18/12/25 Lab Prgm:

1. ~~Program to calculate the sum of n numbers entered by the user using~~

1. Write a prgm 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:\n1. Push\n
        2. Pop\n3. 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;
    }
}
}
```

O/P:

```
Enter your choice:
1. push
2. pop
3. display
1
Enter element to be inserted 6
Enter your choice:
1. push
2. pop
3. display
The element in stack are: 000006
```

18/10/22