### **Database Design:**

#### Products Table:

* product\_id (Primary Key)
* product\_name
* product\_description
* price
* category\_id (Foreign Key referencing Categories table)

#### Categories Table:

* category\_id (Primary Key)
* category\_name

#### Orders Table:

* order\_id (Primary Key)
* product\_id (Foreign Key referencing Products table)
* quantity
* total\_amount
* customer\_name
* customer\_email

### **MySQL Tables Creation and Population:**

| -- Create Categories table  CREATE TABLE Categories (  category\_id INT PRIMARY KEY AUTO\_INCREMENT,  category\_name VARCHAR(50) NOT NULL  );  -- Insert some sample categories  INSERT INTO Categories (category\_name) VALUES  ('Electronics'),  ('Clothing'),  ('Books');  -- Create Products table  CREATE TABLE Products (  product\_id INT PRIMARY KEY AUTO\_INCREMENT,  product\_name VARCHAR(100) NOT NULL,  product\_description TEXT,  price DECIMAL(10, 2) NOT NULL,  category\_id INT,  FOREIGN KEY (category\_id) REFERENCES Categories(category\_id)  );  -- Insert some sample products  INSERT INTO Products (product\_name, product\_description, price, category\_id) VALUES  ('Laptop', 'High performance laptop', 1200.00, 1),  ('T-shirt', 'Cotton round neck t-shirt', 20.00, 2),  ('Introduction to PHP', 'Book about PHP programming', 30.00, 3);  -- Create Orders table  CREATE TABLE Orders (  order\_id INT PRIMARY KEY AUTO\_INCREMENT,  product\_id INT,  quantity INT,  total\_amount DECIMAL(10, 2) NOT NULL,  customer\_name VARCHAR(100),  customer\_email VARCHAR(100),  FOREIGN KEY (product\_id) REFERENCES Products(product\_id)  );  -- Add foreign key index to optimize the database  ALTER TABLE Orders ADD INDEX (product\_id); |
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### **PHP Scripts for CRUD Operations:**

db\_connection.php

| <?php  $servername = "your\_servername";  $username = "your\_username";  $password = "your\_password";  $dbname = "your\_database";  // Create connection  $conn = new mysqli($servername, $username, $password, $dbname);  // Check connection  if ($conn->connect\_error) {  die("Connection failed: " . $conn->connect\_error);  }  ?> |
| --- |

PHP Scripts for CRUD operations:

select.php

| <?php  include 'db\_connection.php';  // Select query  $sql = "SELECT \* FROM Products";  $result = $conn->query($sql);  if ($result->num\_rows > 0) {  while($row = $result->fetch\_assoc()) {  // Process and display data  echo "Product ID: " . $row["product\_id"]. " - Name: " . $row["product\_name"]. "<br>";  }  } else {  echo "0 results";  }  $conn->close();  ?> |
| --- |

### **File Structure:**

* index.php: Display products and handle product details.
* add\_product.php: Form to add a new product.
* edit\_product.php: Form to edit an existing product.
* delete\_product.php: Delete a product.
* db\_connection.php: Connect to the database.
* styles.css: CSS for basic styling.

### **HTML/PHP Code for Each Page:**

#### 1. index.php (Product Display Page):

| <!DOCTYPE html>  <html>  <head>  <title>Product Catalog</title>  <link rel="stylesheet" type="text/css" href="styles.css">  </head>  <body>  <h1>Product Catalog</h1>  <a href="add\_product.php">Add Product</a>  <table>  <tr>  <th>ID</th>  <th>Name</th>  <th>Description</th>  <th>Price</th>  <th>Action</th>  </tr>  <?php  include 'db\_connection.php';  $sql = "SELECT \* FROM Products";  $result = $conn->query($sql);  if ($result->num\_rows > 0) {  while($row = $result->fetch\_assoc()) {  echo "<tr>";  echo "<td>".$row['product\_id']."</td>";  echo "<td>".$row['product\_name']."</td>";  echo "<td>".$row['product\_description']."</td>";  echo "<td>".$row['price']."</td>";  echo "<td><a href='edit\_product.php?id=".$row['product\_id']."'>Edit</a> | <a href='delete\_product.php?id=".$row['product\_id']."'>Delete</a></td>";  echo "</tr>";  }  } else {  echo "0 results";  }  $conn->close();  ?>  </table>  </body>  </html> |
| --- |

