

Department of Computer Science and Engineering,
Anna University, Chennai- 600025
CS23302 – Data Structures and Algorithms
Practical
July – November 2026
Year/Sem/Batch : II/III/ N

Exercise: 02	Stack using Array	10 – Jul - 2026

Observation (5 Marks)

1. Why array is considered a linear data structure?
2. Differentiate static and dynamic arrays.
3. Write a program to search an element using binary search
4. Write a program to sort an array using insertion sort.
5. What are the basic stack operations? Explain with programming snippet.
6. List few applications of stack
7. Why is recursion related to stacks?
8. Write a program to implement a stack using array.
9. Write a menu driven program for stack operations
10. Write a program to implement two stacks in one array.

Execution (15 Marks)

1. Construct a Stack of integers of size 25 using array and perform the following operations:
    a. Insert prime numbers into the stack till there is space.
    b. Print the numbers from the stack
    c. Modify the program to issue warning and exit if any attempt to pop an empty stack or push onto a full one.
2. Write a program to reverse a stack of strings using recursion and check whether that string is a palindrome or not. You are not allowed to use loop constructs like while, for..etc, and you can only use the following ADT functions like isEmpty(S), push(S) , pop(S).

3. Construct a stack to handle character sequence. In the input sequence as given below, if letter comes insert it into the stack but if an asterisk comes do pop operation. Give the sequence of values returned by the pop operation when this sequence of operations is performed on an initially empty stack. E A S * Y * Q U E * * * S T * I O * N * * *