

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

CS 448 – Homework #1 (3 points)

Due: 01/18/2018

Reference for HW 1: Fundamentals of Database Systems by Elmasri & Navathe, 7th Edition (or) 6th Edition.

The questions are of the same number in their corresponding chapter of each edition.

Question 1. (1.3) (0.25 points)

1.3. Discuss the main characteristics of the database approach and how it differs from traditional file systems.

Question 2. (1.6) (0.25 points)

1.6. Discuss the capabilities that should be provided by a DBMS.

Question 3. (1.12) (0.25 points)

1.12. Cite some examples of integrity constraints that you think can apply to the database shown in Figure 1.2.

Question 4. (2.3) (0.25 points)

2.3. What is the difference between a database schema and a database state?

Question 5. (2.5) (0.50 points)

2.5. What is the difference between logical data independence and physical data independence? Which one is harder to achieve? Why?

Question 6. (2.6) (0.25 points)

2.6. What is the difference between procedural and nonprocedural DMLs?

Question 7 (0.50 points)

What are the main phases of database design? What needs to be done by the user and what needs to be done by the database administrator? What is involved in physical database design?

Question 8 (0.50 points)

What is a user transaction? What properties must be maintained for a transaction by the database system?

Question 9 (0.25 points)

Problem 16.7. (page 594 in 7th edition)

Or

Problem 17.7. (page 625 in 6th edition)

Why is accessing a disk block expensive? Discuss the time components involved in accessing a disk block.