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ITITIU20331

## LAB 7

### WEB APP

#### Practice

EX1:

The screenshot shows a web-based product management system. At the top, there is a navigation bar with links to various applications like LSD - Genius, E Library, Discord, ERDPlus, Snow White, and Thu - Nguyen Ngoc. Below the navigation bar is a header titled "Product Management System" with a small icon of a gift box. On the left, there is a button labeled "+ Add New Product". To the right of the header is a search bar with the placeholder "Search products..." and a "Search" button. The main area displays a table of products with the following data:

ID	Code	Name	Price	Quantity	Category	Actions
1	P001	Laptop Dell XPS 13	\$1299.99	10	Electronics	<button>Edit</button> <button>Delete</button>
2	P002	iPhone 15 Pro	\$999.99	25	Electronics	<button>Edit</button> <button>Delete</button>
3	P003	Samsung Galaxy S24	\$899.99	20	Electronics	<button>Edit</button> <button>Delete</button>
4	P004	Office Chair Ergonomic	\$199.99	50	Furniture	<button>Edit</button> <button>Delete</button>
5	P005	Standing Desk	\$399.99	15	Furniture	<button>Edit</button> <button>Delete</button>

The screenshot shows a SQL database interface with several panes. The top menu includes File, Edit, View, Query, Database, Server, Tools, Scripting, and Help. The left pane, titled "Navigator", shows the "SCHEMAS" section with a tree view of databases: demo, employee\_attendance, ppl\_project, product\_management, schoolschedulingmodif, student\_management, and sys. The "product\_management" schema is expanded, showing Tables, Views, Stored Procedures, Functions, and Triggers. The middle pane, titled "SQL File 2", contains the following SQL code:

```
1 CREATE DATABASE product_management;
2 USE product_management;
3
4 CREATE TABLE products (
5     id BIGINT PRIMARY KEY AUTO_INCREMENT,
6     product_code VARCHAR(20) UNIQUE NOT NULL,
7     name VARCHAR(100) NOT NULL,
8     price DECIMAL(10,2) NOT NULL,
9     quantity INT DEFAULT 0,
10    category VARCHAR(50),
11    description TEXT,
12    created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
13 );
14
15 -- Insert sample data
16 INSERT INTO products (product_code, name, price, quantity, category, description) VALUES
17 ('P001', 'Laptop Dell XPS 13', 1299.99, 10, 'Electronics', 'High-performance laptop with Intel i7'),
18 ('P002', 'iPhone 15 Pro', 999.99, 25, 'Electronics', 'Latest iPhone with A17 Pro chip'),
19 ('P003', 'Samsung Galaxy S24', 899.99, 20, 'Electronics', 'Flagship Android smartphone'),
20 ('P004', 'Office Chair Ergonomic', 199.99, 50, 'Furniture', 'Comfortable office chair with lumbar support'),
21 ('P005', 'Standing Desk', 399.99, 15, 'Furniture', 'Adjustable height standing desk');
```

The right pane, titled "SQLAdditions", contains a note: "Automatic context help is disabled. Use the toolbar to manually get help for the current caret position or to toggle automatic help." Below the code, the "Output" pane shows the results of the executed queries:

#	Time	Action	Message	Duration / Fetch
8	09:43:29	CREATE TABLE products ( id BIGINT PRIMARY KEY AUTO_INCREMENT, product_code VARCHAR(2...	Error Code: 1050. Table 'products' already exists	0.000 sec
9	09:43:47	DROP DATABASE product_management	1 row(s) affected	0.053 sec
10	09:43:50	CREATE DATABASE product_management	1 row(s) affected	0.003 sec
11	09:43:50	USE product_management	0 row(s) affected	0.000 sec
12	09:43:50	CREATE TABLE products ( id BIGINT PRIMARY KEY AUTO_INCREMENT, product_code VARCHAR(2...	0 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.031 sec
13	09:43:50	INSERT INTO products (product_code, name, price, quantity, category, description) VALUES ('P001', 'Laptop ...	5 row(s) affected Records: 5 Duplicates: 0 Warnings: 0	0.000 sec

## EX2:

```
> main > java > com > example > product_management > entity > J Product.java > 📁 Product > 📄 Product()
```

```
public class Product {  
    @Id  
    @GeneratedValue(strategy = GenerationType.IDENTITY)  
    private Long id;  
  
    @Column(name = "product_code", unique = true, nullable = false, length = 20)  
    private String productCode;  
  
    @Column(nullable = false, length = 100)  
    private String name;  
  
    @Column(nullable = false, precision = 10, scale = 2)  
    private BigDecimal price;  
  
    @Column(nullable = false)  
    private Integer quantity;  
  
    @Column(length = 50)  
    private String category;  
  
    @Column(columnDefinition = "TEXT")  
    private String description;  
  
    @Column(name = "created_at", updatable = false)  
    private LocalDateTime createdAt;  
  
    @Repository  
    public interface ProductRepository extends JpaRepository<Product, Long> {  
  
        // Spring Data JPA generates implementation automatically!  
  
        // Custom query methods (derived from method names)  
        List<Product> findByCategory(String category);  
  
        List<Product> findByNameContaining(String keyword);  
  
        List<Product> findByPriceBetween(BigDecimal minPrice, BigDecimal maxPrice);  
  
        List<Product> findByCategoryOrderByPriceAsc(String category);  
  
        boolean existsByProductCode(String productCode);  
    }
```

