OBJECTIVE : Stack Operations

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Q1. Download stack_int.h header file from our course website to use stack operations.

Write a C program that initializes an array of six integers with the values taken from the user as input data. Your program should load the array content to a stack and swap the two elements at the top of the stack.

Example Run:

```
Enter an integer: 12
Enter an integer: 2
Enter an integer: 6
Enter an integer: 18
Enter an integer: 1
Enter an integer: 24

Stack Content
--------------
24
 1
18
 6
 2
12

After swap
-----------
 1
24
18
 6
 2
12
```

Project Name: LG9_1
File Name: Q1.cpp

Q2. Modify the stack header file to handle the below problem.

A **palindrome** is a word, phrase, number or other sequence of units that has the property of reading the same in either direction.

Write a function **palindrome()** that gets a string as parameter and returns 1 if the string is palindrome, 0 otherwise. (**Hint**: Make the check by using a character stack.)

Write a main function that reads several sentences from a text file named **palindrome.txt** and finds and displays only the palindromes on the screen.
Assume input data is a VALID postfix expression.

Project Name: LG9_2
File Name: Q2.cpp

Palindrome.txt
```
palindrome or not
madam
ey edip adanada pide ye
Study hard
kulluk
use comment
stack Implementation
```

Example Run:
```
madam
ey edip adanada pide ye
kulluk
```

Q3. Add the file <u>stack_int.h</u> **to your solution directory.**

You are supposed to make some additions to **stack_int.h** by writing some functions in it, which are:

DisplayStack	: Displays the stack,
CountStack	: Counts the elements of the stack (Stack content does not change!),
RemMaxStack	: Removes the Maximum element from the stack,
SendNthToEnd	: The nth element from the top is sent to the bottom of the stack.

Write a C program that will first get numbers from user to fill the stack until a sentinel value is entered (-9 for instance), and then displays a menu, and call the appropriate STACK function according to the user's choice. Examine well the example run.

Project Name: LG9_3
File Name: Q3.cpp

Example Run:
```
Enter a number: 23
Enter a number: 42
Enter a number: 56
Enter a number: 87
Enter a number: 33
Enter a number: -9

1) Count Stack
2) Remove Maximum Element
3) Send Nth To End
4) Exit
Enter your choice: 1

STACK CONTENT
33
87
56
42
23
Number of elements in the stack: 5

1) Count Stack
2) Remove Maximum Element
3) Send Nth To End
4) Exit
Enter your choice: 2

STACK CONTENT
33
56
42
23
```

```
1) Count Stack
2) Remove Maximum Element
3) Send Nth To End
4) Exit
Enter your choice: 3
Enter N: 2

STACK CONTENT
33
42
23
56

1) Count Stack
2) Remove Maximum Element
3) Send Nth To End
4) Exit
Enter your choice: 6

1) Count Stack
2) Remove Maximum Element
3) Send Nth To End
4) Exit
Enter your choice: -1

1) Count Stack
2) Remove Maximum Element
3) Send Nth To End
4) Exit
Enter your choice: 4
```