

AP Assignment – 6

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Ques . 1 Implement Stack using an Array

Problem link : <https://www.geeksforgeeks.org/problems/implement-stack-using-array/1>

The screenshot displays the GeeksforGeeks website interface for the problem 'Implement Stack using Array'. The browser window shows the URL <https://www.geeksforgeeks.org/problems/implement-stack-using-array/1>. The page features a navigation bar with links to Courses, Tutorials, Jobs, Practice, and Contests. The main content area is divided into two sections: 'Output Window' and 'Code Editor'.

Output Window: This section displays the results of the submission. It shows 'Problem Solved Successfully' with a green checkmark. Below this, there are four statistics:

- Test Cases Passed: 1115 / 1115
- Attempts: Correct / Total: 1 / 1
- Accuracy: 100%
- Points Scored: 1 / 1

At the bottom of the statistics, it shows 'Your Total Score: 97' with a green upward arrow. The 'Time Taken' is listed as 0.02.

Code Editor: This section contains the C++ code for implementing a stack using an array. The code is as follows:

```
27 int top;
28 public:
29     MyStack(){top=-1;}
30     int pop();
31     void push(int);
32 };
33
34
35 void MyStack ::push(int x) {
36     // Your Code
37     arr[++top]=x;
38 }
39
40
41 // Function to remove an item from top of the stack.
42 int MyStack ::pop() {
43     // Your Code
44     if(top== -1)
45         return -1;
46     return arr[top--];
47 }
48
49
50
51
52
```

The code editor also includes a 'Start Timer' button and a 'Submit' button. The bottom of the page shows the Windows taskbar with various application icons and the system clock indicating 16:58 on 18-03-2025.

Ques . 2 Implement Queue using an Array

Problem link : <https://www.geeksforgeeks.org/problems/implement-queue-using-array/1>

geeksforgeeks.org/problems/implement-queue-using-array/1

90% Refund Courses Tutorials Jobs Practice Contests

Output Window

Compilation Results Custom Input Y.O.G.I. (AI Bot)

Problem Solved Successfully ✓

Test Cases Passed: 170 / 170

Attempts: Correct / Total: 1 / 1

Accuracy: 100%

Points Scored: 1 / 1

Time Taken: 0.79

Your Total Score: 98 ↑

```
64 public :
65     MyQueue(){front=0;rear=0;}
66     void push(int);
67     int pop();
68 };
69 //
70 // Function to push an element x in a queue.
71 void MyQueue ::push(int x) {
72     arr[rear++]=x;
73 }
74 // Function to pop an element from queue and return that element.
75 int MyQueue ::pop() {
76     if(front==rear){
77         return -1;
78     }
79     int temp=arr[front];
80     front=(front+1)%100005;
81     return temp;
82 }
83
84
85
86
87
88
89
```

Ques 3 . Implement Circular Queue using an Array

Problem link:<https://leetcode.com/problems/design-circular-queue/submissions/1577854408/>

leetcode.com/problems/design-circular-queue/submissions/1577854408/

Problem List < > ⌕

Description Editorial Solutions Accepted Submissions

All Submissions

Accepted 59 / 59 testcases passed

Satish Ojha submitted at Mar 18, 2025 17:08

Runtime: 1 ms | Beats 77.18%

Memory: 23.49 MB | Beats 80.08%

```
21 MyCircularQueue(int k) {
22     // head = NULL;
23     // tail = NULL;
24     // size = k;
25
26     this->n = k;
27     arr = new int[k];
28     this->front = -1;
29     this->rear = -1;
30 }
31
32 bool enqueue(int value) {
33     // // full
34     // if (size == 0) {
35         // return false;
```

Ques 4 : Implement Two Stacks in One Array

Problem link : <https://www.geeksforgeeks.org/problems/implement-two-stacks-in-an-array/1>

The screenshot shows the GeeksforGeeks website interface for the problem 'Implement Two Stacks in One Array'. The left sidebar displays 'Problem Solved Successfully' with a green checkmark. It includes statistics: 'Test Cases Passed: 1111 / 1111', 'Attempts: Correct / Total: 1 / 1', 'Accuracy: 100%', 'Points Scored: 4 / 4', and 'Time Taken: 0.05'. The main area shows the C++ code for the solution, which includes functions for pushing and popping elements from two stacks implemented in a single array. The code is as follows:

```
31 // Function to push an integer into the stack2.
32 void push2(int x) {
33     // code here
34     if(top2==top1) return;
35     top2++;
36     arr[top2]=x;
37 }
38
39 // Function to remove an element from top of the stack1.
40 int pop1() {
41     // code here
42     if(top1==-1) return -1;
43     int ans=arr[top1];
44     top1--;
45     return ans;
46 }
47
48 // Function to remove an element from top of the stack2.
49 int pop2() {
50     // code here
51     if(top2==size) return -1;
52     int ans=arr[top2];
53     top2++;
54     return ans;
55 }
56
```

Ques5 : Implement queue using stack

The screenshot shows the LeetCode website interface for the problem 'Implement Queue using Stacks'. The left sidebar displays 'Accepted' status with a green checkmark. It includes statistics: '22 / 22 testcases passed', 'Runtime: 0 ms | Beats: 100.00%', and 'Memory: 9.68 MB | Beats: 65.84%'. The main area shows the C++ code for the solution, which uses two stacks to implement a queue. The code is as follows:

```
13
14 public:
15     MyQueue() {}
16
17     void push(int x) {
18         in_stack.push(x);
19     }
20
21     int pop() {
22         if (out_stack.empty()) {
23             transfer();
24         }
25         int topElement = out_stack.top();
26     }
27
```