**5. Spring REST (CRUD API, Pagination, Fetching from Multiple Tables, Image Upload/Download)**

**2. Pagination**

• **Theory**

1. **Introduction to pagination in REST APIs to handle large datasets:-** Pagination is used in REST APIs to handle large datasets efficiently by retrieving data in smaller chunks (pages) instead of fetching everything at once. This improves performance and reduces server load.

Step 1: Add Dependencies (pom.xml)

Step 2: Create the Entity (User.java)

Step 3: Create Repository with Pagination

Step 4: Create Service Layer

Step 5: Create Controller with Pagination

2. Use of Pageable and Page interfaces from Spring Data JPA for pagination support:- Spring Data JPA provides built-in **pagination support** using the Pageable and Page interfaces. These interfaces allow fetching large datasets efficiently by retrieving only a subset of data at a time.

1️.What are Pageable and Page?

🔹 Pageable Interface → Defines pagination and sorting parameters (page number, size, sorting).  
🔹 Page<T> Interface → Represents a paginated response containing data and metadata (total pages, total elements).

2️.Implementing Pagination in Spring Boot

3️.How to Use Pagination in API Requests?

4️.Sample JSON Response