SOEN 387 Section F

Web-Based Enterprise Application Design - Fall 2023

Professor Eric Chan

Assignment 1

Kunal H Shah 40153500

Imran Ahmed 40172931

Vatsa Kartik Shah 40125107

# Development environment and Instructions to run application

## Development Environment:
The development environment used for this project comprises the following tools and technologies:

1. **Java**: Given that the backend implementation relies on Java servlets and JSP, a JDK (Java Development Kit) is necessary. We used JDK version 17.0.2.
2. **IDE**: IntelliJ IDEA was used as the Integrated Development Environment for coding, debugging, and testing the application.
3. **Server**: Apache Tomcat v9.0.82 was used as the server to host the servlets and JSP pages.
4. **Version Control**: Git was used for version control, with the repository hosted on GitHub.
5. **Build Tool**: Maven was utilised as the build tool for managing dependencies and automating the build process.
6. **Web Technologies**: HTML5, CSS, and JavaScript were used for the front-end development. Additionally, Bootstrap was utilised for styling the pages.
7. **Browser**: The application was primarily tested on Google Chrome, though it's designed to be cross-browser compatible.

## Compilation Instructions:
To run the application using the provided .war file, follow the steps below:

1. **Download and Install Apache Tomcat:**
   If not already installed, download and install Apache Tomcat v9.0.82 from the official website.
2. **Deploy the WAR file:**
   Copy the provided .war file to the webapps directory of your Tomcat installation (e.g., C:\Program Files\Apache Software Foundation\Tomcat 9.0\webapps).
3. **Start Tomcat:**
   Navigate to the bin directory of your Tomcat installation (e.g., C:\Program Files\Apache Software Foundation\Tomcat 9.0\bin).
   Execute startup.bat (on Windows) or startup.sh (on Linux/macOS) to start the Tomcat server.
4. **Access the Application:**
   Open a web browser and navigate to http://localhost:8080/storefront to access the application.

# User Manual

Navigating the Application:

## Landing Page:

Upon launching the application, you will arrive at the homepage. The homepage features a navigation bar (navbar) at the top of the page for easy navigation to different sections of the application.

## Viewing Products:

To browse the products available on the online storefront, click on the Products link in the navbar.

This will lead you to the products page where you can see a list of products available, along with images representing each product.

## Viewing Product Details:

If you are interested in a particular product and want to learn more about it, click on the View Details button associated with that product.

This will lead you to a page displaying detailed information about the selected product.

## Adding Products to Cart:

On the product details page, you have the option to add the product to your cart by clicking on the Add to Cart button.

## Viewing Cart:

To view the items in your cart, click on the Cart link in the navbar.

The cart page will display a list of all the products you have added to your cart, along with the price of each item and the total price of all the items in the cart.

## Shopping Flow:

1. Start by browsing the products available on the online storefront by clicking on the Products link in the navbar.
2. Explore the products and click on View Details for any product you are interested in.
3. On the product details page, add the product to your cart by clicking on the Add to Cart button.
4. To review the items in your cart, click on the Cart link in the navbar.
   The cart page will show you all the products you have added, allowing you to review your selections before proceeding.

**Staff User Manual**
Accessing Staff Functions:

**Sign In:**
Start from the landing page which serves as the homepage of the application, featuring a navigation bar (navbar) at the top.
Click on the Authenticate as Staff link located in the navbar, which will redirect you to a login page.
Enter the password - "secret" in the provided fields and click on the Authenticate button to sign in.

**Creating a New Product:**
Once signed in, navigate to the Products page by clicking on the Products link in the navbar.
Click on the Create a New Product button, which will lead you to an empty user input form.
Fill in the form fields with the product's name, description, price, vendor, SKU, and URL slug.
Ensure that all fields are filled correctly as per the data type requirements, thanks to the implemented regex validation.

**Editing an Existing Product:**
From the Products page, find the product you wish to edit.
Click on the Edit button on the product tile, which will redirect you to a form.
This form is pre-filled with the existing data of the product. Make the necessary edits and submit the form to update the product information.

**Download Product Catalogue:**
Staff can download the product catalogue which is a .json file that includes all products in the app

**Logging Out:**
To log out of your staff account, click on the Log Out link located in the navbar, at the same location where the Authenticate as Staff link was.
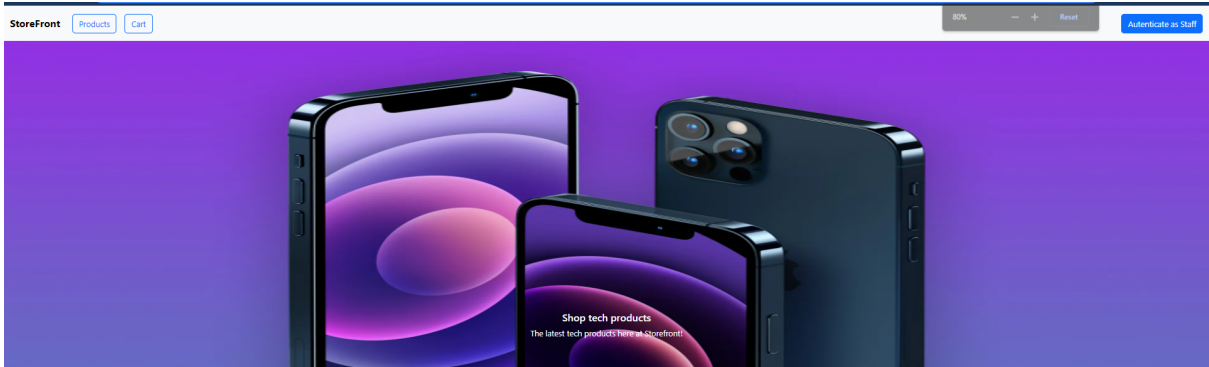
**Staff Workflow:**
1. Sign in to access staff functions by clicking on the Authenticate as Staff link in the navbar and entering your credentials.
2. Create new products or edit existing ones from the Products page, accessed via the navbar.
3. Fill in or edit the product information in the provided forms and submit to save the changes.
4. Once done with your session, ensure to log out by clicking on the Log Out link in the navbar.

