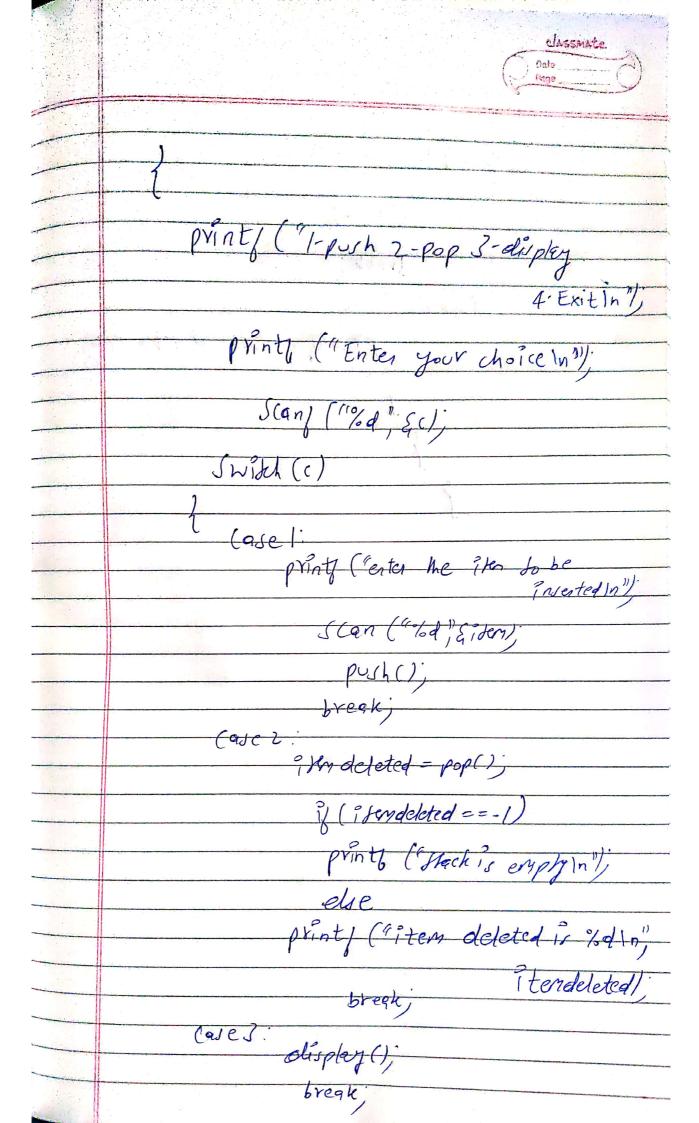# Lab Program-1

1. Write a program do Simulate the working of stack using arrays.

   a) push
   b) pop
   c) display

   The program should show appropriate messages for stack underflow and overflow

A)
```c
#include <stdio.h>

#include <process.h>

#define stacksize 5

int top = -1;
int s[15];
int item;

void push()
{
    if (top == (stacksize-1))
    {
        printf("stack overflow \n");
        return;
    }
    top = top+1;
    s[top] = item;
```

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

void display()
{
    int i;
    if (top == -1)
    {
        printf("the stack is empty\n");
        return;
    }
    printf("the contents of stack are\n");
    for (i = 0; i <= top; i++)
    {
        printf("%d\n", s[i]);
    }
}

void main()
{
    int item deleted;
    int c, i;
    while (i != 4)
```

```c
{
    printf ("1-push 2-pop 3-display
                            4.Exit\n");
    printf ("Enter your choice \n");
    scanf ("%d", &c);
    switch (c)
    {
        case 1:
            printf ("enter the item to be
                                    inserted\n");
            scan ("%d", &item);
            push();
            break;
        case 2:
            itemdeleted = pop();
            if (itemdeleted == -1)
                printf ("stack is empty\n");
            else
                printf ("item deleted is %d\n",
                                    itemdeleted);
            break;
        case 3:
            display();
            break;
```

```
case 4:
        exit(0);
        break;
    default:
        printf("Invalid choice");
    }
  }
}
```