## EX3:

```
src > main > java > com > example > product_management > service > ProductService.java > ...
1 package com.example.product_management.service;
2
3 import com.example.product_management.entity.Product;
4
5 import java.util.List;
6 import java.util.Optional;
7
8 public interface ProductService {
9
10     List<Product> getAllProducts();
11
12     Optional<Product> getProductById(Long id);
13
14     Product saveProduct(Product product);
15
16     void deleteProduct(Long id);
17
18     List<Product> searchProducts(String keyword);
19
20     List<Product> getProductsByCategory(String category);
21 }
22
```

```
1  @Service
2  @Transactional
3  public class ProductServiceImpl implements ProductService {
4
5      private final ProductRepository productRepository;
6
7      @Autowired
8      public ProductServiceImpl(ProductRepository productRepository) {
9          this.productRepository = productRepository;
10     }
11
12
13     @Override
14     public List<Product> getAllProducts() {
15         return productRepository.findAll();
16     }
17
18     @Override
19     public Optional<Product> getProductById(Long id) {
20         return productRepository.findById(id);
21     }
22
23     @Override
24     public Product saveProduct(Product product) {
25         // Validation logic can go here
26         return productRepository.save(product);
27     }
28
29     @Override
30     public void deleteProduct(Long id) {
31         productRepository.deleteById(id);
32     }
33
```

```

27
28     @Override
29     public Optional<Product> getProductById(Long id) {
30         return productRepository.findById(id);
31     }
32
33     @Override
34     public Product saveProduct(Product product) {
35         // validation logic can go here
36         return productRepository.save(product);
37     }
38
39     @Override
40     public void deleteProduct(Long id) {
41         productRepository.deleteById(id);
42     }
43
44     @Override
45     public List<Product> searchProducts(String keyword) {
46         return productRepository.findByNameContaining(keyword);
47     }
48
49     @Override
50     public List<Product> getProductsByCategory(String category) {
51         return productRepository.findByCategory(category);
52     }
53 }
54

```

## EX4:

UI:

ID	Code	Name	Price	Quantity	Category	Actions
1	P001	Laptop Dell XPS 13	\$1299,99	10	Electronics	<button>Edit</button> <button>Delete</button>
2	P002	iPhone 15 Pro	\$999,99	25	Electronics	<button>Edit</button> <button>Delete</button>
3	P003	Samsung Galaxy S24	\$899,99	20	Electronics	<button>Edit</button> <button>Delete</button>
4	P004	Office Chair Ergonomic	\$199,99	50	Furniture	<button>Edit</button> <button>Delete</button>
5	P005	Standing Desk	\$399,99	15	Furniture	<button>Edit</button> <button>Delete</button>
7	P009	iPhone17ProMax	\$20,99	3	Electronics	<button>Edit</button> <button>Delete</button>

Create Product:

## 📦 Product Management System

Product updated successfully!

[+ Add New Product](#)

Search products...

 Search

ID	Code	Name	Price	Quantity	Category	Actions
1	P001	Laptop Dell XPS 13	\$1299,99	10	Electronics	 Edit  Delete
2	P002	iPhone 15 Pro	\$999,99	25	Electronics	 Edit  Delete
3	P003	Samsung Galaxy S24	\$899,99	20	Electronics	 Edit  Delete
4	P004	Office Chair Ergonomic	\$199,99	50	Furniture	 Edit  Delete
5	P005	Standing Desk	\$399,99	15	Furniture	 Edit  Delete
6	P008	LAPTOP	\$19,19	3	Electronics	 Edit  Delete

Activate Windows

Update:

## 📦 Product Management System

Product updated successfully!

[+ Add New Product](#)

Search products...

 Search

ID	Code	Name	Price	Quantity	Category	Actions
1	P001	Laptop Dell XPS 13	\$1299,99	10	Electronics	 Edit  Delete
2	P002	iPhone 15 Pro	\$999,99	25	Electronics	 Edit  Delete
3	P003	Samsung Galaxy S24	\$899,99	20	Electronics	 Edit  Delete
4	P004	Office Chair Ergonomic	\$199,99	50	Furniture	 Edit  Delete
5	P005	Standing Desk	\$399,99	15	Furniture	 Edit  Delete
6	P008	LAPTOP	\$19,19	7	Electronics	 Edit  Delete
7	P009	iPhone17ProMax	\$20,99	3	Electronics	 Edit  Delete

Activate Windows  
Go to Settings to activ

Delete Product:

# Product Management System

Product deleted successfully!

[+ Add New Product](#)

Search products...

 Search

ID	Code	Name	Price	Quantity	Category	Actions
1	P001	Laptop Dell XPS 13	\$1299,99	10	Electronics	 Edit  Delete
2	P002	iPhone 15 Pro	\$999,99	25	Electronics	 Edit  Delete
3	P003	Samsung Galaxy S24	\$899,99	20	Electronics	 Edit  Delete
4	P004	Office Chair Ergonomic	\$199,99	50	Furniture	 Edit  Delete
5	P005	Standing Desk	\$399,99	15	Furniture	 Edit  Delete
7	P009	iPhone17ProMax	\$20,99	3	Electronics	 Edit  Delete

Activate Windows

[Go to Settings to activate Windows](#)