



# Assignment - 4

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Academic Year:	2022-2023
Unit Assessor:	Archana Sakpal
Project Title:	Assignment 4 – Spring Boot + JPA
Issue Date:	4/14/2023
Submission Date:	4/15/2023
Internal Verifier Name	Archana Sakpal
Date:	4/15/2023

### Learner declaration

I certify that the work submitted for this assignment is my own and research sources are fully acknowledged.

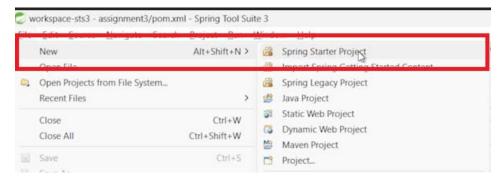
Student signature:

Date: 4/14/2023

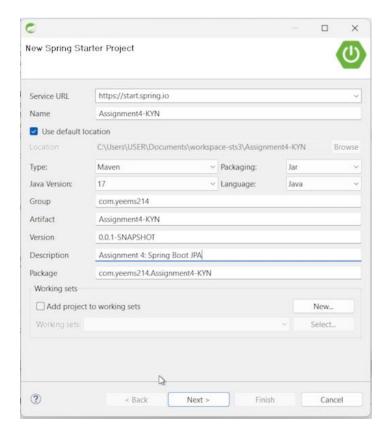
## **Solution**

### 1. Create a Spring Boot application for "Know-Your-Neighborhood".

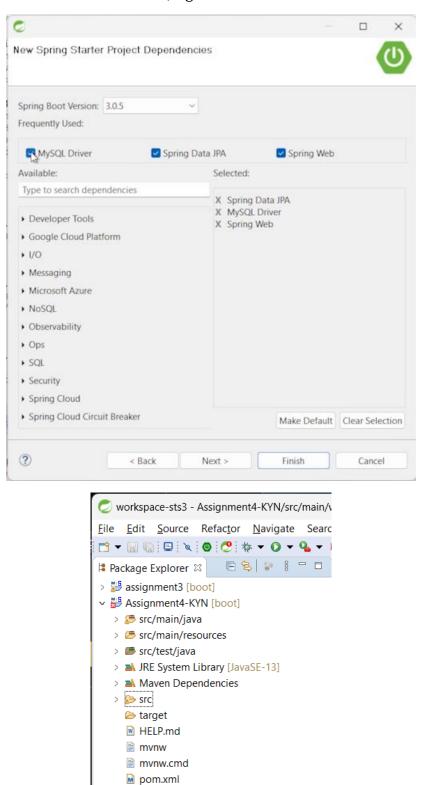
**Step 1:** Create a Spring Starter Project.



**Step 2:** Fill out the Group, Artifact and Package fields in the form and set your Java version to 17 and Type to Mayen.



**Step 3:** Inside the Spring Starter Project Dependencies form, look for the MySQL Driver, Spring Data JPA and Spring Web dependencies and select them, right after that click next.