#### add\_product.php (Add Product Form):

| <!DOCTYPE html>  <html>  <head>  <title>Add Product</title>  <link rel="stylesheet" type="text/css" href="styles.css">  </head>  <body>  <h1>Add Product</h1>  <form action="add\_product\_script.php" method="post">  <label>Name:</label>  <input type="text" name="product\_name"><br><br>  <label>Description:</label>  <textarea name="product\_description"></textarea><br><br>  <label>Price:</label>  <input type="text" name="price"><br><br>  <input type="submit" value="Add Product">  </form>  </body>  </html> |
| --- |

#### edit\_product.php (Edit Product Form):

| <!DOCTYPE html>  <html>  <head>  <title>Edit Product</title>  <link rel="stylesheet" type="text/css" href="styles.css">  </head>  <body>  <h1>Edit Product</h1>  <?php  include 'db\_connection.php';  if(isset($\_GET['id'])) {  $product\_id = $\_GET['id'];  $sql = "SELECT \* FROM Products WHERE product\_id = $product\_id";  $result = $conn->query($sql);  if ($result->num\_rows > 0) {  $row = $result->fetch\_assoc();  ?>  <form action="edit\_product\_script.php" method="post">  <input type="hidden" name="product\_id" value="<?php echo $row['product\_id']; ?>">  <label>Name:</label>  <input type="text" name="product\_name" value="<?php echo $row['product\_name']; ?>"><br><br>  <label>Description:</label>  <textarea name="product\_description"><?php echo $row['product\_description']; ?></textarea><br><br>  <label>Price:</label>  <input type="text" name="price" value="<?php echo $row['price']; ?>"><br><br>  <input type="submit" value="Update Product">  </form>  <?php  } else {  echo "Product not found";  }  } else {  echo "Invalid product ID";  }  $conn->close();  ?>  </body>  </html> |
| --- |

#### delete\_product.php (Delete Product Page):

| <!-- Similar to edit\_product.php but with delete functionality --> |
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#### add\_product\_script.php (Handles Adding a Product):

| <?php  include 'db\_connection.php';  if ($\_SERVER["REQUEST\_METHOD"] == "POST") {  $product\_name = $\_POST['product\_name'];  $product\_description = $\_POST['product\_description'];  $price = $\_POST['price'];  $sql = "INSERT INTO Products (product\_name, product\_description, price) VALUES ('$product\_name', '$product\_description', '$price')";  if ($conn->query($sql) === TRUE) {  echo "New product added successfully";  } else {  echo "Error: " . $sql . "<br>" . $conn->error;  }  $conn->close();  // Redirect back to the index page  header("Location: index.php");  exit();  }  ?> |
| --- |

#### edit\_product\_script.php (Handles Updating a Product):

| <?php  include 'db\_connection.php';  if ($\_SERVER["REQUEST\_METHOD"] == "POST") {  $product\_id = $\_POST['product\_id'];  $product\_name = $\_POST['product\_name'];  $product\_description = $\_POST['product\_description'];  $price = $\_POST['price'];  $sql = "UPDATE Products SET product\_name='$product\_name', product\_description='$product\_description', price='$price' WHERE product\_id='$product\_id'";  if ($conn->query($sql) === TRUE) {  echo "Product updated successfully";  } else {  echo "Error updating product: " . $conn->error;  }  $conn->close();  // Redirect back to the index page  header("Location: index.php");  exit();  }  ?> |
| --- |