DS LAB-WEEK 2-STACK USING ARRAYS

PROGRAM AND OUTPUT at the end

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```c
#include<stdio.h>

void push();

void pop();

void display();

int stack[100],choice,n,top,x,i;

int main()

{

    top=-1;

    printf("\nEnter the size of stack(max=100):");

    scanf("%d",&n);

    printf("\n1.push\n2.pop\n3.display\n4.exit");

    do

    {

        printf("\n Enter operation number to be performed:");

        scanf("%d",&choice);

        switch(choice)

        {

            case 1:

            {

                push();

                break;

            }
```

```c
        case 2:

        {

           pop();

           break;

        }

        case 3:

        {

           display();

           break;

        }

        case 4:

        {

           printf("\nexit");

           break;

        }

        default:

        {

           printf ("\ninvalid Choice");

        }

     }

   }

   while(choice!=4);

   return 0;

}

void push()

{

   if(top>=n-1)

   {
```

```c
        printf("\nStack Overflow");


    }
    else
    {
        printf("Enter a value to be pushed:");
        scanf("%d",&x);
        top++;
        stack[top]=x;
    }
}
void pop()
{
    if(top<=-1)
    {
        printf("\nStack underflow/empty");
    }
    else
    {
        printf("\n\t The deleted element is %d",stack[top]);
        top--;
    }
}
void display()
{
    if(top>=0)
    {
        printf("\n The elements in the stack: \n");
```

```
        for(i=top; i>=0; i--)

            printf("\n> %d",stack[i]);

    }

    else

    {

        printf("\nStack is empty");

    }


}
```

OUTPUT


```
input

Enter the size of stack(max=100):5

1.push
2.pop
3.display
4.exit
 Enter operation number to be performed:3

Stack is empty
 Enter operation number to be performed:1
Enter a value to be pushed:23

 Enter operation number to be performed:1
Enter a value to be pushed:44

 Enter operation number to be performed:1
Enter a value to be pushed:21

 Enter operation number to be performed:1
Enter a value to be pushed:41

 Enter operation number to be performed:1
Enter a value to be pushed:25

 Enter operation number to be performed:1

Stack Overflow
 Enter operation number to be performed:2
```

```
Enter a value to be pushed:21

 Enter operation number to be performed:1
Enter a value to be pushed:41

 Enter operation number to be performed:1
Enter a value to be pushed:25

 Enter operation number to be performed:1

Stack Overflow
 Enter operation number to be performed:2

         The deleted element is 25
 Enter operation number to be performed:2

         The deleted element is 41
 Enter operation number to be performed:3

 The elements in the stack:

 21
 44
 23
 Enter operation number to be performed:4

exit
```