

3) (10 pts) DSN (Stacks)

A word is considered a palindrome if the reverse of the word is the same as the original word. For example: the word “test” is not a palindrome as its reverse “tset” is not the same as “test”. On the other hand, the word “racecar” is a palindrome as its reverse is the same as “racecar”. Some other examples of palindromes are “hannah”, “level”, “madam”, and “yay.”

Write a function that will take a string in the parameter and returns 1, if the string is a palindrome, otherwise returns 0. **You have to use stack operations during this process.** (Credit isn’t awarded for correctly solving the problem, but for utilizing the stack in doing so.)

Assume the following stack definition and the functions already available to you. The stack will be extended automatically if it gets full (so you, don’t have to worry about it). The top of the stack is controlled by your push and pop operation as usual stack operations.

```
void initialize(stack* s); // initializes an empty stack.
int push(stack* s, char value); //pushes the char value to the stack
int isEmpty(stack* s); // Returns 1 if the stack is empty, 0 otherwise.
char pop(stack* s); // pops and returns character at the top of the stack.
char peek(stack* s); // returns character at the top of the stack.
```

Note: pop and peek return 'I' if the stack s is empty.

```
int isPalindrome(char *str) {
    struct stack s;
    initialize(&s);
    int len = strlen(str);
```

```
}
```