Problem Solving and Search in AI
Tutorial 2 (on May 19th)

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Exercise 2.1:
Perform the *local search* algorithm with 2-*interchange moves* for the TSP with
the following distances.

$$L = \begin{bmatrix} 0 & 7 & 12 & 8 & 11 \\ 3 & 0 & 10 & 7 & 13 \\ 4 & 8 & 0 & 9 & 12 \\ 6 & 6 & 9 & 0 & 10 \\ 7 & 7 & 11 & 10 & 0 \end{bmatrix}$$

a) Start your search with the initial tour $(1, 3, 4, 2, 5)$. What is the best
solution for this configuration?

b) Restart the algorithm with the tour $(2, 4, 1, 3, 5)$. Can you reach a better
solution than before?

Exercise 2.2:
Use the *tabu search* algorithm for the TSP of Exercise 2.1 with the same initial
tours. Perform moves that swap two cities in a particular solution and use
a *recency-based* memory where swaps between two cities are tabu for three
iterations.

a) How big is the neighborhood of a solution?

b) Which influence has the initial tour on the search?