

**Questions:**

1. **What is the purpose of the SELECT operation in a relational database, as explained in Module 156?**

*Answer:* The SELECT operation in a relational database is used to extract tuples possessing specific characteristics from a given relation. For instance, the syntax "NEW <- SELECT from EMPLOYEE where EmplId = '34Y70'" creates a new relation called NEW containing tuples from the EMPLOYEE relation where the EmplId attribute equals '34Y70'. This operation is essential for retrieving specific information based on certain attribute values.

2. **How does the PROJECT operation differ from the SELECT operation, as described in Module 157?**

*Answer:* Unlike the SELECT operation that extracts rows based on certain conditions, the PROJECT operation in a relational database extracts columns. If, for example, tuples have already been selected from the JOB relation and placed in a new relation called NEW1, the PROJECT operation allows the extraction of specific columns, like JobTitle, and places the result in a new relation (NEW2). It facilitates the creation of a relation containing only the desired columns from another relation, providing flexibility in data extraction.

3. **What is the purpose of the JOIN operation in relational databases, as explained in Module 158?**

*Answer:* The JOIN operation combines different relations into one, creating a new relation with attributes from the original relations. The attributes in the new relation have unique names, prefixed by the relation of origin. The tuples of the new relation are formed by concatenating tuples from the original relations based on a specified condition. For example, the statement "C <- JOIN A and B where A.W = B.X" produces a new relation C by concatenating tuples from A and B where the values of attributes W and X are equal. JOIN is used to connect information distributed over multiple relations.

4. **How does an object-oriented database model differ from the relational model, as discussed in Module 159?**

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**Answer:** An object-oriented database model is based on the object-oriented paradigm and consists of objects linked to reflect their relationships. In contrast to the relational model, which organizes data in tables, the object-oriented model involves classes (types of objects) such as Employee, Job, and Assignment. Objects from these classes contain entries, and their relationships are represented by links. The focus is on objects and their associations, providing a more natural representation of real-world entities. The object-oriented DBMS maintains links between objects, and when adding new objects, the application software specifies the links, allowing for a dynamic and interconnected data structure.

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