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Date
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Lab Program 1

Q→ Write a program to simulate the working of stack using an array with the following push, pop & display. The program should print appropriate stack underflow & stack overflow.

```
#include<stdio.h>
#include<stdlib.h>
#define stack_size 5
int top = -1;
int s[10];
int item;
void push()
{
    if(top == stack_size-1){
        printf("stack overflow\n");
        return;
    }
    top = top+1;
    s[top] = item;
}
int pop()
{
    if(top == -1){
```

```
        return -1;
    }
    return s[top--];
}
void display()
{
    int i;
    if (top == -1) {
        printf("Stack is empty\n");
        return;
    }
    printf("Contents of the stack:\n");
    for (i= top; i>=0; i--) {
        printf("%d\n", s[i]);
    }
}
void main()
{
    int item_deleted, choice;
    for (;;) {
        printf("\n1: push\n2: pop\n3: display\n
                4: exit);
        printf("Enter choice: ");
        scanf("%d", &choice);
        switch (choice) {
```

```
case 1: printf("Enter item\n");
        scanf("%d", &item);
        push();
        break;
case 2: item_deleted = pop();
        if(item_deleted == -1){
            printf("Stack underflow,
            so no more items can be
            deleted\n");
        }
        else{
            printf("Items deleted: %d\n",
                    item_deleted);
        }
        break;
case 3: display();
        break;
case 4: exit(0);
default: printf("Enter proper instr-
                uctional value\n");
         break;
    }
}
getch();
}
```

Input & Output →

1: push
2: pop
3: Display
4: Exit
Enter choice : 1
Enter item : 76

1: push
2: pop
3: Display
4: Exit
Enter choice : 1
Enter item : 58

1: push
2: pop
3: Display
4: Exit
Enter choice : 3
Contents of stack are :
58
76

1: push

2: pop
3: display
4: exit
Enter choice : 2
Item deleted : 58

1: push
2: pop
3: display
4: exit
Enter choice : 2
Item deleted : 76

1: push
2: pop
3: display
4: exit
Enter choice : 2
Stack underflow, so no more deleted

1: push
2: pop
3: display
4: exit
Enter choice : 4
Process returned 0 (0x0)