Technische Universität Braunschweig
Institut für Informationssysteme
http://www.ifis.cs.tu-bs.de

Karl Neumann, Sarah Tauscher

Exercises for Spatial Databases and GIS

Sheet 2 (until 18.11.2011)

Exercise 1 (Minimum Bounding Rectangle)

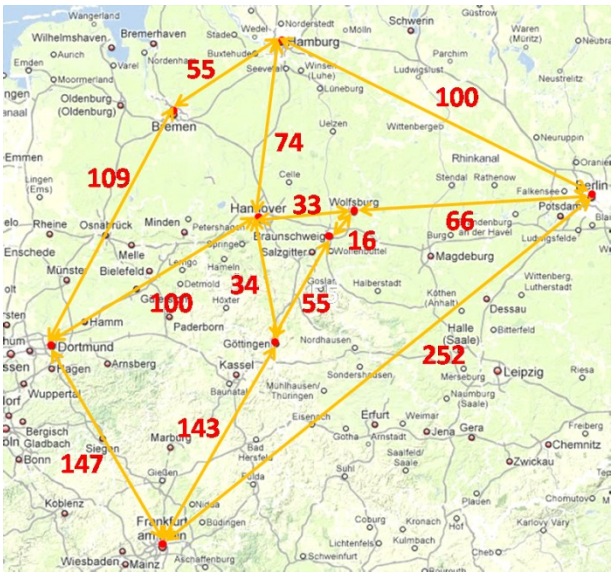
In this exercise you only have to consider polygons having a square as MBR. Exemplify your answers with drawings.

1. Is there always one closest point to each corner of the bounding box?
2. What is the maximum distance from one corner to its closest point on the polygon?
3. What is the maximum value for the average distance from all 4 corners to their closest point on the polygon?
4. Will the maximum value for the average distance from all 4 corners to their closest point on the polygon decrease if the MBR does not need to be axis-aligned?

Exercise 2 (Shortest Path Problem)

The graph given below show ICE-connections between some german cities. The weight of each edge is the time needed to cover that distance.

1. Calculate the path with the shortest driving time from Braunschweig to every other city using one of the three algorithms presented on slides 193 to 195.
2. Why did you choose that algorithm?
3. If you want to know the path with the shortest driving time from Wolfsburg to every other city, does the solution from 2.1 help you? How?/Why not?



Institut für Informationssysteme
Technische Universität Braunschweig

Technische Universität Braunschweig
Institut für Informationssysteme
http://www.ifis.cs.tu-bs.de

Karl Neumann, Sarah Tauscher

Exercise 3 (Isolines)

Construct a valid isoline visualization from the temperature measurements given below. You do not need to calculate the values in between the measured points, you may guess them.