Name: Muhammad HammadFather Name: Muhammad SiddiqueRoll No: 00413850Days/Time: Saturday -07:00PM – 10:00PM **DAY 5 - TESTING, ERROR HANDLING, AND BACKEND INTEGRATION REFINEMENT**Furniture E-commerce Marketplace

**Objective:**  
Prepare the marketplace for deployment by testing backend integrations, optimizing performance, implementing error handling, and refining the user experience.

Step 1: Functional Testing

 **Loading state:** When products are being fetched, the message "Loading products..." will be displayed.

 **Error state:** If the fetch fails, an error message will be shown to the user.

 **Product Listing:** If no errors occur, the products will be displayed in the grid.

**Changes Made:**

1. **Added try-catch Block**:
   * The code inside the try block attempts to fetch the product from the database.
   * If an error occurs (e.g., network issues, query failure), it is caught by the catch block.
   * If product is null (i.e., no product is found), an error is thrown.
2. **Error Handling**:
   * In the catch block, we log the error to the console for debugging purposes.
   * We also show a user-friendly error message on the UI.

**Content for Documentation:**

**Image Optimization in Product Card**

To improve the performance and user experience of the e-commerce platform, we implemented the following optimizations in the ProductCard component:

1. **Image Compression**:  
   The image quality was reduced to 75 using the quality attribute in the next/image component. This ensures that images are visually appealing while minimizing file size to enhance loading speed.
2. **Lazy Loading**:  
   We enabled lazy loading to defer the loading of off-screen images until they are in the viewport. This significantly reduces initial page load time and saves bandwidth.