

# Product Database Management

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# 1 Abstract

**Product management** is an organizational function within a company dealing with new product development, business justification, planning, verification, forecasting, pricing, product launch, and marketing of a product or products at all stages of the product lifecycle. Similarly, product lifecycle management (PLM) integrates people, data, processes and business systems. It provides product information for companies and their extended supply chain enterprise. The goal of this project was a simple Product Lifecycle Management tool, where Admin with proper authentication and authorization would be able to perform CRUD operations on a customer data set.

This application is developed for a Product Manager where he is able to add new products and also update, delete and retrieve the product details. It also has a search module where the manager can search the product names.

Spring is one of the most used Java EE Frameworks. Hibernate is also one the most popular ORM frameworks used for mapping domain classes to relational databases. Here technology stack used was Spring-Hibernate combination, more specifically Java Spring 5, Hibernate, MySQL and basic HTML with CSS.

## 2 Introduction

The “Product Management System” is an application that will be developed to manipulate the details of products in a Product Marketing Organization. This application is mainly used by an authorized person, say, one from HR department in order to add, delete, update and also search for a particular product details. This Software would make it easy for the management to keep track of all records. It is a user friendly and just ask the user to follow step by step operations by giving him few options. It would be fast and can perform many operations.

It is simple to understand and can be used by anyone who is not even familiar with a simple system. The combination of these modules into one application assures the perfect platform for re-engineering and aligning Human Resource processes along with the organizational goals. This proposed system would bring about an easy way of maintaining the details of products in stock within any marketing organization by using Java, HTML and CSS it can be implemented as a web application which will increase the efficiency of the system and data is stored in the database so accessing data is more secure.

This is built on Eclipse IDE for Enterprise Java Developers. Here the project is implemented based on MVC architecture ( i.e. Model View Controller). Model represents the data ( i.e. POJO/BEAN class) .View represents user interface which consist of HTML, CSS,JSP pages. Controller makes the decision where to write the servlets. It consist of three layers Presentation layer, Business layer and Integration layer. User interacts with the MySQL database through these layers.

### 3 Requirement Specifications

<b>Operating System</b>	: Windows
<b>Technology</b>	: Java and J2EE
<b>Web Technologies</b>	: CSS
<b>IDE</b>	: Eclipse(Maven 3.0 or above)
<b>Web Server</b>	: Tomcat 7.0 or above
<b>Database</b>	: MySQL 5.0
<b>Java Version</b>	: J2SDK1

#### i. Java 1.8+

JDK is an acronym for Java Development Kit. The Java Development Kit (JDK) is a software development environment which is used to develop java applications and applets. It physically exists. It contains JRE + development tools. JDK is an implementation of any one of the below given Java Platforms released by Oracle corporation: Standard Edition Java Platform, Enterprise Edition Java Platform, Micro Edition Java Platform. The JDK contains a private Java Virtual Machine (JVM) and a few other resources such as an interpreter/loader (Java), a compiler (javac), an archiver (jar), a documentation generator (Javadoc) etc. to complete the development of a Java Application.

#### ii. Tomcat Server 7.0 or above

Apache Tomcat (sometimes simply "Tomcat") is an open-source implementation of the Java Servlet, JavaServer Pages, Java Expression Language and WebSocket technologies. Tomcat provides a "pure Java" HTTP web server environment in which Java code can run. Tomcat is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation, released under the Apache License 2.0 license.

#### iii. MySQL database 5.0 or above

MySQL is a relational database management system based on the Structured Query Language, which is the popular language for accessing and managing the records in the database. The data in MySQL database are stored in tables.

#### iv. Eclipse IDE / STS 2018-2019

Eclipse is an integrated development environment used in computer programming. It contains a base workspace and an extensible plug-in system for customizing the environment. Spring Tool Suite is an IDE to develop Spring applications. It is an Eclipse-based development environment. It provides a ready-to-use environment to implement, run, deploy, and debug the application. It validates our application and provides quick fixes for the applications.

