

43 Lecture - CS403

Important Subjective

1. **What is Incremental Log with Deferred Updates, and how does it differ from other database techniques?**

Answer: Incremental Log with Deferred Updates is a technique used in database management systems to record changes to a database in a log file without immediately applying the changes to the database. It differs from other techniques, such as immediate updates, because it allows for faster transaction processing and reduces the overhead associated with managing the database.

What is a log file, and how is it used in Incremental Log with Deferred Updates?

Answer: A log file is a file that records all changes made to a database as they occur. In Incremental Log with Deferred Updates, the log file is used to keep track of changes to the database without immediately applying them to the database.

What is the primary benefit of Incremental Log with Deferred Updates, and how does it improve database performance?

Answer: The primary benefit of Incremental Log with Deferred Updates is improved efficiency and performance. This is achieved by reducing the time it takes to apply changes to the database, as well as reducing the overhead associated with managing the database.

What is the role of the transaction manager in Incremental Log with Deferred Updates?

Answer: The transaction manager is responsible for ensuring data consistency in Incremental Log with Deferred Updates. It manages the log file and ensures that changes are applied to the database in a consistent manner.

What are some potential disadvantages of Incremental Log with Deferred Updates, and how can they be mitigated?

Answer: One potential disadvantage of Incremental Log with Deferred Updates is the risk of data inconsistencies. This can be mitigated by carefully managing the log file and ensuring that changes are applied to the database in the correct order. Another potential disadvantage is increased complexity, which can be mitigated by using a well-designed database management system.

What are some situations where Incremental Log with Deferred Updates may not be appropriate?

Answer: Incremental Log with Deferred Updates may not be appropriate in situations where data consistency is of the utmost importance, such as in financial or healthcare systems. It may also not be appropriate in situations where the volume of transactions is low, as the benefits of the technique may not outweigh the overhead associated with managing the log file.

How does Incremental Log with Deferred Updates help to reduce the risk of data loss?

Answer: Incremental Log with Deferred Updates helps to reduce the risk of data loss by ensuring that changes to the database are recorded in a log file before being applied to the database. This allows for easy recovery in the event of system failures or other issues.

What is the relationship between Incremental Log with Deferred Updates and database indexing?

Answer: Incremental Log with Deferred Updates does not directly impact database indexing. However, it may indirectly improve indexing performance by reducing the time it takes to apply changes to the database.

What is the process for applying changes from a log file in Incremental Log with Deferred Updates?

Answer: Changes from a log file are applied to the database at a later time, after they have been recorded in the log file. The transaction manager is responsible for ensuring that changes are applied in the correct order to maintain data consistency.

How does Incremental Log with Deferred Updates help to improve database performance in large-scale systems?

Answer: Incremental Log with Deferred Updates helps to improve database performance in large-scale systems by reducing the time it takes to apply changes to the database and reducing the overhead associated with managing the database. This allows for faster transaction processing and improved efficiency.