Topic(s):   I/O & Functions in C
Date assigned: Tuesday, September 1, 2009
Date due: Tuesday, September 8, 2009
Points: 15

You have now had a full year of C++ and we are now going to move to
the world of Data Structures in C. The transition to C is not that
difficult but can be frustrating. For this first assignment, I would
like to introduce you to the differences of I/O in C and C++ while
reinforcing the use of functions when writing code.

Sample Problem:

Write a C program that accepts a natural number from the keyboard and
prints a table containing each value from 1 to the number inputted
including the square and cube of the number. Output your result in a
nice tabular fashion.

Sample Solution:

```
/****************************************************************************
 File name:  IntroCTable.c
 Author:     Doug Ryan
 Date:       8/31/09
 Class:      CS300
 Assignment: Sample Problem
 Purpose:    This program shows simple C I/O by accepting a single natural
             value from the keyboard and outputting a table including the
             value, the value squared, and the value cubed.
 ****************************************************************************/

#include <stdio.h>
#include <math.h>

int main ()
{
  int value;
  int i;

  printf ("%s%s%s", "A simple C program showing basic I/O.",
          "\nThe user enters a single value and a table\n",
          " of squared and cubed values\nis displayed with the value.\n\n");

  do
  {
    printf ("Enter a natural number: ");
    scanf ("%d", &value);
  } while (value <= 0);

  printf ("\n\n         Here's the table\n\n");
  printf ("%10s%10s%10s\n", "Value", "Value^2", "Value^3");

  for (i = 1; i <= value; ++i)
  {
    printf ("%10d%10d%10d\n", i, i * i, (int) pow (i, 3));
```

```
   }

   printf ("\n");

   return 0;
}
```

Your Problem:

Modify the above sample solution where the main function calls three other functions:

 (1)   printHeading - accepts nothing and prints the greeting

 (2)   readNaturalNumber - asks the user to enter a natural number and returns the number through the argument list.

 (3)   printTable - accepts the natural number read in and prints the table of values.

Notes:
1. Your solution is to look and work EXACTLY the same as the sample solution above.
2. We will use the coding guidelines coding.C.v6.pdf found on the CS300 home page.
3. Your code is to be written in C using Eclipse3.5 and tested on zeus. Programs written in other environments will not be graded. Submit a project folder with 01yourlastname into the CS300 Drop Box on zeus.
4. Function documentation can be found in the coding standards document. Make sure you follow the documentation exactly.