

Algorithms in Bioinformatics I, WS2003/4

Assignment sheet # 7

Daniel Huson

November 23, 2003

To solve the following problems, please download:

www-ab.informatik.uni-tuebingen.de/teaching/ws03/abi1/java/java07.zip,
and modify the file `Nussinov.java`. Please use the methods supplied in `NussinovBase.java`. Please run
the program `RunNussinov.java`.

1 Implementation of the fill stage of the Nussinov algorithm (3 points)

Please implement the fill stage of the Nussinov algorithm.

2 Implementation of the traceback stage of the Nussinov algorithm (4 points)

Please implement the traceback stage of the Nussinov algorithm, writing all base pairings to a string that then can be retrieved later using the `getSecondaryStructure` method.

3 Determine secondary structures and compare (3 points)

Run the program on all input files present in the download file. Draw each of the secondary structures. Compare these structures with the ones obtained by the Zuker algorithm, using:

<http://www.bioinfo.rpi.edu/applications/mfold/>.

Due by 10am, Monday, 1 Dec 2003