Homework

25

C-String Functions

Write two C-string functions "from scratch". Do not use any functions from the standard library, and you cannot use the C++ string class. Read through, and follow the instructions below.

1. The *reverse* Function

This function reverses (in place) a C-style character string **s**. You must use pointers and the increment and decrement operators only.

- You may not use any library functions.
- You may not allocate any other array storage
- You may not use pointer arithmetic (that is **p + n**)
- You may not use array notation in your function.

In other words, there will be no **int** variables or literals in your function: only pointers along with assignment, comparison, pointer subtraction, **++** and/or **--**; you may use:

- a temporary **char** variable to exchange the elements of the string
- a temporary pointer.

If you get stuck, please ask questions on Piazza.

2. The *findStr* Function

Implement your version of the standard C-library function **strstr()**. So that it doesn't conflict with the names in the standard library, use **findStr()**.

```
1 | const char * findStr(const char *s1, const char *s2);
```

The findStr prototype.

The function:

- finds the first occurrence of the entire string **s2** inside the string **s1**
- returns a pointer to the first occurrence.
- If no match is found, then return the C++ **nullptr**.
- If **s2** points to a string of zero length, then return **s1**.

Here are some examples:

```
1  findStr("cowtown", "ow");  // returns &s1[1]
2  findStr("cowtown", "own"); // returns &s1[4]
3  findStr("cowtown", "two"); // returns nullptr
```

Using the findStr function.

You may use pointer notation or array notation. However, do not use any functions from the standard library. That includes **strlen()** or the C++ **string** class.

When you add that and **make test**, all of the tests should pass.

Be sure to **make submit** to turn in your code for credit before the deadline. As always, if you run into problems, bring your questions to Piazza or come to my office hour.