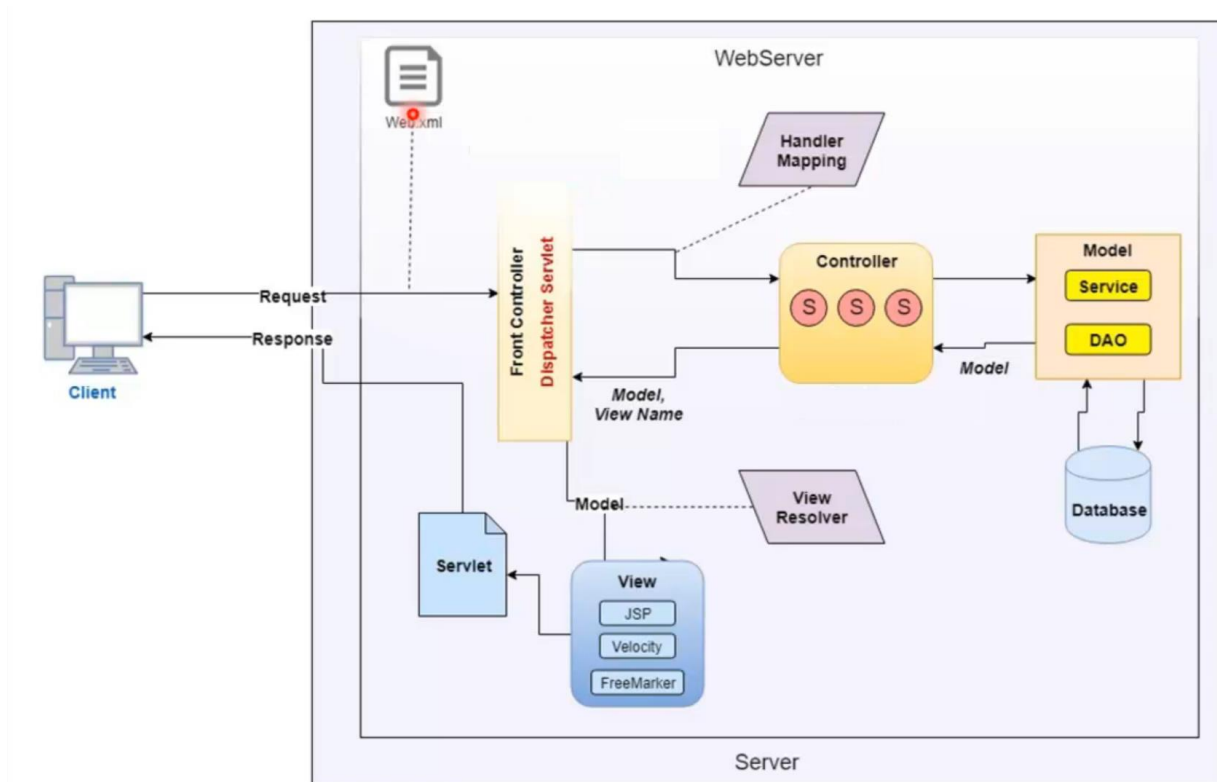
#### v. Maven 3.0 or above

Maven is a software project management and comprehension tool. Based on the concept of a POM, Maven can manage a project's build, reporting and documentation from a central place.

