COT 5405 – Fall 2010
Dynamic Programming Bonus Implementation Assignments
Out Date: 22 November 2010
Due Date: 6 December 2010 (11:59 pm)

Attached are two bonus problems you may solve. Each problem is worth 20 points of credit towards Exam 2. You may earn up to 40 points of bonus, regardless of how many points you earned on the exam, for a maximum possible score of **140**/100.

Each problem *must* be solved with dynamic programming. Do not submit a brute force solution—this will result in no credit!

Each problem *must* be coded in either *C++* or *Java*.

The executable files must be called *Divisibility* and *RollerCoaster,* respectively. If your code is implemented in *C++,* you may either provide a *makefile* with your source code, which specifies the names of the executable files, or implement everything in exactly one *.c file called *executable.c* (e.g. *Divisibility.c or RollerCoaster.c)* for each problem. There are no restrictions on header files (*.h). If your code is implemented in Java, you should provide exactly one *.java called executable.java (e.g. *Divisibility.java or RollerCoaster.java)* for each problem.

The executable must be run in the following manner:
executable -i inputfile -o outputfile
(e.g. Divisibility -i div.in -o div.out
e.g. RollerCoaster -i rc.in -o rc.out)

Supplied are input files for each problem. For each problem which you want to submit, you should implement a solution to the problem (in the language of your choice). At the end of each problem description there is a small sample input file. Make sure you test your program on this *first* (of course, it would be wise to test your program on other sample inputs as well). Once you are convinced your implementation is correct, you should run your program on the supplied large input file (*div.in* or *rc.in*, respectively).

Deliverables (for each problem you solve):

- The output file that is produced when running the supplied input file on your program
- Your source code

E-mail your solutions to liy@cs.ucf.edu with the subject line "COT 5405 – DP Bonus – *Problem*" where *Problem* is either 'Divisibility' or 'Roller Coaster'.

Grading

You will be graded based on correctness of your output file and the use of dynamic programming. Doing any of the following will result in **0 points:**

- Submitting only an output file with no source code
- Submitting only source code with no output file
- Not using dynamic programming in your solution
- Not writing your own code *independently*
- Not using *C++* or *Java*
- Not calling the executables as *Divisibility* and *RollerCoaster* respectively.
- Not being able to run the executable as *executable -i inputfiile -o outputfile*
- Passing the *due date*

You may work together on solving these problems, but you must ***independently write your own source code*.** Any violation of this policy will result in a minimum penalty of 0 points earned for the bonus, and could result in losing additional credit on your exam score. Bottom line: DON'T CHEAT.