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LAB PROGRAM 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.

Program:

```c
#include<stdlib.h>
#define n 5;

int top = -1;
int stack[5];
void push()
{
    int x;
    if(top == 4){
        printf("stack Overflow");
    }
    else{
        printf("Enter value : ");
        scanf("%d", &x);
        top++;
        stack[top] = x;
        printf("value entered :");
        for(int i= top; i >=0; i--){
            printf("%d \t", stack[i]);
        }
        printf("\n");
    }
}
```

```c
void pop() {
    if (top == -1) {
        printf("Stack underflow.");
    }
    else {
        int item = Stack[top];
        top--;
        printf("Popped %d \n", item);
    }
}

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

int main() {
    int ch;
    printf("1. Push \n 2. Pop \n 3. Peek \n 4. Exit");
    while (1) {
        printf("\n 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 : ");
        }
    }
}
```

O/p :   1. push
        2. pop
        3. peek
        4. Exit
        Enter choice : 1
        Enter value : 4
        value entered : 4
        Enter choice : 1
        Enter value : 3
        value Entered : 3 4
        Enter choice : 1.
Enter value Entered : 5
        value Entered : 5 3 4
        Enter choice : 2
        popped : 5
        Enter choice : 1

Enter value : 85

value Entered: 85   3   4

Enter choice ? 3

Top element : 85

Enter choice : 4

Exiting.