> 🗁 Servers

### Pom.xml

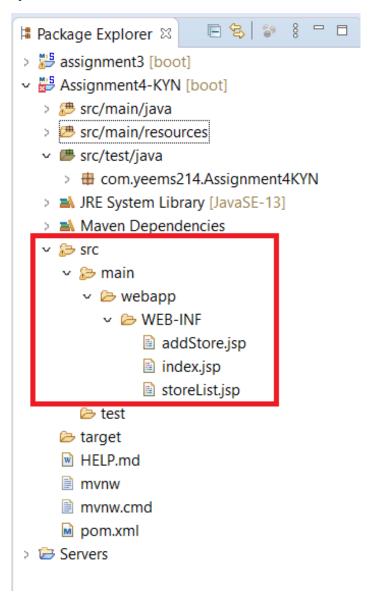
```
1 <?xml version="1.0" encoding="UTF-8"?>
  20 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  3
       xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd">
  4
        <modelVersion>4.0.0</modelVersion>
  5⊖
        <parent>
  6
           <groupId>org.springframework.boot</groupId>
  7
           <artifactId>spring-boot-starter-parent</artifactId>
  8
           <version>2.6.9</version>
  9
           <relativePath/> <!-- lookup parent from repository -->
 10
       </parent>
 11
       <groupId>com.yeems214</groupId>
 12
        <artifactId>Assignment4-KYN</artifactId>
 13
        <version>0.0.1-SNAPSHOT
 14
        <name>Assignment4-KYN</name>
 15
        <description>A4: Spring Boot JPA</description>
 16⊖
       cproperties>
 17
            <java.version>17</java.version>
18
        </properties>
19⊖
        <dependencies>
 20⊖
            <dependency>
21
           <groupId>org.springframework.boot</groupId>
22
                <artifactId>spring-boot-starter-web</artifactId>
 2.3
           </dependency>
 24
 25⊖
            <dependency>
               <groupId>org.springframework.boot</groupId>
 26
 27
                <artifactId>spring-boot-starter-test</artifactId>
 28
                <scope>test</scope>
 29
            </dependency>
 30
           <!-- https://mvnrepository.com/artifact/jstl/jstl -->
 31
 32⊖
           <dependency>
 33
                <groupId>jstl</groupId>
 34
                <artifactId>jstl</artifactId>
 35
                <version>1.2</version>
 36
           </dependency>
 37
            <!-- https://mvnrepository.com/artifact/org.apache.tomcat.embed/tomcat-embed-jasper -->
 38
 39⊖
            <dependency>
 40
                <groupId>org.apache.tomcat.embed</groupId>
 41
                <artifactId>tomcat-embed-jasper</artifactId>
 42
            </dependency>
 43
            <!-- https://mvnrepository.com/artifact/mysql/mysql-connector-java -->
 44
 45⊖
            <dependency>
 46
                <groupId>mysql</groupId>
 47
                <artifactId>mysql-connector-java</artifactId>
 48
                <!-- <version>8.0.28</version> -->
 49
           </dependency>
 5.0
 51⊖
           <dependency>
 52
               <groupId>org.springframework.boot</groupId>
 53
                <artifactId>spring-boot-starter-data-jpa</artifactId>
 54
            </dependency>
 55
        </dependencies>
 56
 57⊖
        <br/>build>
 58⊖
           <plugins>
 59⊖
               <plugin>
 60
                    <groupId>org.springframework.boot</groupId>
 61
                    <artifactId>spring-boot-maven-plugin</artifactId>
 62
                </plugin>
 63
           </plugins>
 64
       </build>
 65
 66 </project>
 67
```

### **Application.properties**

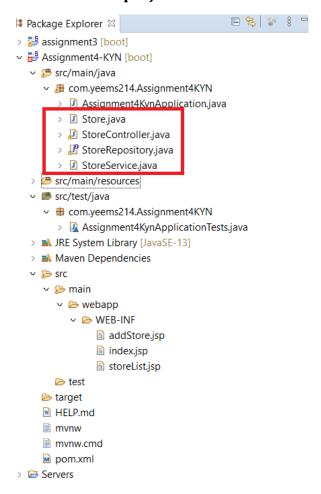
```
1 server.port=9099
2 spring.mvc.view.prefix=/WEB-INF/
3 spring.mvc.view.suffix=.jsp
4
5 ##Database - Connect MySQL Server
6 spring.datasource.driver-class-name=com.mysql.cj.jdbc.Driver
7 spring.datasource.url=jdbc:mysql://localhost:3306/knowyourneighborhood
8 spring.datasource.username=root
9 spring.datasource.password=roelfrancis100
10
11 ##JPA-HIBERNATE
12 spring.jpa.properties.hibernate.dialect = org.hibernate.dialect.MySQL5Dialect
13
14 ## CREATE,UPDATE,CREATE-DROP
15 spring.jpa.hibernate.ddl-auto = update
16 spring.jpa.properties.hibernate.show_sql=true
```

### 2. Add support for JSP views and create required folder structure.

For this process, you are required to have a webapp/WEB-INF directory then add the required .jsp files inside the WEB-INF directory.

