Queue in Standard Template Library (STL)

Difficulty Level : Easy • Last Updated : 22 Nov, 2020

Queues are a type of container adaptors which operate in a first in first out (FIFO) type of arrangement. Elements are inserted at the back (end) and are deleted from the front.

The functions supported by queue are :

1. empty() – Returns whether the queue is empty.
2. size() – Returns the size of the queue.
3. queue::swap() in C++ STL: Exchange the contents of two queues but the queues must be of same type, although sizes may differ.
4. queue::emplace() in C++ STL: Insert a new element into the queue container, the new element is added to the end of the queue.
5. queue::front() and queue::back() in C++ STL– **front()** function returns a reference to the first element of the queue. **back()**

function returns a reference to the last element of the queue.

6. push(g) and pop() – **push()** function adds the element ‘g’ at the end of the queue. **pop()** function deletes the first element of the queue.

CPP

```cpp
// CPP code to illustrate
// Queue in Standard Templ
#include <iostream>
#include <queue>

using namespace std;

// Print the queue
void showq(queue<int> gq)
{
    queue<int> g = gq;
    while (!g.empty()) {
        cout << '\t' << g.
        g.pop();
    }
    cout << '\n';
}

// Driver Code
int main()
{
    queue<int> gquiz;
    gquiz.push(10);
    gquiz.push(20);
    gquiz.push(30);

    cout << "The queue gqu
    showq(gquiz);

    cout << "\ngquiz.size(
    cout << "\ngquiz.front
    cout << "\ngquiz.back(

    cout << "\ngquiz.pop()
    gquiz.pop();
    showq(gquiz);

    // We can also use fro
    // iterators to traver
    cout << "Using iterato
    for (auto i = gquiz.fr
        cout << i << " ";
    }
    return 0;
}
```

Output

```
The queue gquiz is :     10
```

```
gquiz.size() : 3
gquiz.front() : 10
gquiz.back() : 30
gquiz.pop() :     20    30
Using iterators : 20 21 22
```

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