Purdue University
Computer Science Department
CS 448: Introduction to Database Systems
Prof: Bharat Bhargava

CS 448 – Homework #3 (3 points)

Due: 02/22/2018, before class

Reference: Fundamentals of Database Systems, Elmasri and Navathe, 6th or 7th Edition.

Question 1 (1 point)
Problem 18.13. (page 689 in 7th edition)
Do the work for Q1 (page 189) and Q1A (page 191) and do part b) of the question.
Or
Problem 19.13. (page 724 in 6th edition)
Do the work for Q1 (page 100) and Q1A (page 101) and do part b) of the question.

18.13. Consider SQL queries Q1, Q8, Q1B, and Q4 in Chapter 6 and Q27 in Chapter 7.

a. Draw at least two query trees that can represent *each* of these queries. Under what circumstances would you use each of your query trees?

b. Draw the initial query tree for each of these queries, and then show how the query tree is optimized by the algorithm outlined in Section 18.7.

c. For each query, compare your own query trees of part (a) and the initial and final query trees of part (b).

Question 2 (1 point)
Problem 14.2. (page 496 in 7th edition)
Or
Problem 15.2 (page 537 in 6th edition)

Discuss insertion, deletion, and modification anomalies. Why are they considered bad? Illustrate with examples.

Question 3 (1 point)
Problem 14.5. (page 496 in 7th edition)
Or
Problem 15.5 (page 537 in 6th edition)

What is functional dependency? What are the possible sources of the information that defines the functional dependencies that hold among the attributes of a relation schema?