Theory Questions:

1. Theoretical Questions

1. **How does a relational database work?**

A relational database organizes data into tables, which can be linked—or related—based on data common to each. Each table consists of rows and columns, with each row representing a unique record and each column representing a data field. Relations between tables are established through foreign keys, allowing for complex queries and data manipulation.

1. **What is the "CRUD" flow?**

CRUD stands for Create, Read, Update, and Delete. It represents the four basic operations that can be performed on data in a database:

* + **Create**: Adding new records.
  + **Read**: Retrieving existing records.
  + **Update**: Modifying existing records.
  + **Delete**: Removing existing records.

1. **What are "left join" and "inner join"? Why use them?**
   * **Inner Join**: Returns records that have matching values in both tables. It's used when you need only the matched rows between two tables.
   * **Left Join (Left Outer Join)**: Returns all records from the left table and the matched records from the right table. If no match is found, NULL values are returned for columns from the right table. It's used when you want to keep all records from the primary table regardless of matches.
2. **What does indexing in SQL mean?**

Indexing in SQL is a technique to improve the speed of data retrieval operations on a database table. Indexes are created using one or more columns of a table, providing a quick way to look up data without scanning the entire table.

1. **What is a view in SQL?**

A view in SQL is a virtual table created by a query that selects data from one or more tables. It can simplify complex queries, encapsulate logic, and provide a level of security by restricting access to specific data.

1. **What is a stored procedure in SQL?**

A stored procedure is a set of SQL statements that can be stored and executed on the database server. Stored procedures can accept parameters, contain business logic, and be invoked by applications to perform repetitive tasks, ensuring consistency and efficiency.