

Exercises for Spatial Databases and GIS

Sheet 9 (until 17.01.2014)

Exercise 1 (Spatial Join)

- How do you have to modify the algorithm given below to join r-trees with different heights?

```

procedure INDEX_TRAVERSAL_SPATIAL_JOIN(rootA, rootB)
begin
  priorityQueue ← CREATE_PRIORITY_QUEUE();
  priorityQueue.ADD_PAIR(rootA, rootB);
  while NOT priorityQueue.EMPTY() do
    nodePair ← priorityQueue.POP();
    rectanglePairs ← FIND_INTERSECTING_PAIRS(nodePair);
    foreach p ∈ rectanglePairs do
      if p is a pair of leaves then
        REPORT_INTERSECTIONS(p);
      else
        priorityQueue.ADD_PAIR(p);
      endif;
    enddo;
  enddo;
end;
  
```

<http://doi.acm.org/10.1145/1206049.1206056>

- Develop a similar algorithm to join k-d trees.
- Can you think of a better strategy to join k-d trees?

