

Problem Solving and Search in AI Tutorial 2 (on May 6th)

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Exercise 2.1:

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

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

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

Exercise 2.2:

Design a Tabu-Search Algorithm for the *job shop scheduling* problem. Consider the following questions.

- How do you represent a solution?
- How do you generate the initial solution resp. how do you ensure feasibility of solutions?
- What is the neighborhood of a solution?
- What is the evaluation function?
- How do you organize the tabu list?
- What kind of aspiration criteria would you consider?

Exemplify your algorithm on the following problem instance. 3×3

0	4	1	3	2	5
2	4	1	3	0	4
0	6	2	3	1	3