IMPLEMENTATION OF STACK USING ARRAY AND LINKED LIST IMPLEMENTION

```
#include <stdio.h>
#define MAX 5
int Stack[MAX], top = -1;
int IsFull();
int IsEmpty();
void Push(int ele);
void Pop();
void Top();
void Display();
int main()
{
int ch, e;
do
{
printf("1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT");
printf("\nEnter your choice : ");
scanf("%d", &ch);
switch(ch)
{
case 1:
printf("Enter the element : ");
scanf("%d", &e);
Push(e);
break;
case 2:
Pop();
break;
case 3:
Top();
break;

case 4:
Display();
break;
}
} while(ch <= 4);
return 0;
}
int IsFull()
{
if(top == MAX - 1)
return 1;
else
return 0;
}
int IsEmpty()
{
if(top == -1)
return 1;
else
return 0;
}
void Push(int ele)
{
if(IsFull())
printf("Stack Overflow...!\n");
else
{
```

```
top = top + 1;
Stack[top] = ele;
}
}
void Pop()
{
if(IsEmpty())
printf("Stack Underflow...!\n");
else
{
printf("%d\n", Stack[top]);
top = top - 1;
}
}
void Top()
{
if(IsEmpty())
printf("Stack Underflow...!\n");
else

printf("%d\n", Stack[top]);
}
void Display()
{
int i;
if(IsEmpty())
printf("Stack Underflow...!\n");
else
{
for(i = top; i >= 0; i--)
printf("%d\t", Stack[i]);
printf("\n");
}
}
```

Output

```
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 1
Enter the element : 10
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 1
Enter the element : 20
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 1
Enter the element : 30
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 1
Enter the element : 40
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 1
Enter the element : 50
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 1
Enter the element : 60
Stack Overflow...!
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 4
50 40 30 20 10
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 3
50
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
```

```
Enter your choice : 2
50
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 2
40
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 2
```



```
30
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 2
20
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 2
10
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 2
Stack Underflow...!
1.PUSH 2.POP 3.TOP 4.DISPLAY 5.EXIT
Enter your choice : 5
```