**Top Ten Important Algorithm Machine Problem 2**

Dynamic Programming

Due Date: 17:00 pm, Friday, March 31, 2017

Write an Ipython Notebook (Python 3) that contains five dynamic programming algorithms:

1. Fibonacci number generation
2. Longest Common Subsequence Algorithm
3. Text Justification
4. Matrix Chain Multiplication
5. Any Dynamic Programming Algorithm you find important

**Note:**

* Annotate your Notebook with appropriate comments and markdown cells.
* Name your single uncompressed file as “Lab2\_studentid\_name.ipynb” and upload it to iLMS before the deadline.
* Apply your Text Justification program to the following paragraph using 80-character line.

I see Barsad, and Cly, Defarge, The Vengeance [a lieutenant of Madame Defarge], the Juryman, the Judge, long ranks of the new oppressors who have risen on the destruction of the old, perishing by this retributive instrument, before it shall cease out of its present use. I see a beautiful city and a brilliant people rising from this abyss, and, in their struggles to be truly free, in their triumphs and defeats, through long years to come, I see the evil of this time and of the previous time of which this is the natural birth, gradually making expiation for itself and wearing out. I see the lives for which I lay down my life, peaceful, useful, prosperous and happy, in that England which I shall see no more. I see Her with a child upon her bosom, who bears my name. I see her father, aged and bent, but otherwise restored, and faithful to all men in his healing office, and at peace. I see the good old man [Mr. Lorry], so long their friend, in ten years' time enriching them with all he has, and passing tranquilly to his reward. I see that I hold a sanctuary in their hearts, and in the hearts of their descendants, generations hence. I see her, an old woman, weeping for me on the anniversary of this day. I see her and her husband, their course done, lying side by side in their last earthly bed, and I know that each was not more honoured and held sacred in the other's soul, than I was in the souls of both. I see that child who lay upon her bosom and who bore my name, a man winning his way up in that path of life which once was mine. I see him winning it so well, that my name is made illustrious there by the light of his. I see the blots I threw upon it, faded away. I see him, fore-most of just judges and honoured men, bringing a boy of my name, with a forehead that I know and golden hair, to this place—then fair to look upon, with not a trace of this day's disfigurement—and I hear him tell the child my story, with a tender and a faltering voice. It is a far, far better thing that I do, than I have ever done; it is a far, far better rest that I go to than I have ever known.