

Assignment 1 :- Analyze a given business scenario and create an ER diagram that includes entities, relationships, attributes, and cardinality. Ensure that the diagram reflects proper normalization up to the third normal form.

Customer:-

Customer id customer name customer phone number

Product :-

Product key product name price

Cart

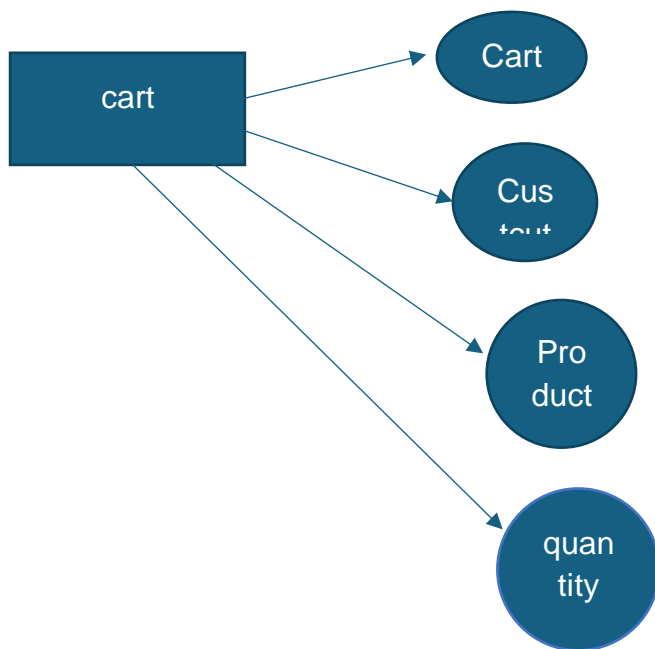
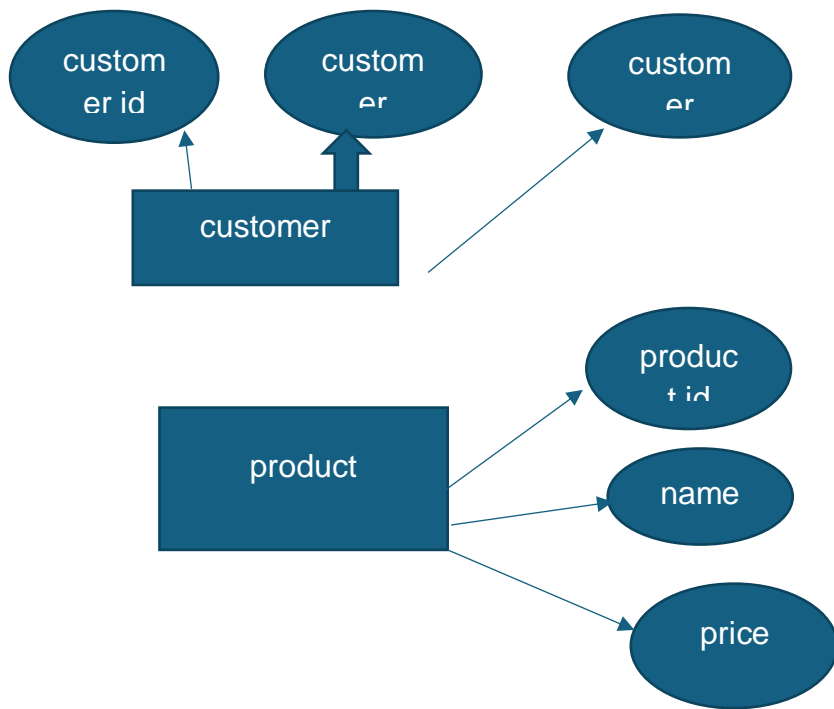
Cart_ID Customer_ID Product_ID Quantity

