18/12/23

Lab-2

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.

=>
```
#include <stdio.h>
#include <stdlib.h>
#define N 5
int stack [N];
int top = -1;
void push ()
{
  if (top == N)
  {
    printf ("stack overflow");
  }
  else
  {
    int x;
    printf ("Enter the element to be inserted");
```

```
        scanf("%d", &x);
        top++;
        stack[top]=x;
    }
}
void pop()
{
    if (top==-1)
    {
        printf("stack underflow");
    }
    else
    {
        int y;
        y = stack[top];
        top--;
        printf("The element deleted is %d", y);
    }
}
void display()
{
    if (top==-1)
    {
        Printf("Stack is empty");
    }
```

```
else{
printf("The element in stack are:");
for(int i=N; i>=0; i--)
{
  printf("%d", stack[i]);
}
}
}
Void main()
{
 while(1){
  int choice;
 printf("Enter your choice:\n 1. push\n 2. pop\n
       3. display");
 Scanf("%d", &choice);
 Switch(choice)
 {
 Case 1: push();
 break;
 Case 2: pop();
 break;
 Case 3: display();
 break;
```

```
        case 4: exit (1);
        break;
        default: printf("invalid input");
        break;
    }
}
}
```

Output -

```
Enter your choice:
1. push
2. pop
3. display
Enter the element to be inserted 2
Enter your choice:
1. Push
2. Pop
3. Display 2.
The element deleted is 2.
Enter your choice:
1. Push
2. Pop
3. Display. 3
Stack is empty.
```

18/12/23