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Knowledge Discovery in Databases II

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Übungsblatt 11: Graph and Link Mining

Aufgabe 11-1 Multi-Instance Distances

In this exercise, we will implement distance measures for comparing two random multi-instance distance measures.

(a) Download and inspect the code template mi_distance_teamplate.py generating 2 random multi instance objects.

(b) Implement a method distance_matrix to compute the distance matrix between two arbitrary multi-instance objects based on the euclidian distance.

(c) Implement the Hausdorff distance

(d) Implement the Sum of minimum distances.

Aufgabe 11-2 Kuhn-Munkres Algorithm

Given the following cost matrix K. Perform Hungarian Matching on the following matrices:

(a)

$$K_1 = \begin{pmatrix} 2 & 1 & 3 \\ 6 & 5 & 4 \\ 7 & 8 & 9 \end{pmatrix}$$

(b)

$$K_2 = \begin{pmatrix} 90 & 75 & 75 & 80 \\ 35 & 85 & 55 & 65 \\ 125 & 95 & 90 & 105 \\ 45 & 110 & 95 & 115 \end{pmatrix}$$

Aufgabe 11-3 Hausdorff-Distance

Show that the Hausdorff distance statisfies all the properties of a metric.