**Review of Requirement (REQ-001)**

**Clarity**

The requirement states: *"The system must allow users to search for products and view the results."* While straightforward, it lacks specificity, which impacts its clarity:

1. **What does "search for products" mean?**
   * The requirement doesn’t specify whether the search is text-based, voice-based, or uses other input methods. For simplicity, I’ll assume it’s a text-based search.
   * It’s unclear which fields are searchable. Likely candidates include product name, description, or SKU, but this needs clarification.
   * Suggestion: Specify that the search is text-based and targets product name and description.
2. **Expected behavior of the search function?**
   * The requirement doesn’t define whether the search supports partial matches, exact matches, or case sensitivity.
   * Suggestion: Clarify that the search supports partial, case-insensitive matches (e.g., searching "shoe" matches "Running Shoe").
3. **How are results displayed?**
   * The requirement doesn’t describe the format or content of the results (e.g., product name, price, image, or description).
   * Suggestion: Specify that results are displayed as a list with at least product name, price, and thumbnail image.
4. **Default search behavior?**
   * It’s unclear what happens if no products match the query or if the search field is empty.
   * Suggestion: State that an empty query returns all products, and no matches display a "No results found" message.

**Completeness**

The requirement is minimal and omits key details needed for a robust feature:

1. **Sorting options?**
   * No mention of sorting (e.g., by price, name, or relevance).
   * Suggestion: Include options to sort by price (ascending/descending) and name (alphabetical).
2. **Filtering options?**
   * No mention of filters like category, brand, or price range.
   * Suggestion: Add basic filters, such as category (e.g., electronics, clothing) and price range.
3. **Maximum results per page and pagination?**
   * The requirement doesn’t specify how many results are shown or if pagination exists.
   * Suggestion: Display 10 results per page with pagination controls (e.g., next/previous buttons).
4. **Empty search query?**
   * Unclear what happens if the user submits an empty query.
   * Suggestion: Return all products or a prompt to enter a search term.
5. **Special characters or numbers?**
   * No guidance on handling special characters (e.g., @, #) or numbers in queries.
   * Suggestion: Specify that special characters are ignored or treated as literals, and numbers are searchable in SKUs or names.

**Testability**

The requirement is testable but requires more details to create comprehensive test cases:

1. **Successful search test case:**
   * **Test Case**: Search for "Laptop" in a system with products like "Gaming Laptop" and "Laptop Charger."
   * **Expected Result**: Returns a list of products with "Laptop" in the name or description (e.g., "Gaming Laptop").
   * Issue: Without knowing searchable fields or match type, it’s hard to define expected results precisely.
2. **No results test case:**
   * **Test Case**: Search for "NonExistentProduct."
   * **Expected Result**: Display "No results found."
   * Issue: The requirement doesn’t confirm the "no results" behavior.
3. **Sorting and filtering test cases:**
   * **Test Case**: Search for "Shirt," sort by price (low to high), and filter by category "Clothing."
   * **Expected Result**: Results show only shirts, ordered by price.
   * Issue: Sorting and filtering aren’t mentioned, so test cases can’t be fully defined.
4. **Edge cases:**
   * **Test Case**: Search with a long query (e.g., 500 characters) or special characters (e.g., "Shoe@#$").
   * **Expected Result**: System handles long queries (truncates or processes) and ignores or escapes special characters.
   * Issue: No guidance on edge case behavior.

**Summary of Issues**

* **Clarity**: Vague on search mechanism, fields, match type, and result display.
* **Completeness**: Lacks details on sorting, filtering, pagination, empty queries, and special characters.
* **Testability**: Testable but incomplete without specific behaviors for success, failure, and edge cases.

**Improved Requirement**

**Requirement ID**: REQ-002 **Requirement Name**: Product Search and Display **Description**: The system must allow users to perform a text-based search for products by name or description, using partial, case-insensitive matches. Search results are displayed as a list, showing product name, price, and thumbnail image, with up to 10 results per page and pagination controls. Users can sort results by price (ascending/descending) or name (alphabetical) and filter by category or price range. An empty query returns all products, and no matches display a "No results found" message. Special characters in queries are ignored, and queries over 100 characters are truncated.