## Additional Work Outside Assignment's Scope (BONUS)

In the development of this project, we incorporated Bootstrap, which was utilized for styling the pages and enhancing the user interface. Bootstrap helped in creating a responsive and

visually appealing design, ensuring a good user experience across various devices and screen sizes.

The Bootstrap framework can be found in the project files within the CSS and JavaScript directories, and its implementation can be observed throughout the various HTML and JSP pages in the project.
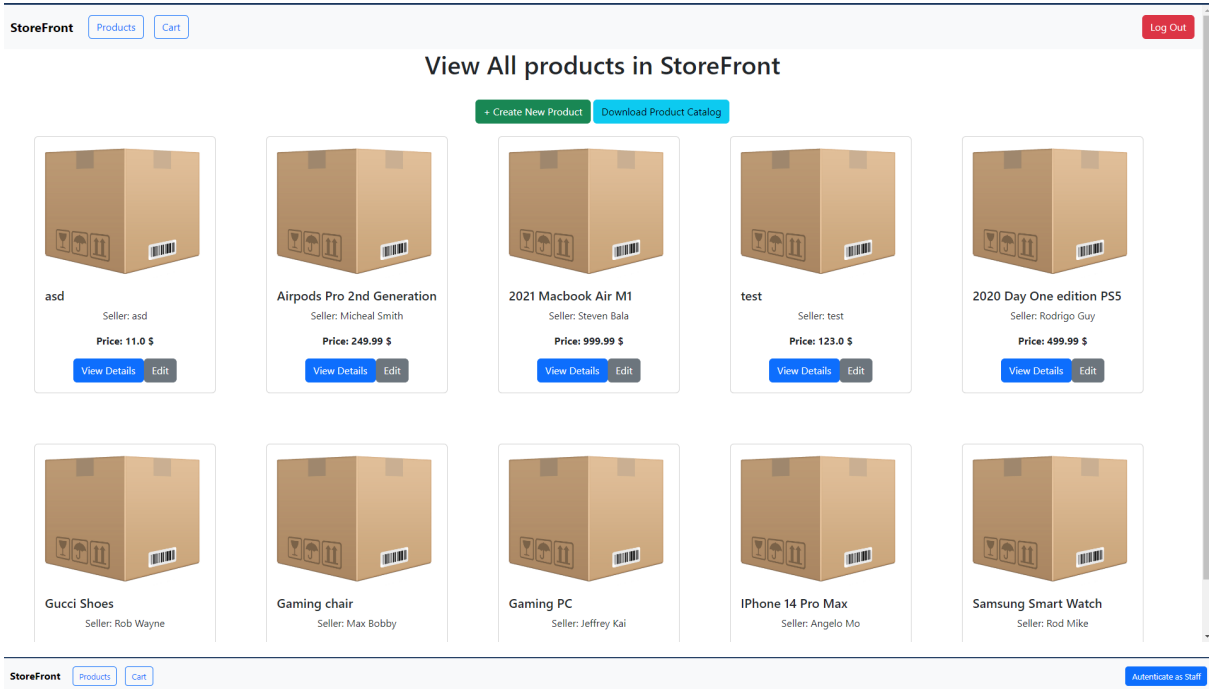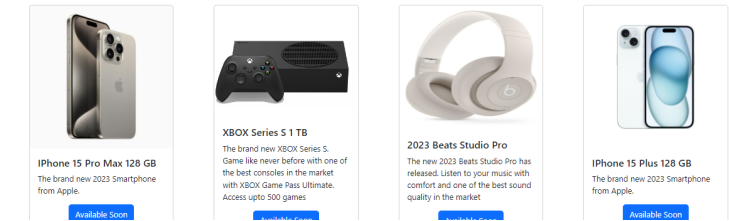
# UML diagram of business layer

## Prodcut

- name : String
- description : String
- vendor : String
- urlSlug : String
- sku : String
- price : Double

---

+ Product(name : String, description : String, vendor : String, urlSlug: String, sku : String, price : Double)
+ getName() : String
+ setName(name : String)
+ getDescription() : String
+ setDescription(description : String)
+ getVendor() : String
+ setVendor(vendor : String)
+ getUrlSlug() : String
+ setUrlSlug(urlSlug : String)
+ getSku() : String
+ setSku(sku : String)
+ getPrice() : Double
+ setPrice(price : Double)

## Cart

- products : List<Products>

---

+ Cart()
+ getProducts() : List<Products>
+ setProducts(products : List<Products>)
+ addProduct(p : Product)
+ removeProductBySku(sku : String)
+ containsProduct(sku : String): Boolean

Has * 0..*

Contains * 0..1

## StorefrontFacade

- productsBySku : Map<String, Product>
- productsBySlug : Map<String, Product>
- cartsByUser : Map<String, Cart>

---

+ StorefrontFacade()
+ createProduct(name : String, description : String, vendor : String, urlSlug: String, sku : String, price : Double)
+ updateProduct(name : String, description : String, vendor : String, urlSlug: String, sku : String, price : Double)
+ getProducts(sku : String) : Product
+ getAllProducts() : ArrayList<Product>
+ getProductBySlug(slug: String) : Product
+ getCart(user : String) : Cart
+ addProductToCart(user : String, sku : String)
+ removeProductFromCart(user : String, sku : String)
+ downloadProductCatalog()

Contains * 0..1

Contains * 0..1