Assignment:

Write a C program that reverses the string of your name, using a stack implemented with a character array. The program must contains functions such as push, pop, display, and main.

How the Code Works:

1. Input Your Name:

The program asks the user to input their name, which is stored in the `name` array.

2. Push Each Character to the Stack:

Each character of the string is pushed onto the stack using the `push` function.

- Why? The stack stores characters in reverse order because of its LIFO property.

3. Pop Characters from the Stack:

The program pops characters one by one from the stack and prints them, creating the reversed string.

- Why? The last character pushed is the first one popped, effectively reversing the order of the string.

4. Reversed Output:

The `displayReversed` function prints the reversed name directly to the console.

Code:

```c
#include <stdio.h>
#include <string.h>
#define MAX 100

char stack[MAX];
int top = -1;

void push(char ch) {
    if (top < MAX - 1)
        stack[++top] = ch;
}

char pop() {
    if (top >= 0)
        return stack[top--];
    return '\0';
}

void displayReversed(char name[]) {
    printf("Reversed Name: ");
    for (int i = 0; i < strlen(name); i++) {
        printf("%c", pop());
    }
    printf("\n");
}

int main() {
    char name[MAX];
    printf("Enter your name: ");
    scanf("%s", name);

    for (int i = 0; i < strlen(name); i++) {
        push(name[i]);
    }

    displayReversed(name);
    return 0; }
```