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**CSCI 3751**

**Homework Assignment #4 (40 points)**

1. (15 points) Read the section 6.10 Time and Date routines. Write a C (or C++) program called timeLeft implementing the following:
   1. display the current date/time in the format specified below in yellow (Fig 6.9 and 6.10)
   2. ask the user to enter a future target date in “mm/dd/yyyy” format (Figure 6.12)
   3. display remaining days, hours, minutes, and seconds to reach the user specified target date from the current date and time
   4. display the total number of seconds to reach the user specified target date from the current date/time

(Extra credit: 5 points) Verify that the total number of seconds from the question 4 above actually converts to the answer of question 3. You may write a small C/C++ program or MS Excel formulas to verify it.

1. (5 points) Read the problem 7.10 on page 226 and answer the following questions. (Hint: The answer is “No”.)
   1. Explain in detail why it’s not correct.
   2. Give your solution and describe why your solution would work.
2. (10 points) Read the section 8.3 “fork Function”.
   1. Summarize the important points of the section. (5 points)
   2. After a program executes the following series of fork() calls, how many new processes will result (assuming that none of the calls fails)? Draw a high-level simple diagram depicting the new process creation sequence. (5 points)

fork();

fork();

fork();

1. (10 points) Read the section 8.13 “system Function” section in its entirety.
   1. Describe what this function is and summarize how it works. (5 points) Feel free to use any references you can find and to draw diagrams if helpful to answer the question.
   2. Search the Internet and list the advantages and disadvantages of system() calls. Also, write your own guidelines on when system() calls may and may not be used? (5 points)