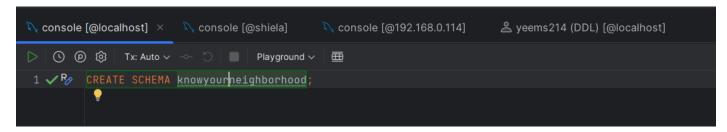


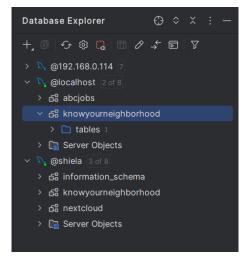
### 3. Move already developed classes into this project.



### 4. Create store table in the database.

I created first a database named adp\_assignment3 in MySQL Workbench.





### Application.properties

```
∠ application... 
☐ Note Control...

    ■ assignment3/...

                M Assignment4-...

☑ StoreService...

                                                                               storeList.jsp
  1 server.port=9099
  2 spring.mvc.view.prefix=/WEB-INF/
 3 spring.mvc.view.suffix=.jsp
  5##Database - Connect MySQL Server
  6 spring.datasource.driver-class-name=com.mysgl.cj.jdbc.Driver
 7 spring.datasource.url=jdbc:mysql://localhost:3306/knowyourneighborhood
 8 spring.datasource.username=root
 9 spring.datasource.password=roelfrancis100
 11 ##JPA-HIBERNATE
12 spring.jpa.properties.hibernate.dialect = org.hibernate.dialect.MySQL5Dialect
14 ## CREATE, UPDATE, CREATE-DROP
15 spring.jpa.hibernate.ddl-auto = update
16 spring.jpa.properties.hibernate.shbw sql=true
```

### 5. Annotate all the fields of Store object appropriately.

```
☑ Store.java ⋈ Massignment3/pom.xml  

Ø application.properties 
☐ index.jsp  

Massignment4-KYN/pom.xml

  1 package com.yeems214.Assignment4KYN;
   import javax.persistence.Column;
   import javax.persistence.Entity;
   import javax.persistence.GeneratedValue;
   import javax.persistence.GenerationType;
   import javax.persistence.Id;
10 public class Store {
       @GeneratedValue(strategy= GenerationType. IDENTITY)
12
       @Column(name = "id")
13
14
15
       String name;
       String phone_number;
16
17
       String localities;
18⊜
       public Long getId() {
19
           return id;
20
       public void setId(Long id) {
21⊖
22
           this.id = id;
25
       * @return the name
26
27⊝
       public String getName() {{
28
           return name;
29
30⊜
31
        * @param name the name to set
33⊜
       public void setName(String name) {
         this.name = name;
35
36⊖
37
        * @return the phone_number
38
39⊜
       public String getPhone number() {
40
           return phone_number;
41
42⊖
       * @param phone_number the phone_number to set
43
44
       public void setPhone_number(String phone_number) {
46
           this.phone_number = phone_number;
47
48⊖
49
       * @return the localities
50
       public String getLocalities() {
51⊖
52
            return localities;
```

### 6. Develop all components required to view the stores.

a. Add method to existing Controller class to receive the request to fetch stores.

