

Source File: ~/1337/49/lab49.(C|CPP|cpp|c++|cc|cxx|cp)
Input: Under control of main function
Output: Under control of main function
Value: 1

Write a function whose prototype is given by

```
string stringReverse(string s);
```

The function returns `s` reversed.

A sample `main` function for testing your function is shown in Figure 1. Commands to compile, link, and run this assignment are shown in Figure 2. To use the Makefile as distributed in class, add a target of `lab49` to `targets2srcfiles`.

```
1 #include <iostream>
2 #include <cstdlib>
3 #include <string>
4
5 using namespace std;
6
7 // Function stringReverse reverses the characters of string s; that is,
8 // the function exchanges the first and last characters, the second and
9 // next-to-last characters, and so on. The transformed string is
10 // returned to the calling function.
11 string stringReverse(string s);
12
13 int main()
14 {
15     string str, reverse;
16
17     while (getline(cin, str))
18     {
19         cout << "Before: " << str << endl;
20         reverse = stringReverse(str);
21         cout << " After: " << reverse << endl;
22     }
23
24     return EXIT_SUCCESS;
25 }
```

Figure 1. `/usr/local/1337/src/lab49main.C`

```
1 newuser@csunix ~> cd 1337
2 newuser@csunix ~/1337> mkdir 49
3 newuser@csunix ~/1337> cd 49
4 newuser@csunix ~/1337/49> cp /usr/local/1337/data/49/* .
5 newuser@csunix ~/1337/49> cp /usr/local/1337/src/lab49main.C .
6 newuser@csunix ~/1337/49> cp /usr/local/1337/src/Makefile .
7 newuser@csunix ~/1337/49> touch lab49.cpp
8 newuser@csunix ~/1337/49> # Edit Makefile and lab49.cpp
9 newuser@csunix ~/1337/49> make lab49
10 g++ -g -Wall -std=c++11 -c lab49main.C -I/usr/local/1337/include -I.
11 g++ -g -Wall -std=c++11 -c lab49.cpp -I/usr/local/1337/include -I.
12 g++ -o lab49 lab49main.o lab49.o -L/usr/local/1337/lib -lm -lbits
13 newuser@csunix ~/1337/49> cat 01.dat
14 a
15 even
16 odd
17 radar
18 Angelo State University
19 supercalifragilisticexpialidocious
20 1996
21 bottle
22 12345
23 radar
24 a Toyota
25 Madam, I'm Adam
26 Was it a rat I saw?
27 Norma is as selfless as I am, Ron.
28 A man, a plan, a canal--Panama!
29 Tarzan raised Desi Arnaz' rat.
30 newuser@csunix ~/1337/49> cat 01.dat | ./lab49
31 Before: a
32 After: a
33 Before: even
34 After: neve
35 Before: odd
36 After: ddo
37 Before: radar
38 After: radar
39 Before: Angelo State University
40 After: ytisrevinU etatS olegnA
41 Before: supercalifragilisticexpialidocious
42 After: suoicodilaipxecitsiligarfilarcrepus
43 Before: 1996
44 After: 6991
45 Before: bottle
46 After: elttob
47 Before: 12345
48 After: 54321
```

Figure 2. Commands to Compile, Link, & Run Lab 49 (Part 1 of 2)

```
49 Before: radar
50 After: radar
51 Before: a Toyota
52 After: atoyoT a
53 Before: Madam, I'm Adam
54 After: madA m'I ,madaM
55 Before: Was it a rat I saw?
56 After: ?was I tar a ti saW
57 Before: Norma is as selfless as I am, Ron.
58 After: .noR ,ma I sa sselfles sa si amroN
59 Before: A man, a plan, a canal--Panama!
60 After: !amanaP--lanac a ,nalp a ,nam A
61 Before: Tarzan raised Desi Arnaz' rat.
62 After: .tar 'zanrA iseD desiar nazraT
63 newuser@csunix ~/1337/49> cat 01.dat | ./lab49 > my.out
64 newuser@csunix ~/1337/49> diff 01.out my.out
65 newuser@csunix ~/1337/49>
```

Figure 2. Commands to Compile, Link, & Run Lab 49 (Part 2 of 2)