**DMDD Class Notes**

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**Topics:** Database Transactions; ACID Properties; Permission statements

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* 1. A Database Transaction is a set of SQL statements that are executed in a sequence. A DB Transaction is created when there is a need to change or update records in tables.
  2. Each transaction must be completely executed. It may not be a partial failure because that might introduce inconsistencies across databases or tables which is not desirable.
  3. For example, if some funds are debited from sender's bank account but the transaction fails before the funds are credited to the receiver's bank account, this results in an inconsistent state.
  4. Desirable properties for transactions are called ACID properties.
  5. A stands for Atomicity
  6. C stands for Consistency -
  7. I stands for Isolation - one transaction cannot impact another transaction
  8. D stands for Durability - ensure there is no data loss in case of a failure
  9. Statement SET autocommit = 1; is used to ensure that all the operations executed are committed to the database automatically.
  10. The BEGIN statement is used to indicate the start of a transaction. In contrast, END statement is used to indicate the completion of a transaction in MySQL.
  11. A view is like a virtual table which is created using a SELECT statement. Views can be used just like any other database table but a view does not store the data in the database, it just stores the SQL query that was used to create the view and fires this query whenever the view is invoked.
  12. Permission statements in SQL are used for defining or restricting operational rights for users on a database. Permissions are important in SQL because certain user cases require privacy and access rights to be taken seriously.
  13. GRANT statement is used to provide permission to the database users for reading/writing the database. REVOKE statement is used to remove the existing permissions from the database users.