StoreController.java

```
1 package com.yeems214.Assignment4KYN;
3⊕ import java.util.ArrayList;
22 @Controller
23 public class StoreController {
24⊖
       @Autowired
25
       public StoreService s Service;
26
27⊝
       @GetMapping("/home")
28
       public String home() {
29
            return "index";
 30
31⊝
     @GetMapping(value="/addStore")
       public String addStoreForm(@ModelAttribute("store") Store store) {
 32
33
            System.out.println("Add Store Form");
34
            return "addStore";
35
       @PostMapping(value="/saveStore")
36⊜
       public String saveStore(@ModelAttribute("store") Store store) {
37
38
            System.out.println("Save Store information");
39
            s Service.saveStore(store);
40
            return "redirect:viewStore";
41
42⊖
       @RequestMapping(value="/viewStore", method=RequestMethod. GET)
43
       public ModelAndView viewStore(Model model) {
            System.out.println("List out all store");
44
4.5
            List<Store> allStores = s_Service.listAllStore();
46
            System.out.println(allStores);
            return new ModelAndView("storeList", "all Stores", allStores);
47
48
490
        @GetMapping("/update")
50
       public String updateStore(@ModelAttribute("store") Store store, @RequestParam long sid, Model model) {
51
            Optional<Store> store_info = s_Service.getStoreInfo(sid);
52
            System.out.println(store_info);
53
            model.addAttribute("id", store_info.get().getId());
            model.addAttribute("name", store_info.get().getName());
model.addAttribute("phone_number", store_info.get().getPhone_number());
55
            model.addAttribute("localities", store_info.get().getLocalities());
56
57
            return "addStore";
58
59⊜
       @GetMapping("delete")
       public String deleteStore(@RequestParam long sid) {
60
 61
           s_Service.deleteStore(sid);
62
            return "redirect:viewStore";
63
64
 65 }
```

b. Enhance Store service and Store Controller objects to support CRUD operations on Store object.

StoreService.java

```
1 package com.yeems214.Assignment4KYN;
 3 import java.util.List;
 4 import java.util.Optional;
6 import javax.transaction.Transactional;
8 import org.springframework.beans.factory.annotation.Autowired;
9 import org.springframework.stereotype.Service;
10
11 @Service
12 @Transactional
13 public class StoreService {
14⊖
      @Autowired
15
      private StoreRepository storerepository;
160 public void saveStore(Store store) {
17
           storerepository.save(store);
18
     }
19⊜
      public List<Store> listAllStore() {
20
          return storerepository.findAll();
21
      public Optional<Store> getStoreInfo(long sid) {
22⊖
23
          Optional < Store > store info = storerepository.findById(sid);
24
           return store info;
25
269
      public void deleteStore(long sid) {
27
          storerepository.deleteById(sid);
28
29
30 }
31
```

c. Add method to existing repository class to perform CRUD operations on Store object.

### StoreRepository.java

```
1 package com.yeems214.Assignment4KYN;
2
3 **eimport* org.springframework.data.jpa.repository.JpaRepository;
4 import* org.springframework.stereotype.Repository;
5
6 public interface StoreRepository extends JpaRepository<Store, Long> {
7 }
8
```

d. Create HTML to view the stores. Show name, phone number, and localities it serves for each store.

