WRITE A PROGRAM TO SHOW STACK OPERATIONS (LAB PROGRAM 1)

```
#include <stdio.h>
#include <stdlib.h>
#define n 5
int stack[n];
int max=n;
int top=-1;
void push();
void pop();
void display();
void main(){
   while(1){
   int choice;
   printf("1.Push\t 2.Pop\t 3.Display\t 4.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==max){
      printf("Stack is full,overflow condition\n");
      return;
   }
   else{

      int x;
      printf("Enter the element to be inserted:\n");
      scanf("%d",&x);
      stack[top]=x;
   }
}

void pop(){
   if(top==-1){
      printf("Stack is empty,underflow condition\n");
      return;
   }
   printf("The number popped is %d\n",stack[top]);
   top--;
```

```
}
void display(){
   int i;
   printf("Stack elements are:\n");
   if(top==n){
      top--;
   }
   for(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:
10
1.Push   2.Pop   3.Display      4.Exit
1
Enter the element to be inserted:
20
1.Push   2.Pop   3.Display      4.Exit
1
Enter the element to be inserted:
30
1.Push   2.Pop   3.Display      4.Exit
1
```

Enter the element to be inserted:

40

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

1

Enter the element to be inserted:

50

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

1

Stack is full,overflow condition

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

3

Stack elements are:

50

40

30

20

10

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

2

The number popped is 50

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

2

The number popped is 40

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

2

The number popped is 30

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

2

The number popped is 20

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

2

The number popped is 10

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

2

Stack is empty,underflow condition

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

4