C++ STL :

*C++ STL QUEUE:*

Function:

1. ‘empty’ : return true if the queue is empty, else return false -> O(1)
2. ‘push’ : push element into the queue -> O(1)
3. ‘pop’ : delete the reference of the first element [ actually just higher the index by 1] -> O(1)
4. ‘front’ : return the reference of the front element -> O(1)
5. ‘back’ : return the reference of the back element -> O(1)
6. ‘size’ : return the size of the queue -> O(1)
7. ‘swap’ : swap the elements of two queue-> O(1)

Usage:

**int main()**

**{**

**//freopen("output.txt", "w", stdout);**

**list<string>vec( 5, "i am tanveer");**

**queue< int > q1;**

**queue< int, list<int> > q2; //u can uqe thiq kind of initialization if the container ( list/deque ) haq pop\_front, push\_front function**

**queue< string, list<string> > q3(vec); //initiallize with the vector**

**queue< int > q4;**

**for( int i = 0; i < 5; i++ )**

**{**

**q1.push(i); //usage of push**

**q2.push(i\*i);**

**}**

**cout << "q2 back element " << q2.back() << endl; //output 16**

**cout << "q1 front---- ";**

**cout << q1.front() << " "; // front element**

**printf("%d ", q1.front()); // using printf**

**puts("");**

**cout << "size of q1 before swapping with q4---- " << q1.size() << endl;**

**q1.swap(q4); // swap q1 and q2**

**cout << "size of q1 after swapping with q4---- " << q1.size() << endl;**

**cout << "q4 previouqly empty but after qwapping with q1---- ";**

**while( q4.size() > 0 ) // chack q4 qize**

**{**

**auto x = q4.front();**

**printf("%d ", x); // front element uqing printf**

**cout << typeid(x).name() << " -> ";**

**q4.pop();**

**}**

**cout << endl;**

**cout << "q3---- "; // show the element of q3 “I am tanveer”**

**while( !q3.empty() )**

**{**

**auto x = q3.front();**

**q3.pop();**

**cout << x << endl;**

**}**

**return 0;**

**}**

Output:

q2 back element 16

q1 front---- 0 0

size of q1 before swapping with q4---- 5

size of q1 after swapping with q4---- 0

q4 previouqly empty but after qwapping with q1---- 0 i -> 1 i -> 2 i -> 3 i -> 4 i ->

q3---- i am tanveer

i am tanveer

i am tanveer

i am tanveer

i am tanveer