

Source Codes:

Open pom.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-
4.0.0.xsd">
  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>org.springframework.boot</groupId>
    <artifactId>spring-boot-starter-parent</artifactId>
    <version>2.4.3</version>
    <relativePath /> <!-- lookup parent from repository -->
  </parent>
  <groupId>com.example</groupId>
  <artifactId>UserManager</artifactId>
  <version>0.0.1-SNAPSHOT</version>
  <name>UserManager</name>
  <description>Searching for a Specific User and Updating the User Information.</description>
  <properties>
    <java.version>1.8</java.version>
  </properties>
  <dependencies>
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-data-jpa</artifactId>
    </dependency>
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-web</artifactId>
    </dependency>
    <dependency>
      <groupId>org.projectlombok</groupId>
      <artifactId>lombok</artifactId>
      <optional>true</optional>
    </dependency>
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-test</artifactId>
      <scope>test</scope>
    </dependency>
    <dependency>
      <groupId>org.apache.tomcat.embed</groupId>
      <artifactId>tomcat-embed-jasper</artifactId>
      <scope>provided</scope>
    </dependency>

    <dependency>
      <groupId>javax.xml.bind</groupId>
      <artifactId>jaxb-api</artifactId>
```

```

</dependency>

<dependency>
  <groupId>org.javassist</groupId>
  <artifactId>javassist</artifactId>
  <version>3.25.0-GA</version>
</dependency>

<dependency>
  <groupId>org.springframework.boot</groupId>
  <artifactId>spring-boot-devtools</artifactId>
  <scope>runtime</scope>
  <optional>true</optional>
</dependency>
</dependencies>

<build>
  <plugins>
    <plugin>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-maven-plugin</artifactId>
      <configuration>
        <excludes>
          <exclude>
            <groupId>org.projectlombok</groupId>
            <artifactId>lombok</artifactId>
          </exclude>
        </excludes>
      </configuration>
    </plugin>
  </plugins>
</build>

</project>

```

Src/main/java

Create package com.example.UserManager

Create UserManagerApplication.java

```

package com.example.UserManager;

import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication

public class UserManagerApplication {

```

```

        public static void main(String[] args){

            SpringApplication.run(UserManagerApplication.class, args);

        }

    }

```

Create package com.example.UserManager.controller

Create AppErrorController.java

```

package com.example.UserManager.controller;

import org.springframework.boot.web.servlet.error.ErrorController;
import org.springframework.web.bind.annotation.RequestMapping;

public class AppErrorController implements ErrorController {

    @RequestMapping("/error")

    public String handleError() {

        //do something like logging

        return "error";

    }

    @Override

    public String getErrorPath() {

        return null;

    }

}

```

Create MainController.java

```

package com.example.UserManager.controller;

import org.springframework.stereotype.Controller;
import org.springframework.ui.ModelMap;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RequestParam;

@Controller

```

```

public class MainController {

    @GetMapping(value = "/")

    public String showIndexPage(ModelMap model,

    @RequestParam(value = "name", required = false, defaultValue = "World") String name){

        model.addAttribute("name", name);

        return "index";

    }

}

```

Create UserController.java

```

package com.example.UserManager.controller;

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.stereotype.Controller;

import org.springframework.ui.ModelMap;

import org.springframework.web.bind.annotation.GetMapping;

import org.springframework.web.bind.annotation.ModelAttribute;

import org.springframework.web.bind.annotation.PostMapping;

import org.springframework.web.bind.annotation.RequestMapping;

import org.springframework.web.bind.annotation.RequestMethod;

import org.springframework.web.bind.annotation.RequestParam;

import com.example.UserManager.entities.User;

import com.example.UserManager.services.UserService;

@Controller

public class UserController{

    //controls the functionality of the user entity

    @Autowired

```

```

private UserService userService;

Logger logger = LoggerFactory.getLogger(UserController.class);

@GetMapping("/users")

public String showUsers(ModelMap model) {

    logger.info("Getting all users");

    Iterable<User> users = userService.GetAllUsers();

    logger.info("Passing users to view");

    model.addAttribute("users", users);

    return "users";

}

@RequestMapping(value = "/search/{id}", method = RequestMethod.POST)

public String searchUser(ModelMap model, @RequestParam("id") int id) {

    logger.info("Searching for a user");

    User user = userService.GetUserById(id);

    logger.info("Passing Searched User to View");

    model.addAttribute("userSearch", user);

    return "search";

}

@PostMapping("search/update")

public String updateUser(ModelMap model, @ModelAttribute("update") User user) {

    logger.info("Updating a User");

    userService.UpdateUser(user);

    model.addAttribute("updatedUser", user);

    return "update";

}

}

```

Create UserExceptionHandler.java

```

package com.example.UserManager.controller;

import org.springframework.http.HttpStatus;

import org.springframework.http.ResponseEntity;

import org.springframework.web.bind.annotation.ControllerAdvice;

import org.springframework.web.bind.annotation.ExceptionHandler;

import com.example.UserManager.exceptions.UserNotFoundException;

@ControllerAdvice

public class UserExceptionHandler {

    @ExceptionHandler(value=UserNotFoundException.class)

    public ResponseEntity<Object> exception(UserNotFoundException ex) {

        return new ResponseEntity<>("Product not found", HttpStatus.NOT_FOUND);

    }

}

```

Create package **com.example.UserManager.entities**

Create **User.java**

```

package com.example.UserManager.entities;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

@Entity

public class User { //The Entity of a User; What it is.

