Class 2: exercises

17/10/2012

1 Exercise 1: Graphs and Paths

- Download the file: `www.ime.usp.br:/~sacomoto/dfs.py`
- Read the code and try to understand it, which python methods you don't know?
- Draw a directed graph and create the input file corresponding to it;
- Run the code with it, try with different s, t pairs. And check if the result is correct;
- Modify the code to also output the path (as a sequence of vertices).

2 Exercise 2: de Bruijn graph construction

- Create a read file (in fasta format), with at least two reads;
- Draw the de Bruijn graph for it, with $k = 3$;
- Download the de Bruijn graph construction from: `https://github.com/rchikhi/debruijn/downloads`
- Uncompress and compile it using the "make" command;
- Run it ("debruijn3") for the fasta file you created, with the "-g 0" option;
- Visualize it with: `http://sandbox.kidstrythisathome.com/erdos/index.html`
- Compare the result with your drawing, what is different?

3 Exercise 3 (Homework): de Bruijn graph manipulation

- Write a program that reads the de Bruijn graph generated by "debruijn3" (without the "-g 0" option). The graph should contain also the node sequence and the edge label;
- Write a function that finds a *coherent* path between two nodes;
- Modify the function to also print the coherent path.