Explain CRUD operations Using DAO and Spring API?

→ CRUD (Create, read, update, Delete) Operations are implemented using a Data Access Object

→ This Interface which acts as Data Access abstraction.

→ DAO pattern Separates the Data Logic From the Business Logic

→ Making Applications more Modular and Easier to Maintain.

→ These Four Essential Functions Create, read, Update and Delete Manage Data in Database or other Storage Systems.

Operations	Description	Command	Method
Create	A Method to add new Records	INSERT	POST()
Read	Method to Retrieve Records	SELECT	GET()
Update	A Method to Modify Existing Records	UPDATE	PUT()
Delete	A Method to Remove Records	DELETE	DELETE()

Operations:

① Create() :-

→ Used to Add a new record to the DataBase

→ By using Post() method we can Create Application

② Read() :-

→ Used to read or fetch records from the database

→ Get() method is used to read the Application

③ Update() :-

→ Used to change existing Data in a Table

→ By using put() method we can Update the Application

④ Delete() :-

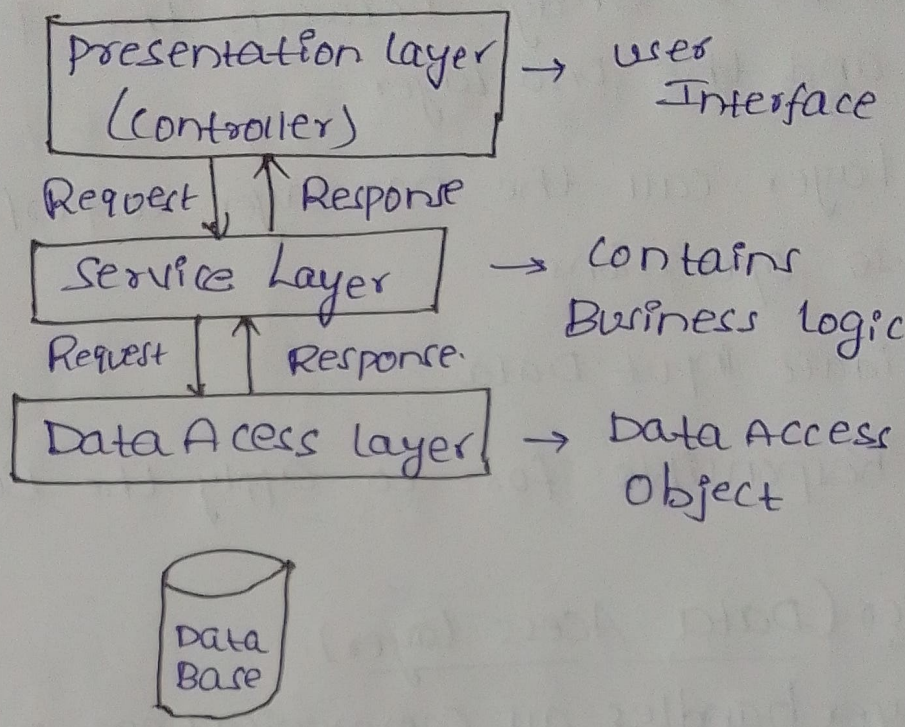
→ Used to Delete a record from the DataBase

→ Delete() is used to delete the Application

Layers in CRUD using DAO

* Layers refer to the Logical Separation of Code based on it's responsibility or function
* Each layer handles a specific part of the Application
* Layers are used to make the code more Organized, reusable and Maintainable

Architecture of layer



1. Presentation layer / Entry layer

* It takes input from the user, calls the service layer and displays output
* This is the Entry point of the Application
* It Interacts Directly with the user
* It is the Top most layer
* It is responsible for call the services or DAO layer to perform CRUD Operations.
* It takes input from the user

2. Service Layer:

* This layer contains the Business Logic of Application
* It acts as a Bridge Between the presentation Layer and the DAO Layer
* Service Layer call the DAO layer to perform actual DataBase operations.
* It validate input Data.
* It is Responsible for to apply the Business Rules.

3. DAO Layer (Data Acess Layer):

* This Layer handles all communications with the DataBase using JDBC
* It is Responsible for Execute SQL Queries like Insert, Select, Update, Delete
* DAO is a Design pattern in java that Separates the DataBase acess logic from the Business logic of the Application.
* It is Mainly used to Organize and Simplify Database Communication.

4. Control Layer:

* This control Layer acts as Bridge Between the user Interface and the Seovice Layer
* It is Responsible for Receive Input from the user

* The control layers is usually Implemented using servlets or controllers in MVC framework.
* This layer handles Incoming Request from the client.
* It is responsible for validate or process the input if necessary.

Advantages of Types of layers

1. Modularity
2. Flexibility
3. Enhanced Testability
4. Code Reusability
5. Improved Maintainability & Scalability.

Disadvantages of Types of layers:

1. Performance overhead
2. Leaky Abstraction
3. Increased Complexity and Rigidity
4. Code Duplication.