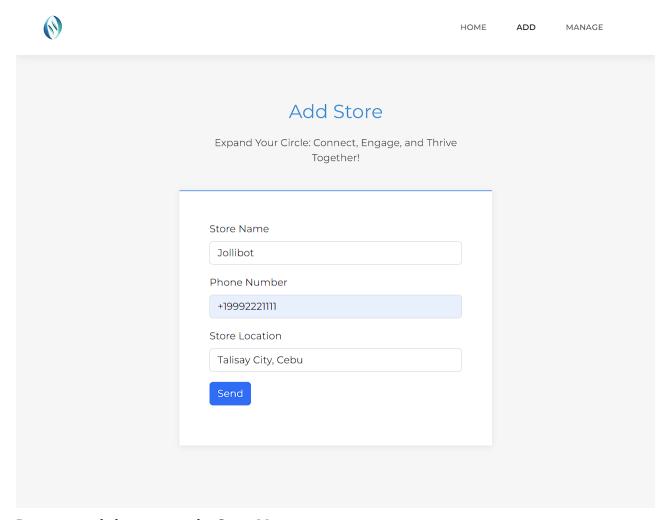
storeList.jsp

```
ctp page language "jaw" contentType="text/html; charset=180-8859-1" ctp page Encoding="120-8859-1" ctp page Encoding=1850-1850 bright page Encoding=1850 b
            cmeta charset="utf-8">
cmeta name="viewport" content="width=device-width, initial-scale=1.0, shrink-to-fit=no">
ctille>Store list
59⊜
                                                                  <c:forEach items="${all_Stores}" var="u">
                                                                            ${u.getName()}
                                                                                     ${u.getPhone_number()}${u.getLocalities()}
   62
   63
                                                                                              <a class="pr-5" href="addStore">Add</a>
   65
                                                                                              ca class="pr-5" href="/update?sid=$(u.id)">Update</a>
<a class="pr-5" href="/update?sid=$(u.id)">Update</a>
<a class="pr-5" href="/delete?sid=$(u.id)">Delete</a>
   66
   68
                                                                                      69
                                                                            </c:forEach
                                                                  </div>
   74
75
                                      </section>
                            </div>
   76
                    </section>
   79 re: "https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/bootstrap/js/bootstrap.min.js">
   80 <script src="https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/js/baguetteBox.min.js"></script>
   81 script src="https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/js/vanilla-zoom.js"></script>
82 <script src="https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20t$20o$20r$20y/assets/js/theme.js"></script>
   84 <!-- Required for Reference -->
  04 K:-- Required for Reference -->
859∈<script src="https://code.jquery.com/jquery-3.4.1.slim.min.js"

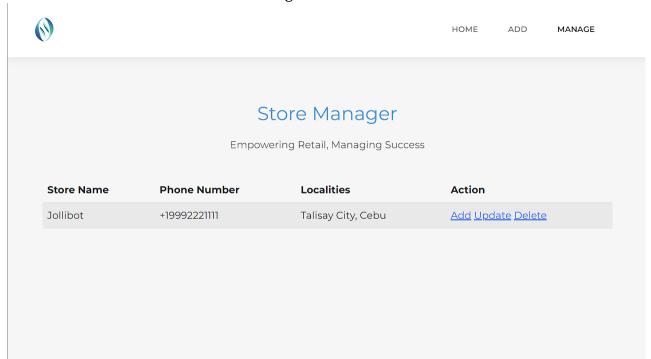
186 integrity="sha384-J6qa4849blE2+poT4WnyKhv5vZF5SrPo0iEjwBvKU7imGFAV0wwj1yYfoRSJoZ+n"
                             crossorigin="anonymous"></script>
   889<script
                            src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"
                             integrity="sha384-Q6E9RHvbIyZFJoft+2mJbHaEWldlvI9I0Yy5n3zV9zzTtmI3UksdQRVvoxMfooAo"
 <u>a</u>91
                             crossorigin="anonymous"></script>
   92⊖<script
                             src="https://cdn.jsdelivr.net/npm/bootstrap@4.4.1/dist/js/bootstrap.min.js"
 A94
                              integrity="sha384-wfSDF2E50Y2D1uUdj0O3uMBJnjuUD4Ih7YwaYd1iqfktj0Uod8GCEx130g8ifwB6"
                             crossorigin="anonymous"></script>
 495
   97 </body>
   99 </html>
```

e. Ensure that view stores request works end-to-end. (i.e., should be able to submit request to view the stores in the browser and get the page back with all stores).

