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**AH-7; Project Submissions**

Chap. 9
Managing Multiuser Databases

**AH-8; Project Submissions**

Chap. 13
XML
MODULE III: SELECTED TOPICS

Part 8: Managing Multi-User Databases (Text: Chapter 9)

NOTES FOR CLASS SESSION

STARTING POINTS

Questions to begin our deliberation

1. What tasks are conducted by a database administration office?
2. How are these tasks performed?

Student Learning Objectives (Desired Outcomes)

At the end of in-class and outside-class work on this topic, you should be able to:

1. Discuss the purpose and importance of database administration. [Comprehension]
2. Discuss the need for concurrency control and the basic techniques used. [Comprehension]
3. Explain the meaning of ACID transactions and the standard types of consistency and isolation. [Comprehension]
4. Discuss differences in cursor types. [Comprehension]
5. Explain techniques for database security. [Comprehension]
6. Describe the fundamental concepts of database backup and recovery. [Comprehension]

QUESTIONS TO EXPLORE READINGS

Q 1. What is the difference between database administration and data administration?

Q 2. Why is it important to learn the capabilities of your database management system in concurrency control?

Q 3. What is the importance of database backup and recovery?

In-Class Exercise Set 8 (IC-8)

Text Chapter 9: Managing Multiuser Databases

Points to consider (Please take time review all the points before starting the exercise):

1. Concurrency control ensures that one user’s work does not inappropriately influence another user’s work

2. A transaction, or logical unit of work (LUW), is a series of actions taken against the database that occurs as an atomic unit

3. Resource locking prevents multiple applications from obtaining copies of the same record when the record is about to be changed

4. Serializable transactions refer to two transactions that run concurrently and generate results that are consistent with
the results that would have occurred if they had run separately

5. **Deadlock**, or the deadly embrace, occurs when two transactions are each waiting on a resource that the other transaction holds

6. Acronym **ACID** transaction is one that is **Atomic**, **Consistent**, **Isolated**, and **Durable**

7. SQL-92 defines four **transaction isolation levels**:
   a. Read uncommitted
   b. Read committed
   c. Repeatable read
   d. Serializable

8. A **cursor** is a pointer into a set of records

**Exercise Set:**

1. Give a scenario where the use of transactions (the concept of atomicity) is critical.

2. Give an example for deadlock scenario.

3. Differentiate Optimistic Vs Pessimistic locking.

4. Suppose you want to write a transaction that first finds the average race time and then computes the difference between the average race time and the race time recorded by each car racer. What isolation level you will choose to declare for this transaction and what would be your reasons?

**Take-Home Assignment Set 8 (AH-8)**
Text Chapter 9: Managing Multiuser Databases

1. For little john’s book store, what type of locking would you suggest and why (optimistic vs. pessimistic)? Assume the site got popular and attracted a large volume of users.

2. Little john is planning to create a live auction module in his online book store. What cursor type will suit his needs and why?

3. List two possible areas where SQL injection attacks are possible in an online book store:

4. What rights would you suggest for the end-users of online book store (through the web front-end)?

Study Guide Chapter 9 (SG-Ch9)
http://wps.prenhall.com/bp_kroenke_database_10/

Self-Test 8 (ST-8)
Available at the uLearn site for the course. (Available only between the end of this session and the start of the next session)