Project Documentation

**1. Overview**

**Objective:** Create a servlet-based web application for adding new products into a MySQL database.

**Technologies Used:**

* **IDE:** Eclipse
* **Web Server:** Apache Tomcat
* **Frontend:** JSP
* **Backend:** Servlets
* **ORM:** Hibernate
* **Database:** MySQL

**2. System Requirements**

* Eclipse with Java EE support
* Apache Tomcat
* MySQL Server
* Hibernate and MySQL JDBC Connector libraries

**3. Database Schema**

Table **products**:

* **id**: Integer, Primary Key
* **name**: String
* **description**: String
* **price**: Double

**4. Application Structure**

* **Java Classes:**
  + **Product**: Class to represent the product entity.
  + **AddProductServlet**: Servlet to handle adding products.
* **JSP Files:**
  + **add-product.jsp**: Contains the form for adding a new product.
* **Configuration Files:**
  + **hibernate.cfg.xml**: Hibernate configuration file.
  + **Product.hbm.xml**: Hibernate mapping file for the **Product** class.
  + **web.xml**: Servlet configuration.

**5. Functional Flow**

1. **Displaying Form:** The user navigates to **add-product.jsp** and sees the form.
2. **Form Submission:** The user fills in the details and submits the form.
3. **Validation:** The servlet validates the input for any missing information.
4. **Processing:** The servlet creates a **Product** object and saves it to the database using Hibernate.
5. **Result:** The application confirms the successful addition of the product or shows an error message.

**6. Development Steps**

Refer to the previous detailed guide for step-by-step instructions to develop the application, including code snippets and configuration details.

**7. Deployment**

* **Local Testing:** Run the project on Apache Tomcat through Eclipse.
* **Production Deployment:** Export the project as a WAR file and deploy it on the production Tomcat server.

**8. Future Enhancements**

* Implementing authentication and authorization.
* Adding edit and delete functionality for products.
* Integrating with an existing e-commerce system.

**9. Support and Maintenance**

Regular updates to the libraries used and periodic code review can ensure the optimal performance of the application.

**Conclusion**

This document provides a comprehensive understanding of the project, its objectives, technologies used, and the development process. It serves as a guide for developers and stakeholders involved in the project. For further assistance, please refer to the attached codebase and configuration files.