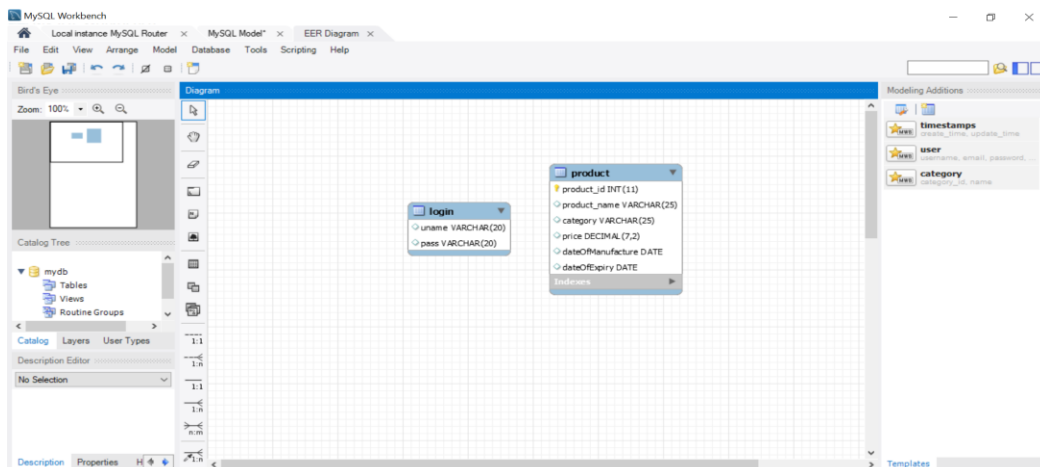
## vi. Junit 4

JUnit is a unit testing framework for the Java programming language. JUnit has been important in the development of test-driven development, and is one of a family of unit testing frameworks. Its main use is to write repeatable tests for our application code units.

## 4 Architecture Specifications



## Database Diagram:



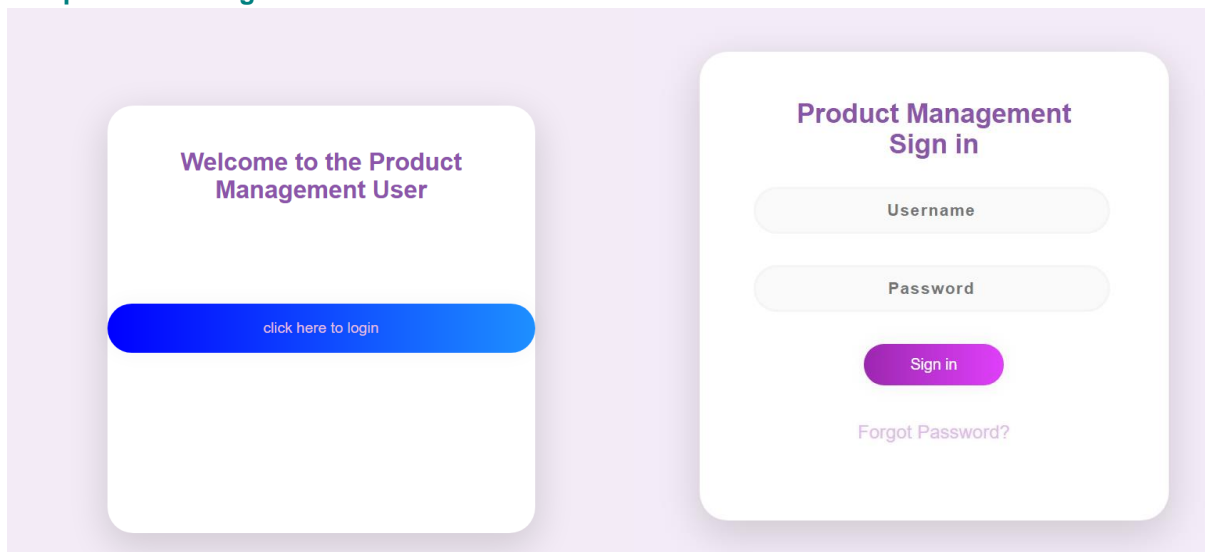
## 5 Application's User Interface

### 5.1 Welcome and Login page

Admin Story for Login page

User Story ID	As a	I want to be able to	so that
AdminUC01	Admin	As an Admin I want to login into the application	I can use the features of this application