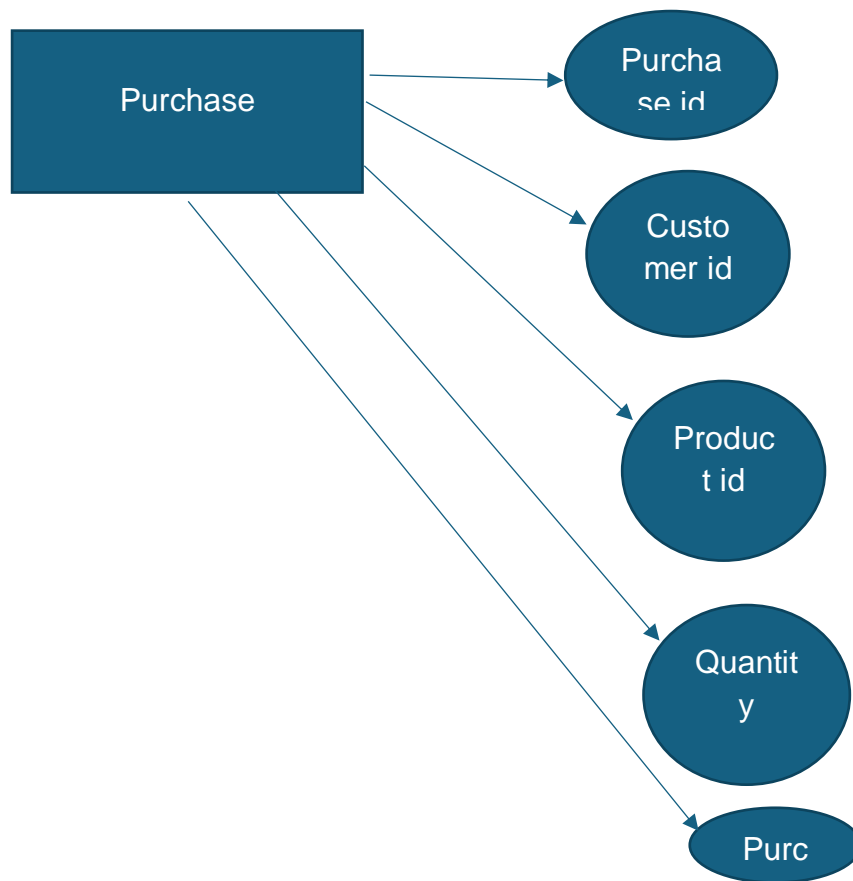
Purchase:

Purchase_ID Customer_ID Product_ID Quantity Purchase_Date

Relations :-

- 1.Customer to Cart: One-to-Many (A customer can have multiple carts)
- 2.Product to Cart: One-to-Many (A product can be in multiple carts)
- 3.Customer to Purchase: One-to-Many (A customer can make multiple purchases)
- 4.Product to Purchase: One-to-Many (A product can be in multiple purchases)





Assignment 3 :- Explain the ACID properties of a transaction in your own words. Write SQL statements to simulate a transaction that includes locking and demonstrate different isolation levels to show concurrency control.

1.Atomicity: This property ensures that a transaction is treated as a single unit of work. It means that either all the operations within the transaction are completed successfully, or none of them are. There's no in-between state where some operations succeed and others fail.

2.Consistency: This property ensures that the database remains in a consistent state before and after the transaction. If the database was in a consistent state before the transaction started, it should remain consistent after the transaction completes, regardless of any failures that might occur during the transaction.

3.Isolation: Each transaction should operate independently of other transactions, if it was the only transaction being executed on the database.

4. Durability: This property ensures that once a transaction is committed, its changes are permanent . Even if the system crashes or experiences other failures after a transaction is committed, the changes made by that transaction should still be present in the database when the system recovers.

These SQL statements demonstrate setting different isolation levels for transactions: READ COMMITTED, REPEATABLE READ, and SERIALIZABLE. Each isolation level provides a different level of concurrency control, affecting how transactions interact with each other and the consistency of the data they see.