**Case Study: Inventory Management System**

**Context:**

You are required to develop a console-based Inventory Management System using Core Java. The application will allow users to manage product inventory and perform various business operations related to inventory management. The application will utilize Java Collections for storing product records, implement Object-Oriented Programming principles, and include exception handling to manage potential errors.

**Requirements:**

**Features:**

1. **Add and Remove Products:**
   * Allow users to add new products to the inventory.
   * Allow users to remove products from the inventory.
2. **Update Product Details:**
   * Allow users to update details of existing products, such as price and quantity.
3. **Search for Products:**
   * Allow users to search for products by name or category.
   * Display the search results with product details.
4. **View Inventory Status:**
   * Display the total number of products in the inventory.
   * Display the total value of the inventory based on product prices and quantities.

**Classes and Objects:**

1. **Product Class:**
   * Attributes: id, name, category, price, quantity.
   * Methods: Constructors, getters and setters, toString method.
2. **InventoryManager Class:**
   * Attributes: HashMap<Integer, Product> products.
   * Methods:
     + addProduct(Product p): Adds a new product to the inventory.
     + removeProduct(int productId): Removes a product from the inventory.
     + updateProduct(int productId, Product updatedProduct): Updates details of an existing product.
     + searchProduct(String keyword): Searches for products based on the keyword.
     + viewInventoryStatus(): Displays the total number of products and total inventory value.
     + Helper methods for input validation and exception handling.

**Deliverables:**

1. Complete source code for the Inventory Management System.
2. Documentation including:
   * How to run the application.
   * Instructions for each feature.
   * Explanation of the exception handling implemented.
3. A brief report on the application design and how Object-Oriented principles were applied.