DATA STRUCTURE AND PROGRAM DESIGN LAB – 02

2. Design, Develop and Implement a menu driven Program in C for the following operations on STACK of Integers (Array Implementation of Stack with maximum size MAX)

a. Push an Element on to Stack
b. Pop an Element from Stack
c. Demonstrate how Stack can be used to check Palindrome
d. Demonstrate Overflow and Underflow situations on Stack
e. Display the status of Stack
f. Exit

Support the program with appropriate functions for each of the above operations.

SAMPLE OUTPUT:

```
PS C:\Users\Ankush\OneDrive\Desktop\DSPD-LAB> gcc Practical-2.c
PS C:\Users\Ankush\OneDrive\Desktop\DSPD-LAB> ./a.exe

   Stack Operations Menu
1. Push an Element onto Stack
2. Pop an Element from Stack
3. Check Palindrome using Stack
4. Demonstrate Overflow and Underflow
5. Display Stack
6. Exit
Enter your choice: 1
Enter value to push: 2
2 pushed onto stack.

   Stack Operations Menu
1. Push an Element onto Stack
2. Pop an Element from Stack
3. Check Palindrome using Stack
4. Demonstrate Overflow and Underflow
5. Display Stack
6. Exit
Enter your choice: 1
Enter value to push: 4
4 pushed onto stack.

   Stack Operations Menu
1. Push an Element onto Stack
2. Pop an Element from Stack
3. Check Palindrome using Stack
4. Demonstrate Overflow and Underflow
5. Display Stack
6. Exit
Enter your choice: 5
Current Stack elements are:
4
2
```

```
   Stack Operations Menu
1. Push an Element onto Stack
2. Pop an Element from Stack
3. Check Palindrome using Stack
4. Demonstrate Overflow and Underflow
5. Display Stack
6. Exit
Enter your choice: 3
Enter a string to check palindrome: 846
56 pushed onto stack.
52 pushed onto stack.
54 pushed onto stack.
54 popped from stack.
52 popped from stack.
56 popped from stack.
The string '846' is NOT a Palindrome.

   Stack Operations Menu
1. Push an Element onto Stack
2. Pop an Element from Stack
3. Check Palindrome using Stack
4. Demonstrate Overflow and Underflow
5. Display Stack
6. Exit
Enter your choice: 6
Exiting program. Goodbye!
PS C:\Users\Ankush\OneDrive\Desktop\DSPD-LAB>
```