Write a program to stimulate the working of stack using an array.

```
#include <stdio.h>
#include <stdlib.h>
#define N 3
void push();
void pop();
void display();
int top=-1;
int stack[N];
void main()
{
   int choice;
   printf("enter the choice-->1:push\t 2:pop\t 3:display\t 4:exit\n");

   while(1)
   {
      printf("\n");
     scanf("%d",&choice);
      switch(choice)
      {
         case 1:push();
            break;
         case 2:pop();
            break;
         case 3:display();
```

```
            break;
        case 4:exit(0);
            break;
        default:
            printf("Invalid option\n");
      }
   }

}
void push()
{
   int x;

   if(top>=N){
      printf("Stack is full,overflow\n");
   }
   else{
   top++;
      printf("enter the element\n");
      scanf("%d",&x);
      stack[top]=x;
      printf("Element %d is pushed in stack\n",x);
   }
}
void pop()
{
```

```
    if(top==-1)
    {
        printf("Stack is empty,underflow\n");
    }
    else
    {
        int data =stack[top];
        printf("Element %d is popped from stack\n",stack[top]);
        top=top-1;
    }
}
void display()
{
    if(top<=N && top>=0)
    {
        printf("The elements in stack are\n");
        for(int i=top;i>=0;i--)
        {
            printf("%d\t",stack[i]);
        }
    }
    else
    {
        printf("Stack is empty\n");
    }
```

}

OUTPUT:

enter the choice-->1:push 2:pop 3:display 4:exit

1

enter the element

1

Element 1 is pushed in stack

1

enter the element

2

Element 2 is pushed in stack

1

enter the element

3

Element 3 is pushed in stack

1

enter the element

4

Element 4 is pushed in stack

3

The elements in stack are

4 3 2 1

1

Stack is full,overflow

2

Element 4 is popped from stack

2

Element 3 is popped from stack

2

Element 2 is popped from stack

2

Element 1 is popped from stack

2

Stack is empty,underflow

3

Stack is empty