**Case Study: Product Management**

**Objective:** Develop a menu-based console application to assess your proficiency in Core Java, MySQL, and JDBC. The application will manage a product inventory system, allowing users to perform CRUD (Create, Read, Update, Delete) operations for products, and include functionality for tracking sales.

**Functionalities:**

1. **Product Management:**
   * Add a new product
   * View product details
   * Update product information
   * Delete a product
2. **Sales Tracking:**
   * Display list of products
   * Record a sale of a product
   * Update the product inventory in the database
   * Validate that the product is available in inventory
   * Calculate total sales amount

**Database Schema:**

* **Product Table:**
  + product\_id (Primary Key)
  + name
  + category
  + price
  + quantity\_in\_stock
* **Sale Table:**
  + sale\_id (Primary Key)
  + product\_id (Foreign Key references Product Table)
  + sale\_date
  + quantity\_sold
  + total\_amount

**Requirements:**

* Develop a menu-based console application using Core Java.
* Use JDBC for interactions with the MySQL database.
* Implement menu options for CRUD operations for products and tracking sales.
* Ensure that the application updates the quantity\_in\_stock in the Product table appropriately after a sale.
* Handle exceptions effectively and provide user-friendly error messages.
* Ensure the application code is clean, well-documented, and follows standard coding conventions.

**Submission:**

* Submit the complete source code along with a README file that provides setup and usage instructions.
* Share your project by uploading it to a public GitHub repository.
* Provide the link to the GitHub repository.