Sample UI Screen given below



### 5.2 Home / Landing page

Admin Story for home page/ landing page

User Story ID	As a	I want to be able to	so that
AdminUC51	Admin	see the actions that I can perform so that I can choose	I can insert ,delete, update view, search for particular data and I can logout form the application

Sample UI Screen given below

Product Management-List of saved Products

CLICK HERE: To Add Product

CLICK HERE: To Log me Out

click here to go Back

productname CLICK HERE>

ProductName	Category	Price	Date-of-Manufacture	Date-of-Launch	Action
dark fantasy	Grocery	75000.0	2020-01-02	2020-06-02	<div>update</div> <div>Delete</div>
GAMING LAPTOP	Electronics	75000.0	2020-01-02	2020-06-02	<div>update</div> <div>Delete</div>
i phone	Electronics	75000.0	2020-01-02	2020-06-02	<div>update</div> <div>Delete</div>
one plus 8	Electronics	75000.0	2020-01-02	2020-06-02	<div>update</div> <div>Delete</div>
star war toy	Electronics	75000.0	2020-01-02	2020-06-02	<div>update</div> <div>Delete</div>

## 5.3 Product Data Insert/update

Admin Story for Product Data inserting

User Story ID	As a	I want to be able to	so that
AdminUC55	Admin	I can insert the new product data into the database	A new product is added into our database

Sample UI Screen given below

Product Details

Product Name

Category

Electronics

Groceries

Fashion

Baby&Care

HomeNeed

BeautyCare

Price

0.0

Electronics

Groceries

Fashion

Baby&Care

HomeNeed

BeautyCare

Price

0.0

Date Of Manufacture

mm/dd/yyyy

Date Of Launch

mm/dd/yyyy

ADD

Reset



## Field Specification for Product Data inserting/updating Page

Field Name	Field Type	Description
Product name	Text Box	Obtains the name of Product; accepts strings
category	Radio Box	Obtains the category for product; accepts string
price	Text Box	Obtains the price for products; accepts number
Date of Manufacture	Date	Obtains the date of manufacture for products; accepts date
Date of Launch	Date	Obtains the date of launch for products; accepts date

## 5.4 Product Data Deleting

### Admin Story for Product Data Deleting page

User Story ID	As a	I want to be able to	so that
AdminUC52	Product	I can delete the product details in the database	Existing product details can be deleted

## 5.5 Product Data search

### Admin Story for Product Data search page

User Story ID	As a	I want to be able to	so that
AdminUC53	Admin	I can view the particular Product details in the database by using search bar	particular Product details are viewed

### Sample UI Screen



## 5.6 Product Data Validation

### Admin Story for Product Data Validation

User Story ID	As a	I want to be able to	so that
AdminUC53	Admin	Validate the Product details	All the Product details are viewed

### Sample UI Screen

Product Details

Product Name

product should have a name!

Category

category should have a name!

☐ Electronics

☐ Groceries

☐ Fashion

☐ Baby&Care

☐ HomeNeed

☐ BeautyCare

Price

0.0

Product Details

Product Name

MI

ProductName should contain 3 letters or more !

Category

☒ Electronics

☐ Groceries

☐ Fashion

☐ Baby&Care

☐ HomeNeed

☐ BeautyCare

Price

sd

Enter Number not String!!

Price

sd

Enter Number not String!!

Date Of Manufacture

dd-----yyyy

Enter valid date!

Date Of Launch

dd-----yyyy

Enter valid date!

ADD

Back

## 6 References

- 1 <https://docs.spring.io/spring/docs/current/spring-framework-reference/>
- 2 <https://docs.spring.io/spring/docs/current/spring-framework-reference/core.html#spring-core>
- 3 <https://docs.spring.io/spring/docs/current/spring-framework-reference/web.html>
- 4 <https://hibernate.org/orm/documentation/5.0/>
- 5 <https://maven.apache.org/guides/getting-started/index.html>