Chapter 6 Assignment

Review Questions 1, 3, 4, 8, 11, 13, 14, 15, 17, 18, 21, 24, 38, 41, 44, 45, 46 and 48 on pages 383 – 385

1. What is the purpose of database administration?   
   ***Businesses use it to maximize its value to an organization.***
2. Skip
3. What are the two interpretations of the abbreviation DBA?  
   ***Database administration or database administrator.***
4. What is the purpose of concurrency control?  
   ***Ensure that one user’s work does not improperly influence another user’s work.***
5. Skip
6. Skip
7. Skip
8. Describe what an atomic transaction is and explain why atomicity is important.  
   ***It is performed as a unit. If a step the database has to carry out fails, no changes are made to the database.***
9. Skip
10. Skip
11. Define the terms *dirty read, nonrepeatable read,* and *phantom read.****Dirty read- One transaction reads a changed record that has not been committed to the database .  
    Nonrepeatable read- One transaction reads rereads data it has previously read and finds modifications or deletions caused by another transaction.  
    Phantom read- When a transaction rereads data and finds new rows that were inserted by a different transaction.***
12. Skip
13. What is lock granularity?  
    ***The size of a locked resource.***
14. Explain the difference between an exclusive lock and a shared lock.  
    ***Exclusive lock- Prohibits the other users from reading a locked resource.  
    Shared lock- Allows users to read a locked resource but not update it.***
15. Explain two-phase locking.  
    ***Locks are acquired in a growing phase and released in a shrinking phase. Another type is to acquire locks throughout the transaction but to not free any lock until the transaction is finished.***
16. Skip
17. What is deadlock? How can it be avoided? How can it be resolved when it occurs?  
    ***When two transactions are waiting on a resource that the other transaction holds. Can be prevented by requiring transactions to acquire locks all at the same time. The only way to fix it is to abort one of the transactions and back out of partially completed work.***
18. Explain the difference between optimistic and pessimistic locking.  
    ***Optimistic locking- Assumes no transaction conflict will occur and then deals with the consequences when it does.  
    Pessimistic locking- Assumes conflict will occur and so prevents it ahead of time with locks.***
19. Skip
20. Skip
21. Explain the meaning of the expression ACID transaction.  
    ***Atomic, consistent, isolated, and durable.***
22. Skip
23. Skip
24. What is the purpose of transaction isolation levels?  
    ***To deal with potential data read problems.***
25. Skip
26. Skip
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37. Skip
38. Explain the relationships of users, groups, permission, and objects for a generic database security system.  
    ***Users, groups, and objects have many permissions. Each permission is assigned one user or group and one object.***
39. Skip
40. Skip
41. Explain how a database could be recovered via reprocessing. Why is this generally not feasible?  
    ***Make a copy of the database and keep a record of all transactions processed since the save. Takes the same amount of time as processing them in the first place. When events are processed concurrently, events are asynchronous.***
42. Skip
43. Skip
44. Describe the rollback process. Under what condition should rollback be used?  
    ***We correct mistakes caused by erroneous or partially processed transactions by undoing the changes they made in the database.***
45. Describe the rollforward process. Under what condition should rollforward be used?  
    ***The database is restored using saved data and all valid transactions since the save are reapplied.***
46. What is the advantage of making frequent checkpoints of a database?  
    ***Less processing is done when data needs to be recovered.***
47. Skip
48. Summarize a DBA’s responsibilities for configuration control.  
    ***Create and manage recording change requests, conducting user and developer reviews of such requests, and creating projects and tasks for implementing changes that are approved.***