

Jaskirat Singh

2020CSC1008

DOUBLE STACK

CODE

```
#include <iostream>
#include <stdlib.h>

using namespace std;

class twoStacks {
    int* arr;
    int size;
    int top1, top2;

public:
    // Constructor
    twoStacks(int n)
    {
        size = n;
        arr = new int[n];
        top1 = n / 2 + 1;
        top2 = n / 2;
    }
}
```

```

// Method to push an element x to stack1
void push1(int x)
{
    // There is at least one empty
    // space for new element
    if (top1 > 0) {
        top1--;
        arr[top1] = x;
    }
    else {
        cout << "Stack Overflow"
            << " By element :" << x << endl;
        return;
    }
}

```

```

// Method to push an element
// x to stack2
void push2(int x)
{
    // There is at least one empty
    // space for new element
    if (top2 < size - 1) {
        top2++;
        arr[top2] = x;
    }
    else {
        cout << "Stack Overflow"
            << " By element :" << x << endl;
        return;
    }
}

```

```
    }  
}
```

// Method to pop an element from first stack

```
int pop1()  
{  
    if (top1 <= size / 2) {  
        int x = arr[top1];  
        top1++;  
        return x;  
    }  
    else {  
        cout << "Stack UnderFlow";  
        exit(1);  
    }  
}
```

// Method to pop an element

// from second stack

```
int pop2()  
{  
    if (top2 >= size / 2 + 1) {  
        int x = arr[top2];  
        top2--;  
        return x;  
    }  
    else {  
        cout << "Stack UnderFlow";  
        exit(1);  
    }  
}
```

```
};
```

```
/* Driver program to test twoStacks class */
```

```
int main()
```

```
{
```

```
    twoStacks ts(6);
```

```
    ts.push1(5);
```

```
    ts.push2(20);
```

```
    ts.push2(17);
```

```
    ts.push1(8);
```

```
    ts.push1(70);
```

```
    ts.push1(34);
```

```
    ts.push1(24);
```

```
    cout << "\nPopped element from stack2 is "<< " : " << ts.pop2()<< endl;
```

```
    ts.push2(43);
```

```
    for(int i=0;i<=4;i++){
```

```
        cout << "Popped element from stack1 is "<< " : " << ts.pop1()<< endl;}
```

```
    return 0;
```

```
}
```

```
Stack Overflow By element :24
Popped element from stack2 is : 17
Popped element from stack1 is : 34
Popped element from stack1 is : 70
Popped element from stack1 is : 8
Popped element from stack1 is : 5
Popped element from stack1 is : Stack UnderFlow

...Program finished with exit code 0
Press ENTER to exit console.
```