 41 |   exit(EXIT_FAILURE);
    |   ^~~~~~
testQueue.cpp:41:3: error: 'exit' was not declared in this scope
 41 |   exit(EXIT_FAILURE);
    |   ^~~~~~
```



7:39 PM

## Debugging with breakpoints:

The screenshot shows the Visual Studio Code interface with the file `testQueue.cpp` open. A breakpoint is set at line 32, which is highlighted in yellow. The code in the editor is as follows:

```
15 }
16     delete arr; // you are not required to test this function;
17     // however, are there issues with it?
18 }
19
20 // Utility function to remove front element from the queue
21 int queue::dequeue()
22 {
23     // check for queue underflow
24     if (isEmpty())
25     {
26         cout << "UnderFlow\nProgram Terminated\n";
27         return 0;
28     }
29
30     cout << "Removing " << arr[front] << '\n';
31
32     front = (front + 1) % capacity;
33     count--;
34     return 1;
35 }
36
37 // Utility function to add an item to the queue
38 int queue::enqueue(int item)
39 {
40     // check for queue overflow
41     if (isFull())
42     {
43         cout << "OverFlow\nProgram Terminated\n";
44         return 0;
45     }
46
47     cout << "Inserting " << item << '\n';
48
49     rear = (rear + 1);
```

The left sidebar shows the **VARIABLES** pane with `Locals` containing `this: 0x7fffffffdbcd`. The **WATCH** pane is empty. The **CALL STACK** pane shows the call stack paused on the breakpoint, with `queue::dequeue(queue * const this)` at the top. The **BREAKPOINTS** pane shows two breakpoints: one at line 26 of `main.cpp` and another at line 32 of `testQueue.cpp`. The **TERMINAL** pane at the bottom shows the output of the program:

```
size() status: Failed
Inserting 1
isFull() Status: Passed
isEmpty() Status: Failed
Inserting 1
Removing 1
[]
```

The status bar at the bottom indicates the current position is `Ln 48, Col 1`, with `Spaces: 4`, `UTF-8`, `LF`, `C++`, and `Linux`.