LAB-1

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Q-1) Write a program to stimulate the working of stack using an array with the following a) Push b) Pop c) Display. The program should print appropriate messages for stack overflow, stack underflow.

```
#include <stdio.h>
# define size 3
int top=-1;
void push (int [], int);
int pop (int []);
void display (int []);
int main (int argc, char ** argv)
{
        int stack [size];
        int choice, element;
        char ch;
        do
        {
        printf (" Enter your choice \n");
        printf (" 1. Push \n");
        printf (" 2. Pop \n");
        printf (" 3. Display \n");
        scanf (" %d", & choice);
        switch (choice);
        {
        case 1: printf (" Enter the element
                    to be pushed in);
```

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```c
scanf("%d", &element);
push(stack, element);
break;
case 2: element = pop(stack);
    if(element == -1):
        printf("Stack Underflow");
    else
        printf("poped element is %d\n", element);
        break;
case 3: display(stack);
        break;
    default: printf("Invalid choice");
}

printf("Do you want to continue? :\n");
fflush(stdin);
scanf("%c", &ch);
} while(ch == 'y' || ch == 'Y');
    return 0;
}
void push(int stack[], int ele)
{
    if(top == size-1)
    { printf("Stack Overflow");
    }
    else
    {
        top++;
        stack[top] = ele;
    }
}
```

```c
int pop (int stack [])
{    int popele;
     if (top == -1)
          return -1;
     else
     {    popele = stack [top];
          top--;
          return (popele);
     }
}


void display (int stack [])
{    int i;
     printf (" The stack elements \n");
     for (i = top; i >= 0 ; i--)
     {
          printf (" %d \t", stack [i]);
     }
}
```