Practical Exam – Shopping List

You have been tasked to create a simple application that simulates a Shopping List. The application should hold **products**, which are the main app **entities**. The app is called **`ShoppingList`**.

The functionality of the application should support **creating**, **listing**, **editing** products.

The application should **persist** the data into a **database**.

Overview

Your application should be built on **each one** of the **following technologies**:

PHP

- **Symfony** framework
- **Twig** view engine
- **Doctrine** ORM
- **MySQL** database

JavaScript

- **NodeJS** + **ExpressJS** frameworks
- **Handlebars.js** view engine
- **Mongoose** data access library
- **MongoDB** database

Java

- **Spring** framework (**Spring MVC** + **Spring Boot** + **Spring Data**)
- **Thymeleaf** view engine
- **JPA** / **Hibernate ORM** + **Spring Data** data access
- **MySQL** database

C#

- **ASP.NET** framework (**ASP.NET MVC** + **Entity Framework**)
- **Razor** view engine
- **Entity Framework** ORM
- **MS SQL Server** database

Data Model

The **`Product`** entity holds **5 properties**:

- **`id`** – technology-dependent identifier (**`ObjectID`** for JavaScript, **`int`** for all other technologies)
- **`priority`** – non-null integer
- **`name`** – non-empty text
- **`quantity`** – non-null integer
- **`status`** – non-empty text (will either be "**`bought`**" or "**`not bought`**").

Project Skeletons

You will be given the applications' **`skeletons`**, which holds about **90%** of the logic. You'll be given some **files** (**controllers**, **models** etc.). The files will have **partially implemented logic**, so you'll need to write some code for the application to **function properly**.

The application's views will be given to you fully implemented. You only need to include them in your business logic.

Each technology will have its **own skeleton**, and the **different skeletons** may **differ** in **terms** of **what is given to you** and **what is to be implemented**.

Everything that has been given to you inside the skeleton is **correctly implemented** and if you write your code **correctly**, the application should work just fine. You are free to change anything in the Skeleton on your account.

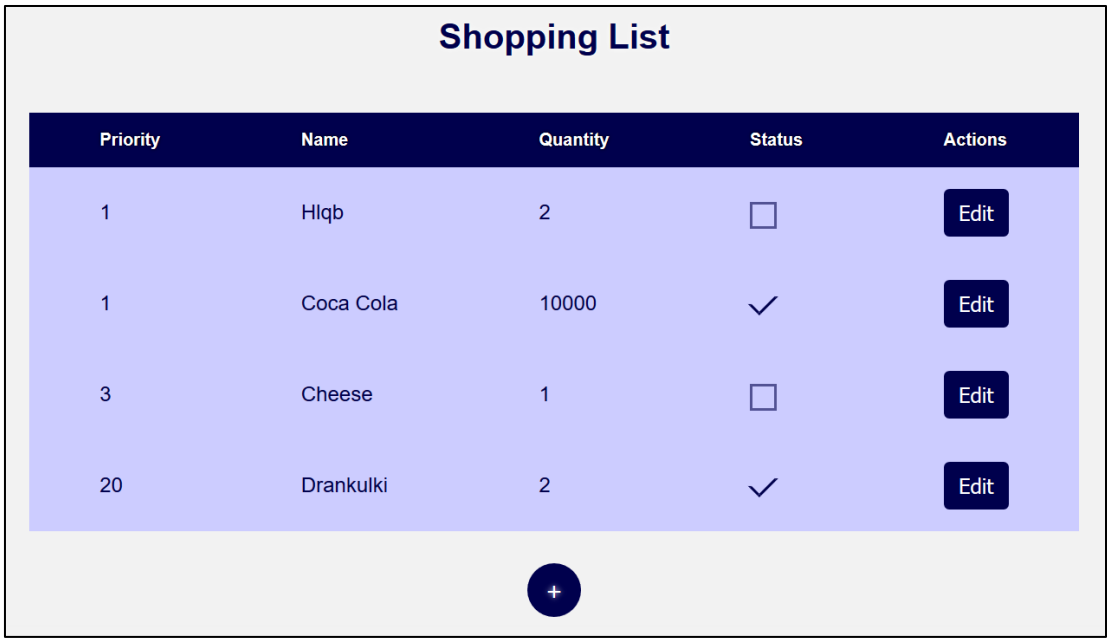
User Interface

This is the user interface or how the application's pages should look in their final form (fully implemented). You have several pages, described below:

Index Page

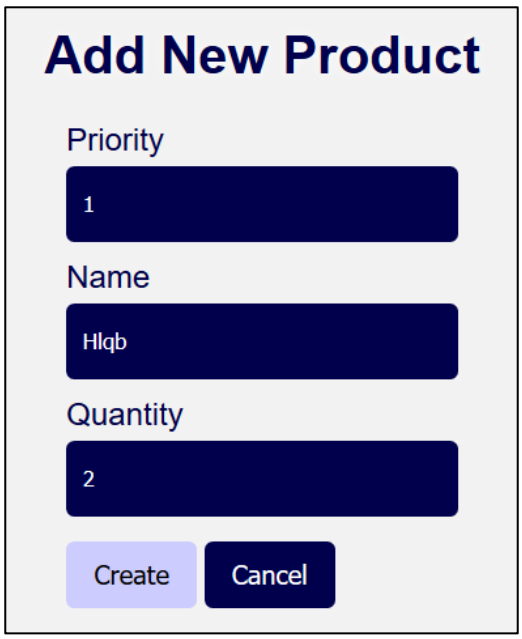
Route: "/"

Displays **all** the **products** from the database with **an option** to **modify** them.