Adding data



Data entered shown onto the Store Manager



# 7. Create an HTML page to perform Add Store, Fetch Stores, Update Store, and Delete Store operations from the UI.

### addStore.jsp

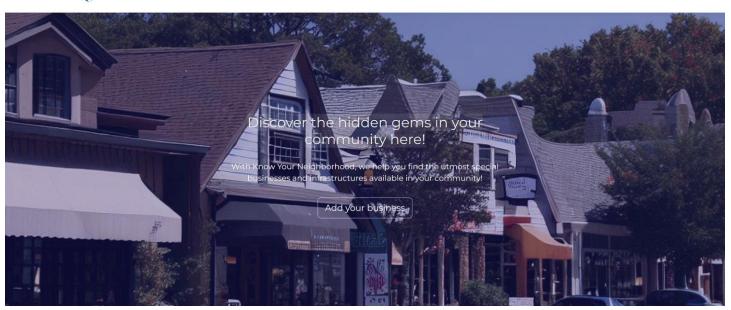
```
1 <10 page language="java" contentType="text/html; charset=ISO-8859-1"
2 pageEncoding="ISO-8859-1"%)
3 <10 taglib prefix="s": uri="http://maw.springframework.org/tags/form"%)
4 <10 taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core"%)
5 <10 ctype html>
6 <1 taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core"%)
6 <1 taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core"%)
                       ad>
cmeta charset="utf-8">
cmeta name="viewport" content="width=device-width, initial-scale=1.0, shrink-to-fit=no">
citle>hadd store</tile>
              citics/Map autority-free properties of the first properties of the properties of the
    60
                                                                                  <sf:label class="form-label" for="localities" path="localities">Store Location</sf:label>
<sf:input class="form-control" type="text" name="localities" path="localities" placeholder="Enter store location" value="${localities}" />
                                                                      </div>
                                                                     <div class="mb-3"
                                                                                  <sf:hidden path="id" value="${id}"/>
<sf:button class="btn btn-primary" type="submit">Send</sf:button>
                                                                     </div>
                                                       </sf:form>
                                          </div>
                             </section>
     72 <script src="https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/js/baguetteBox.min.js"></script>
73 <script src="https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/js/vanilla-zoom.js"></script>
     74 <script src="https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/js/theme.js"></script>
     76 <:-- Required for Reference -->
77e <script src="https://code.jquery.com/jquery-3.4.1.slim.min.js"
878 integrity="sha384-J6qa4849b1E2+poT4WnyKhv5vZF5SrPo0iEjwBvKU7imGFAV0wwj1yYfoRSJoZ+n"
879 crossorigin="anonymous"></script>
                                          src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"
  182
                                          integrity="sha384-Q6E9RHvbIyZFJoft+2mJbHaEWldlvI9IOYy5n3zV9zzTtmI3UksdQRVvoxMfooAo"
crossorigin="anonymous"></script>
     84⊖<script
                                           src="https://cdn.jsdelivr.net/npm/bootstrap@4.4.1/dist/js/bootstrap.min.js"
                                          integrity="sha38d-wf5DF2E50Y2DluUdj003uMBJnjuUD4Ih7YwaYdliqfktj0Uod8GCExl30g8ifwB6"
crossorigin="anonymous"></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script></script>
     88 </body>
   90 </html>
```

### storeList.jsp

```
60 <html lang="en">
         and cmeta charset="utf-8">
cmeta charset="utf-8">
cmeta charset="utf-8">
cmeta name="viewport" content="width=device-width, initial-scale=1.0, shrink-to-fit=no">
citile>Store List</tibe>
56
57
                                  58⊜
                                  59⊜
                                  <c:forEach items="${all_Stores}" var="u">
   60⊝
                                      ${u.getName()}
    61
    62
                                           $ {u.getPhone_number()} 
   63
                                           ${u.getLocalities()}
   649
                                           -
<a class="pr-5" href="addStore">Add</a>
<a class="pr-5" href="/update?sid=${u.id}">Update</a>
<a class="pr-5" href="/delete?sid=${u.id}">Delete</a>
<a class="pr-5" href="/delete?sid=${u.id}">Delete</a>
    65
    66
   67
68
                                           69
                                      </c:forEach>
                                  </div>
   74
75
                    </section>
               </div>
    76
            </section>
   79 <script src="https://gpupv.yeems214.xyz/R$20e$20p$20p$20o$20s$20i$20t$20o$20r$20y/assets/bootstrap/js/bootstrap.min.js"></script>
   80 script src="https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/js/baguetteBox.min.js">/scripts//gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/js/baguetteBox.min.js"/scripts/
81 script src="https://gpupv.yeems214.xyz/R$20e$20p$20o$20s$20i$20t$20o$20r$20y/assets/js/vanilla-zoom.js"/scripts/
    82 <script src="https://gpupv.yeems214.xyz/R%20e%20p%20o%20s%20i%20t%20o%20r%20y/assets/js/theme.js"></script>
   83
    84 <!-- Required for Reference -->
   85@<script src="https://code.jquery.com/jquery-3.4.1.slim.min.js"
86 integrity="sha384-J6qa4849b1E2+poT4WnyKhv5vZF5SrPo0iEjwBvKU7imGFAV0wwj1yYfoRSJoZ+n"
   186
   887
                crossorigin="anonymous"></script>
   88@<script
                src="https://cdn.jsdelivr.net/npm/popper.js@1.16.0/dist/umd/popper.min.js"
   390
                integrity="sha384-Q6E9RHvbIyZFJoft+2mJbHaEWldlvI9IOYy5n3zV9zzTtmI3UksdQRVvoxMfooAo"
   91
                crossorigin="anonymous"></script>
   920<script
                src="https://cdn.jsdelivr.net/npm/bootstrap@4.4.1/dist/js/bootstrap.min.js"
   94
                integrity="sha384-wfSDF2E50Y2D1uUdj003uMBJnjuUD4Ih7YwaYd1iqfktj0Uod8GCEx13og8ifwB6"
   95
                crossorigin="anonymous"></script>
    97 </body>
   99 </html>
```

