COS 301 Programming Languages
Fall 2012
Project Assignment #4 Due Tuesday Nov 27
Control Flow Constructs, Error and Exception Handling

Write a paper that discusses control flow constructs and semantics, exception or error handling semantics; functions and parameter passing. Length of the paper should be as long as needed to cover the assigned topics adequately.

Control flow should include conditionals, loops and gotos. This will be brief section for most languages. Topics addressed under functions and parameter passing should include function call syntax, function definition syntax, parameter passing conventions, scope of defined functions, ability to pass functions as parameters, and support for recursion.

Programming Assignment #4

The maximal sum contiguous subsequence problem is very concisely expressed in http://programmingpraxis.com/2010/12/03/maximum-sum-subsequence/ :

> "Given a sequence of integers, both positive and negative, find the contiguous subsequence with the maximum sum. For instance, given the sequence 31, -41, 59, 26, -53, 58, 97, -93, -23, 84, the maximum sum subsequence is 59, 26, -53, 58, 97, which sums to 187."

Algorithms with complexity $O(n^3)$, $O(n^2)$, O(n log n) and O(n) are well known. Some descriptions of different algorithms:

http://wordaligned.org/articles/the-maximum-subsequence-problem
http://puddleofriddles.blogspot.com/2011/11/program-to-find-maximum-contiguous.html

Review these references and implement the O(n) algorithm in your language, using arrays, lists or sequences (whichever is most appropriate to your language). If you use code found on the web, cite your source.

Sample data for testing will be posted later this week. Submit code and output, as usual.