

Review Answers

1. What is normalization?

Normalization is a data analysis technique to improve a data model for implementation as a database. Properly executed, the normalization process eliminates uncontrolled data redundancies, thus eliminating data anomalies and subsequent data integrity problems produced by such redundancies.

2. When is a table in 1NF?

A table is in 1NF when all the key attributes are defined (no repeating groups in the table) and when all remaining attributes are dependent on the primary key. However, a table in 1NF still may contain partial dependencies, i.e., dependencies based on only part of the primary key and/or transitive dependencies that are based on non-key attributes.

3. When is a table in 2NF?

A table is in 2NF when it is in 1NF and it includes no partial dependencies. However, a table in 2NF may still have transitive dependencies, i.e., dependencies based on attributes that are not part of the primary key.

4. When is a table in 3NF?

A table is in 3NF when it is in 2NF and it contains no transitive dependencies.

5. What is a partial dependency? With what normal form is it associated?

A partial dependency exists when an attribute is dependent on only a portion of the primary key. This type of dependency is associated with 1NF.

6. What three data anomalies are likely to be the result of data redundancy? How can such anomalies be eliminated?

The most common anomalies considered when data redundancy exists are: update, insertion, and deletion anomalies. These can be avoided through data normalization.

7. What type of words used in the Requirements Statement are typically associated with entities and relationships?

Nouns are usually associated with entities where as verbs are associated with relationships.

8. What is the difference between a supertype and a subtype entities?

Supertype entities contain attributes all subtypes have in common, whereas subtypes contain attributes that are unique to that specific subtype.