

FIT3139: Lab questions for week 9

For this Prac, use the supporting material uploaded on the moodle site.

1. Write a MATLAB script that takes a pair of sequences as input (read from their respective sequence files – see supporting material) and outputs the edit distance between them.
2. Write a MATLAB script to print out the optimal alignment of any two sequences using a substitution matrix (provided in the supporting material) and constant gap penalty function of the form $\gamma(l) = g \times l$, where l is the length of a run of gap symbols. In addition to the optimal alignment, print out the optimal alignment score. What do you think is a reasonable choice of g for the given substitution matrix?
3. Write a MATLAB script to print out the optimal alignment score and its corresponding optimal alignment using a substitution matrix (from supporting material) and a saturating gap penalty function of the form $\gamma(l) = g_o + g_e \times \log(l)$, where l is the length of a run of gap symbols. What do you think are reasonable choices of values for g_o and g_e for the given substitution matrix?