

Exercises for Spatial Databases and GIS

Sheet 2 (until 20.11.2015)

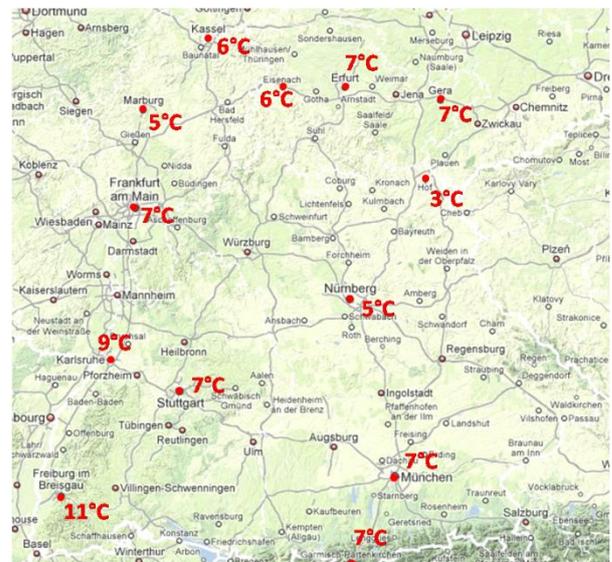
Exercise 1 (Minimum Bounding Rectangle)

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?

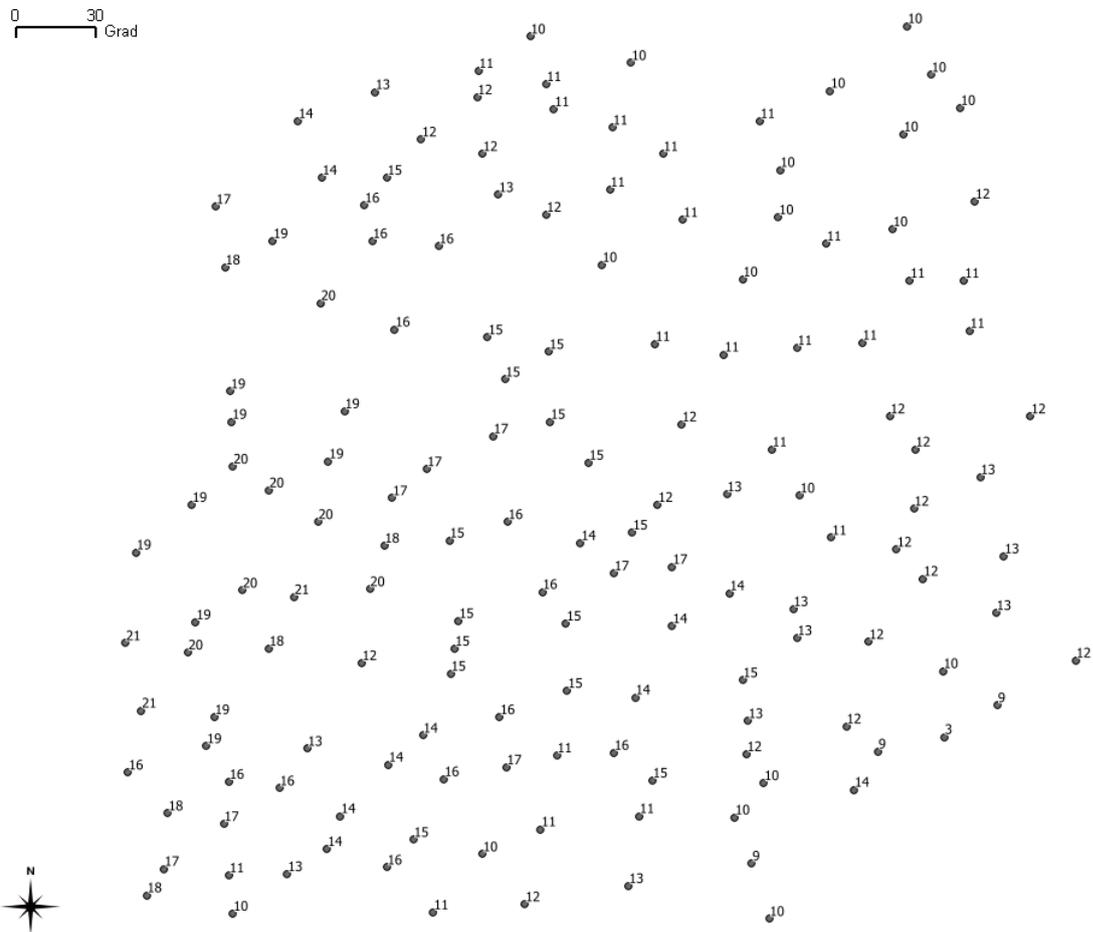
Exercise 2 (Delaunay triangulation/Interpolation)

1. Which methods do you know to construct the Delaunay triangulation for a given set of points?
2. Choose one method to construct the Delaunay triangulation for the given points. Why did you choose this method?
3. Interpolate the temperature values using flat shading, i.e. assign the average value of a triangle's three vertices to the whole triangle.
4. What do you think of the result? How could it be improved?



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.



Template for exercise 2

