# Stack Using One Deque CodeStudio

This C++ program demonstrates the implementation of a stack using a **deque** (double-ended queue) container. The **Stack** class is defined with a private member variable **dq**, which is a **deque<int>**. The program utilizes the properties of a deque to implement stack operations.

The **Stack** class is defined with a private member variable **dq**, which is a **deque<int>** container.

1. **push (void push(int value)):**
   - Function Explanation: Adds the given element to the top of the stack by using the **push_back** function of the **deque** container.
   - **Time Complexity: O(1)**
   - **Space Complexity: O(1)**
2. **pop (int pop()):**
   - Function Explanation: Removes and returns the top element from the stack (the back element of the **deque**) using the **pop_back** function of the **deque** container.
   - **Time Complexity: O(1)**
   - **Space Complexity: O(1)**
3. **getTop (int getTop()):**
   - Function Explanation: Returns the top element of the stack (the back element of the **deque**) without removing it.
   - **Time Complexity: O(1)**
   - **Space Complexity: O(1)**
4. **isEmpty (bool isEmpty()):**
   - Function Explanation: Checks if the stack is empty by examining whether the **deque** container is empty.
   - **Time Complexity: O(1)**
   - **Space Complexity: O(1)**
5. **getSize (int getSize()):**
   - Function Explanation: Returns the number of elements in the stack, which is the size of the **deque** container.
   - **Time Complexity: O(1)**
   - **Space Complexity: O(1)**