Homework Assignment #5  
Due: Tuesday 12/11/2009 during lab  
(total: 100 points)

Problem 1 (10 points) Textbook, Exercise 15-3-5 (page 350)

Problem 2 (10 points) Textbook, Exercise 22-4-1 (page 551)

Problem 3 (20 points) Given two strings, AEROPLANE and PLAIN-TIF, compute edit distance between them using (i) dynamic programming (by converting the problem into the shortest path in a DAG) and (ii) breadth-first tree search, in which at each depth (or level) the algorithm can keep at most 3 best nodes based on current edit distance (pick randomly for ties). Show all your steps and discuss the solutions obtained by the algorithms.

Problem 4 (6 points) Textbook, Exercise 16-1-2 (page 378)

Problem 5 (6 points) Textbook, Exercise 16-2-4 (page 384)

Problem 6 (8 points) Textbook, Problem 16-1 a and c (page 402)

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Programming part

Problem 7 (40 points) Dynamic programming.

Write Matlab code that returns the longest common subsequence for two given strings $s_1$ and $s_2$. The function should be of the form

```matlab
string = longest_common_subsequence(s1, s2)
```

For the definition of the problem see Textbook, chapter 15.4 (page 350).

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For homework assignment policies please see the class syllabus located at

http://www.informatics.indiana.edu/predrag/classes/2009fall1500/syllabus.htm

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Good luck!