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Query Optimization

4. Exercise, Summer 2009

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1. Create the DP table (manually) for the relations A, B, C with cardinalities $|A| = 10, |B| = 20, |C| = 100$ and selectivities $f_{AB} = 0.5, f_{BC} = 0.1$ (cost function C_{out}). Mark the final table entries, but include discarded entries. Consider cross products.
2. Give a (simple) dynamic programming algorithm that constructs the optimal join tree for chain queries without cross products in $O(n^3)$.
3. Dynamic Programming and Memoization are different formulations of the same strategy. DP can be implemented more efficiently, but sometimes Memoization can reduce the search space by using available information. Give an example.