LAB PROGRAM 1

1. 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, stack underflow

PROGRAM:

```
#include <stdio.h>

#include <stdlib.h>

#define N 5

void push();

void pop();

void display();


int top = -1;

int stack[N];


int main(){

   while(1){

      int choice;

      printf("\n1.push\t2.pop\t3.display\t4.exit\n");

      scanf("%d", &choice);
```

```
        switch (choice)
        {
        case 1:
           push();
           break;
        case 2:
           pop();
           break;
        case 3:
           display();
           break;
        case 4:
           exit(0);
        default:
           break;
        }
     }
}
     void push(){
        top++;
        if(top == N){
           printf("stack is full , overflow condition\n");
           return;
        }
        else {
        int ele;
```

```
    printf("Enter the element to be inserted\n");
    scanf("%d", &ele);
    stack[top] = ele;
    }
}
void pop(){
    if(top == -1){
        printf("Stack is empty, Underflow Condition\n");
        return;
    }
    printf("The number poped is %d\n", stack[top]);
    top--;
}
void display(){
    printf("The stack elements are\n");
    if(top == N )
        top--;
    for (int i = top ; i >= 0;i--){
        printf("%d\n",stack[i]);
    }
}
```

OUTPUT:

1.push 2.pop 3.display 4.exit

1

Enter the element to be inserted

2

1.push 2.pop 3.display 4.exit

1

Enter the element to be inserted

4

1.push 2.pop 3.display 4.exit

1

Enter the element to be inserted

6

1.push 2.pop 3.display 4.exit

1

Enter the element to be inserted

8

1.push 2.pop 3.display 4.exit

1

Enter the element to be inserted

10

1.push 2.pop 3.display 4.exit

1

stack is full , overflow condition

1.push 2.pop 3.display 4.exit

3

The stack elements are

10

8

6

4

2

1.push 2.pop 3.display 4.exit

2

The number poped is 10

1.push 2.pop 3.display 4.exit

2

The number poped is 8

1.push 2.pop 3.display 4.exit

2

The number poped is 6

1.push 2.pop 3.display 4.exit

2

The number poped is 4

1.push 2.pop 3.display 4.exit

2

The number poped is 2

1.push 2.pop 3.display 4.exit

2

Stack is empty, Underflow Condition

1.push 2.pop 3.display 4.exit

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