



Stack in C++ STL

Stacks are a type of container adaptors with LIFO(Last In First Out) type of working, where a new element is added at one end and (top) an element is removed from that end only.

The functions associated with stack are:

- `empty()` – Returns whether the stack is empty – Time Complexity : O(1)
- `size()` – Returns the size of the stack – Time Complexity : O(1)
- `top()` – Returns a reference to the top most element of the stack – Time Complexity : O(1)
- `push(g)` – Adds the element ‘g’ at the top of the stack – Time Complexity : O(1)
- `pop()` – Deletes the top most element of the stack – Time Complexity : O(1)

```
// CPP program to demonstrate working of STL stack
#include <iostream>
#include <stack>
using namespace std;

void showstack(stack <int> s)
{
    while (!s.empty())
    {
        cout << '\t' << s.top();
        s.pop();
    }
    cout << '\n';
}

int main ()
{
    stack <int> s;
    s.push(10);
    s.push(30);
    s.push(20);
    s.push(5);
    s.push(1);

    cout << "The stack is : ";
    showstack(s);

    cout << "\ns.size() : " << s.size();
    cout << "\ns.top() : " << s.top();

    cout << "\ns.pop() : ";
    s.pop();
    showstack(s);

    return 0;
}
```

Output:

```
The stack is :      1      5      20      30      10

s.size() : 5
s.top() : 1
s.pop() :      5      20      30      10
```

List of functions of Stack:

- `stack::top()` in C++ STL

- `stack::empty()` and `stack::size()` in C++ STL
- `stack::push()` and `stack::pop()` in C++ STL
- `stack::swap()` in C++ STL
- `stack::emplace()` in C++ STL
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