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Database I COMP.5730
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HOMEWORK 8

25.1 What are the two types of time, and how are they different? Why does it make sense to have both types of time associated with a tuple?

Two types of time are transaction and valid time. Transaction time is time interval which is current within database. Valid time is set of time interval which is true in real world. Database needs state of real world across time.

25.2 Suppose you have a relation containing the x, y coordinates and names of restaurants. Suppose also that the only queries that will be asked are of the following form: The query specifies a point, and asks if there is a restaurant exactly at that point. Which type of index would be preferable, R-tree or B-tree? Why?

B-tree would be preferable because B-tree is more efficient with indexing on a pair of point.

25.3 Suppose you have a spatial database that supports region queries (with circular regions) but not nearest-neighbor queries. Describe an algorithm to find the nearest neighbor by making use of multiple region queries.

Pick a point in the database. Query the nearest points from a pick point. Doing the same from previous query points. Query would stop when query is not empty. Calculate the distance from pick point to stop points. Smallest distance of set of points is saved.

25.9 Will functional dependencies be preserved if a relation is converted to a temporal relation by adding a time attribute? How is the problem handled in a temporal database?

No, it won't be preserved. It uses temporal function dependency in a temporal database.

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