

1. WAP to stimulate the working of stack() using an array with
- Push
 - Pop
 - Display

The program should print appropriate message for stack overflow, underflow

```
#include <stdio.h>
#define n 5

int top = -1;

int stack[n];
void Push()
{
    int x;
    int i;
    if (top == n-1)
        printf("Stack overflow.");
    else
        {
            printf("Enter a value:");
            scanf("%d", &x);
            top++;
            stack[top] = x;
            for (i=top; i>=0; i++)
                printf("%d\n", stack[i]);
            printf("\n");
        }
}
```

```

void Pop()
{
    int j;
    if (top == -1)
        printf("Stack underflow");
    else
    {
        int item = stack[top];
        top--;
        printf("Popped %d\n", item);
        for (j = top; j >= 0; j--)
        {
            printf("%d\t", stack[j]);
        }
        printf("\n");
    }
}

void Peek()
{
    if (top == -1)
        printf("Stack underflow");
    else
    {
        printf("Top element : %d\n", stack[top]);
        top--;
    }
}

```

```

int main()
{
    int ch;
    printf ("1. Push\n2. Pop\n3. Peek\n4. Exit\n");
    while(1)
    {
        printf ("Enter choice: ");
        scanf ("%d", &ch);
        switch (ch)
        {
            case 1:
                Push();
                break;
            case 2:
                POP();
                break;
            case 3:
                Peek();
                break;
            case 4:
                printf("Exiting");
                return 0;
            default:
                printf("Invalid choice");
        }
    }
}

```

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Output: 1. Push

2. Pop

3. Peek

4. exit

Enter choice: 1

Enter value: 23

23

Enter choice: 1

Enter value: 45

45 23

Enter choice: 1

Enter value: 56

56 45 23

Enter choice: 2

Popped 56

45 23

Enter choice: 1

Enter value: 85

85 45 23

Enter choice: 3

Top element: 85

Enter choice: 4

Exiting

MG
29/9/25