### Result

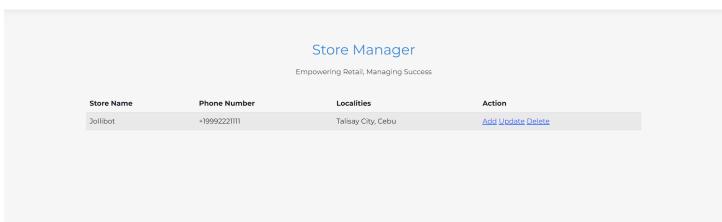


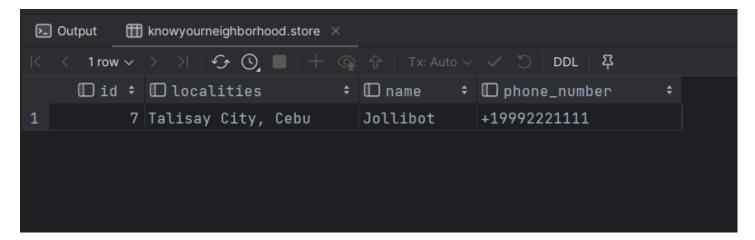


HOME ADD MANAGE

# Add Store Expand Your Circle: Connect, Engage, and Thrive Together! Store Name Enter store name Phone Number Enter phone number Store Location Enter store location

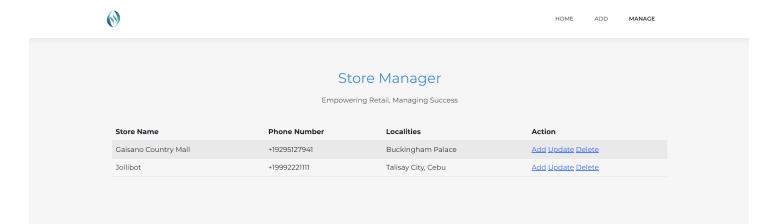






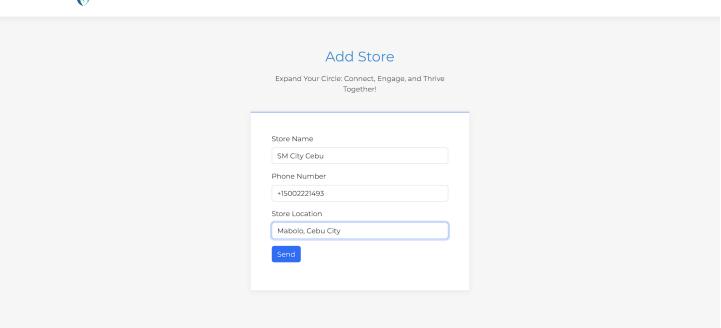
### For Data Updating:

Before



### **Updating Data**





MANAGE

HOME

ADD

### After

