

Institute of Computer Technology
B. Tech. Computer Science and Engineering
Sub: DS Branch: BDA Class: A

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Sem: 3
Class: A
Subject: DS
Practical: 03
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Practical: 03

Ankit is a 5-year-old kid, who is playing in a boardroom with a basket and balls. Each ball is Having numbered on it like 1, 2, 3, ..., 9. Ankit's aunt asked him to put all boll inside the basket. Here, the scenario is that basket is long enough to hold all balls but squeezed in width and can Hold only one boll at a time. When the next ball is inserted, then that ball can lie on top of the old Boll like this way.

- Push ball numbered as 1 inside the basket
- Push ball numbered as 8 inside the basket
- Push ball numbered as 9 inside the basket
- Push ball numbered as 7 inside the basket
- Push ball numbered as 2 inside the basket
- Pop ball from the basket
- Pop ball from the basket
- Push ball numbered as 3 inside the basket

Input Format

1 8 9 7 2 3

Output Format

1 8 9 3

Constraints

- size should not exceed 9

Code:

```
#include <stdio.h>
#include <stdlib.h>

#define MAX 9

int stack[MAX];
int top = -1;

void push(int num) {
    if (top == MAX - 1) {
        printf("\nStack is full, so no elements will be added\n\n");
    } else {
        stack[++top] = num;
        printf("Element %d inserted successfully\n", num);
    }
}

void pop() {
    if (top == -1) {
        printf("\nThe Stack is already empty.\n\n");
    } else {
        int x = stack[top--];
        printf("Element deleted successfully: %d\n", x);
    }
}

void display() {
    if (top == -1) {
        printf("\nThe Stack is already empty.\n\n");
    } else {
        printf("Stack elements are as follows:\n");
        for (int i = 0; i <= top; i++) {
            printf("%d\n", stack[i]);
        }
    }
}

int main() {
    push(1);
    push(4);
    push(3);
    push(6);
```

```

    push(2);
    pop();
    pop();
    push(7);
    push(8);
    push(5);
    push(10);
    push(9);

    printf("=====\n");
    printf("\nFinal stack state:\n");
    display();

    return 0;
}

```

Output:

```

PS C:\Users\jatin\OneDrive\Desktop\Academics\SEM - 3\Practicals\DS\Practical-3> cd "c:\Users\jatin\OneDrive\Desktop\Academics\SEM - 3\Practicals\DS\Practical-3\" ; if ($?) { g++ Pr
ac-3.C -o Prac-3 } ; if ($?) { .\Prac-3 }
Element 1 inserted successfully
Element 4 inserted successfully
Element 3 inserted successfully
Element 6 inserted successfully
Element 2 inserted successfully
Element deleted successfully: 2
Element deleted successfully: 6
Element 7 inserted successfully
Element 8 inserted successfully
Element 5 inserted successfully
Element 10 inserted successfully
Element 9 inserted successfully
=====
Final stack state:
Stack elements are as follows:
1
4
3
7
8
5
10
9
PS C:\Users\jatin\OneDrive\Desktop\Academics\SEM - 3\Practicals\DS\Practical-3>

```