

Source File: ~/1337/15/lab15. (C|CPP|cpp|c++|cc|cxx|cp)
Input: Under control of main function
Output: Under control of main function
Value: 1

Write a function that receives an **unsigned int** as its argument. The function should return a new **unsigned int** that contains the digits of the original number in reverse order. You may assume that the reverse of the input argument is evaluable.

A sample **main** function for testing your function is shown in Figure 1, and a sample execution sequence is shown in Figure 2.

```
1  #include <iostream>
2  #include <iomanip>
3  #include <cstdlib>
4
5  using namespace std;
6
7  // Function reverseInt returns an integer whose digits are in the
8  // reverse order of num. For example, if num is 1234, the returned
9  // integer would be 4321.
10 unsigned int reverseInt(unsigned int num);
11
12 // Function printLine writes n hyphens to output stream out
13 void printLine(ostream& out, int n);
14
15 int main()
16 {
17     unsigned int num;
18
19     printLine(cout, 26);
20     cout << " Original          Reverse " << endl
21          << " Number           Number " << endl;
22     printLine(cout, 26);
23
24     while (cin >> num)
25     {
26         cout << setw(10) << num << setw(6) << " "
27              << setw(10) << reverseInt(num) << endl;
28     }
29
30     printLine(cout, 26);
31
32     return EXIT_SUCCESS;
33 }
34
35 void printLine(ostream& out, int n)
36 {
37     char ch = out.fill();
38     out << setfill('-') << setw(n) << "-" << setfill(ch) << endl;
39     return;
40 }
```

Figure 1. /usr/local/1337/src/lab15main.C

```
1 newuser@csunix ~> cd 1337
2 newuser@csunix ~/1337> mkdir 15
3 newuser@csunix ~/1337> cd 15
4 newuser@csunix ~/1337/15> cp /usr/local/1337/data/15/* .
5 newuser@csunix ~/1337/15> cp /usr/local/1337/src/lab15main.C .
6 newuser@csunix ~/1337/15> touch lab15.cpp
7 newuser@csunix ~/1337/15> # Edit lab15.cpp
8 newuser@csunix ~/1337/15> g++ -g -Wall -std=c++11 -c lab15main.C
9 newuser@csunix ~/1337/15> g++ -g -Wall -std=c++11 -c lab15.cpp
10 newuser@csunix ~/1337/15> g++ -o lab15 lab15main.o lab15.o
11 newuser@csunix ~/1337/15> cat 01.dat
12 0
13 1
14 12
15 123
16 1234
17 12345
18 123456
19 1234567
20 12345678
21 123456789
22 1463847412
23 newuser@csunix ~/1337/15> cat 01.dat | ./lab15
24 -----
25 Original          Reverse
26 Number           Number
27 -----
28          0              0
29          1              1
30         12             21
31        123            321
32       1234           4321
33      12345          54321
34     123456         654321
35    1234567        7654321
36   12345678       87654321
37  123456789      987654321
38 1463847412    2147483641
39 -----
40 newuser@csunix ~/1337/15> cat 01.dat | ./lab15 > my.out
41 newuser@csunix ~/1337/15> diff 01.out my.out
42 newuser@csunix ~/1337/15> cat 02.dat | ./lab15 > my.out
43 newuser@csunix ~/1337/15> diff 02.out my.out
44 newuser@csunix ~/1337/15>
```

Figure 2. Commands to Compile, Link, & Run Lab 15