Topic: Stack

Task-1

We have discussed stack operations called push () and pop () in the class. Also illustrated with examples. Design and implement menu driven C program with 4 operations. (1) Add element to stack (2) Delete element from stack (3) Traverse elements and (4) Isfull (5) Isempty (6) display TOs (7) Exit. Write all possible examples supported by relevant test cases.

Task-2

Algorithm to check palindrome string using stack

- Find the length of the input string using strlen function and store it in a integer variable "length".
- Using a for loop, traverse input string from index 0 to length-1 and push all characters in stack.
- Remove (Pop) characters from stack one by one using a for loop and compare it with corresponding character of input string from beginning(traverse from index 0 to length-1). If we found a mismatch the input string is not a palindrome string otherwise **palindrome string**.

Write all possible examples supported by relevant test cases.

Sample test case is as below:

```
        MENU
--------------------------
1.Check string is palindrome.
2.Exit
--------------------------
Choose operation : 1

Enter string : sapna
'sapna' is not palindrome.

Choose operation : 1

Enter string : madam
'madam' is palindrome.

Choose operation : 1

Enter string : pop
'pop' is palindrome.

Choose operation : 1

Enter string : ride
'ride' is not palindrome.

Choose operation : 2
```

Task-3

Given a decimal number as input, you need to write a program to convert the given decimal number into an equivalent binary number using stack concept.

Examples:

Input : 7

Output : 111

Input : 10

Output : 1010

Input: 33

Output: 100001

Task-4

Write a program to display the given string in reverse using stack concept.

Sample:

Enter the string: Information

Revered string: noitamrofni