LAB 1

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Write a program to simulate 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 and stack underflow

```
#include<stdio.h>
#define max 3

int s[10],top=-1,i,item,ch;
void main()
{
   while(1)
   {
      printf("\n1. Push\n2. Pop\n3. Display\n4.Exit");
      printf("\nEnter choice");
      scanf("%d",&ch);

         switch(ch)
         {
            case 1: push();
                  break;
            case 2: item=pop();
                  if(item!=-1)
                  printf("Popped element =%d",item);
                  break;
            case 3: display();
                  break;
            case 4: exit(0);
         }
   }
}
   void push(){
   if(top==max-1){
      printf("Stack Overflow\n");
```

```
    }
    else{
       top++;
       printf("Enter Element to Push: ");
       scanf("%d",&item);
       s[top]=item;
    }
}
          int pop()
          {
             if(top==-1){
             printf("Stack underflow");
             return -1;}
             else{
             item=s[top];
             top--;
             return(item);
          }
          }
          void display()
          {
             if(top==-1)
             {
                printf("Stack is empty");
                return;
             }
             printf("Stack contents\n");
             for(i=top;i>=0;i--)
                printf("%d\n",s[i]);
          }
```

Output

```
1. Push
2. Pop
3. Display
4.Exit
Enter choice1
Enter Element to Push: 11

1. Push
2. Pop
3. Display
4.Exit
Enter choice1
Enter Element to Push: 22

1. Push
2. Pop
3. Display
4.Exit
Enter choice1
Enter Element to Push: 33

1. Push
2. Pop
3. Display
4.Exit
Enter choice1
Stack Overflow

1. Push
2. Pop
3. Display
4.Exit
Enter choice3
Stack contents
33
22
11
```

```
1. Push
2. Pop
3. Display
4.Exit
Enter choice2
Popped element =33
1. Push
2. Pop
3. Display
4.Exit
Enter choice3
Stack contents
22
11

1. Push
2. Pop
3. Display
4.Exit
Enter choice4

Process returned 0 (0x0)   execution time : 10.440 s
Press any key to continue.
```