

TCES 201
Introduction to Computer Programming
Homework 3 – Functions
10 Points

This homework tests your understanding of the topics covered in the third week related to C Programming – Functions.

1. Modify the program from Homework 2 to write a function, **fib**, that takes the number of Fibonacci numbers as an input parameter and prints m Fibonacci numbers where m is the input number of Fibonacci numbers that need to be printed. Print each number. The main function should prompt and get the input and make a call to the function to display the output. The formula for Fibonacci is $fib_n = fib_{n-1} + fib_{n-2}$.

Here's a sample output:

```
Enter the number of Fibonacci numbers: 5
1: 1
2: 1
3: 2
4: 3
5: 5
```

2. An integer number is said to be a perfect number if its factors, including 1 (but not the number itself), sum to the number. For example, 6 is a perfect number because $6 = 1 + 2 + 3$. Write a function **perfect** that determines whether parameter number is a perfect number and another function **list_perfect** that prints its factors. Use this function in a program (main) that determines and prints all the perfect numbers between 1 and 10000. Starter code is provided along with this homework. Add **perfect.c** to your project and modify to get the following output.

Here's a sample output:

```
Here are the perfect numbers between 1 and 10000
6 = 1 + 2 + 3
28 = 1 + 2 + 4 + 7 + 14
496 = 1 + 2 + 4 + 8 + 16 + 31 + 62 + 124 + 248
8128 = 1 + 2 + 4 + 8 + 16 + 32 + 64 + 127 + 254 + 508 + 1016 + 2032 + 4064
```

Challenge Work (2 Points): Write a function that takes an integer value and returns the number with its digits reversed. For example, given the number 7631, the function should return 1367.

Submission Instructions: Submit the code on Canvas under hw3 Submission link. Submit the C source code files with the names fib.c and perfect.c (and reverse.c if attempting extra credit).

Each program must contain a header in the following format.

```
/*      Menaka Abraham
        CES201
        Autumn 2014
        This program prints a simple Hello World to the console.
*/
```