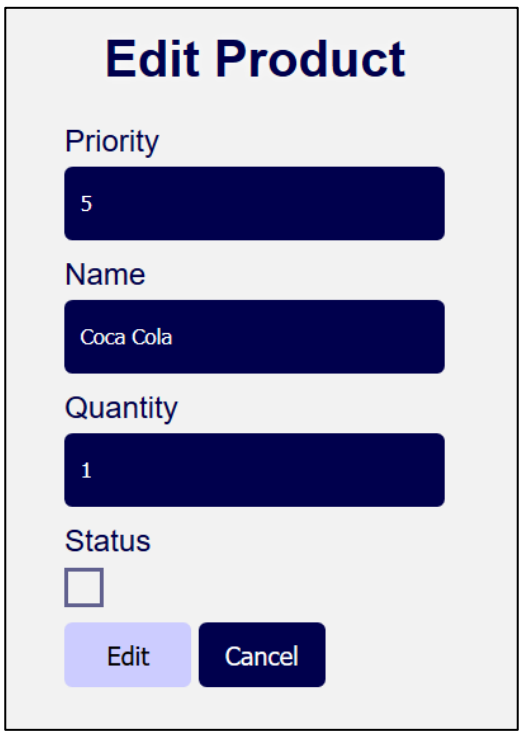
Create Page

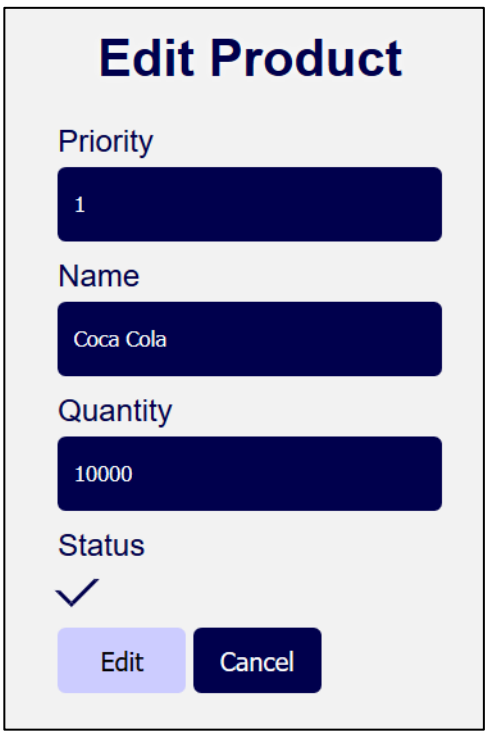
Route: "/create"



Edit Page

Route: "/edit/{id}"





Problem

As you can see the different pages are on different routes. Most of the routing logic will be given to you in the **Skeleton**, but you should make sure that the application **works properly**.

Implement the "**ShoppingList" app** using all the above described **4 technologies**.

Setup

Before you start working, make sure you **download all the dependencies** (packages) required for each technology and **set up** the **databases**! Below are instructions on how to do this:

PHP and Symfony

1. Go into the **root directory** of the project (where the **`bin`** folder resides)
2. Make sure you've started your **MySQL server** (either from **XAMPP** or standalone)
3. Open a **shell** / **command prompt** / **PowerShell** window in the **root directory**: [Shift] + [Right click] ➔ [Open command window here]
4. Enter the "**`php composer.phar install`**" command to restore its **Composer dependencies** (described in **`composer.json`**)
5. Enter the "**`php bin/console doctrine:database:create --if-not-exists`**" command
6. Done!

JavaScript and Node.js

1. Go into the **root directory** of the project (where the **`bin`** folder resides)
2. Make sure you've started your **MongoDB server** (**`mongod.exe --dbpath path/to/db/directory`**)
3. Open a **shell** / **command prompt** / **PowerShell** window in the **root directory**: [Shift] + [Right click] ➔ [Open command window here]
4. Enter the "**`npm install`**" command to restore its **Node.js dependencies** (described in **`package.json`**)
5. Done!

C# and ASP.NET MVC

The C# project will automatically resolve its **NuGet dependencies** (described in **`packages.config`**) using the NuGet package restore when the project is built.

Java and Spring MVC

The Java project will automatically resolve its **Maven dependencies** (described in **`pom.xml`**) when the project is built.