    @Id

    @GeneratedValue(strategy=GenerationType.AUTO)

    private Integer id;

    private String name;

    private String email;

```

```
private String password;

public User() {
    super();
}

public User(Integer id, String name, String email, String password) {
    super();
    this.id = id;
    this.name = name;
    this.email = email;
    this.password = password;
}

public Integer getId() {
    return id;
}

public void setId(Integer id) {
    this.id = id;
}

public String getName() {
    return name;
}

public void setName(String name) {
    this.name = name;
}

public String getEmail() {
    return email;
}

public void setEmail(String email) {
```

```

        this.email = email;
    }

    public String getPassword() {

        return password;
    }

    public void setPassword(String password) {

        this.password = password;
    }

    @Override

    public String toString() {

        return (id.toString()+ " " + name + " " + email + " " + password);
    }

}

```

Create package com.example.UserManager.exceptions

Create UserNotFoundException.java

```

package com.example.UserManager.exceptions;

public class UserNotFoundException extends RuntimeException{
    private static final long serialVersionUID = 1L;
}

```

Create package com.example.UserManager.repositories

Create UserRepository.java

```

package com.example.UserManager.repositories;

import org.springframework.data.repository.CrudRepository;

import org.springframework.stereotype.Repository;

import com.example.UserManager.entities.User;

@Repository

public interface UserRepository extends CrudRepository<User, Integer>{

```



```
public User findByName(String name);  
}
```

Create package **com.example.UserManager.services**

Create **UserService.java**

```
package com.example.UserManager.services;  
  
import java.util.Optional;  
  
import org.springframework.beans.factory.annotation.Autowired;  
  
import org.springframework.stereotype.Service;  
  
import com.example.UserManager.entities.User;  
  
import com.example.UserManager.exceptions.UserNotFoundException;  
  
import com.example.UserManager.repositories.UserRepository;  
  
@Service  
  
public class UserService {  
  
    @Autowired  
  
    private UserRepository userRepository;  
  
    public Iterable<User> GetAllUsers() {  
  
        return userRepository.findAll();  
  
    }  
  
    public User GetUserByName(String name) {  
  
        return userRepository.findByName(name);  
  
    }  
  
    public User GetUserById(Integer id) {  
  
        Optional<User> foundUser = userRepository.findById(id);  
  
        if(!foundUser.isPresent()) throw new UserNotFoundException();  
  
        return foundUser.get();  
  
    }  
  
    public User UpdateUser(User userToUpdate) {
```

```

        return userRepository.save(userToUpdate);
    }
}

```

Src/main/resources

application.properties

```

spring.jpa.hibernate.ddl-auto=update
spring.datasource.url=jdbc:mysql://localhost:3306/mywork
spring.datasource.username=root
spring.datasource.password=password
logging.level.org.springframework.web: DEBUG
spring.mvc.view.prefix=/WEB-INF/jsp/
spring.mvc.view.suffix=.jsp
server.port=8080

```

src/main/webapp/WEB-INF/jsp

Create error.jsp

```

<!DOCTYPE html>
<html>
<body>
<h1>Something went wrong! </h1>
<h2>Our Engineers are on it</h2>
<a href="/">Go Home</a>
</body>
</html>

```

Create index.jsp

```

<html>
<body>
<h2>Spring Application</h2>

<h2 class="hello-title">Hello ${name}!</h2>
<a href="/users">List Users</a>
<form action="/search/{id}" method="post">
Enter ID Number: <input name="id" type="text" id="id" placeholder="1" required/>
<input name="Submit" type="submit"/>
</form>

</body>
</html>

```

Create search.jsp

```

<%@ page language="java" contentType="text/html; charset=UTF-8"

```

```

    pageEncoding="UTF-8"%>
<%@ taglib prefix="form" uri="http://www.springframework.org/tags/form"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
    "http://www.w3.org/TR/html4/loose.dtd">

<html>
<style>
table {
    float: left;
}

th {
    border-bottom: 1px solid black;
    text-align: left;
}
</style>
<body>

    <h2>Search for User</h2>

    <table>
        <tr>
            <th>ID</th>
            <th>Name</th>
            <th>Email</th>
            <th>Password</th>
        </tr>
        <tr>
            <td>${userSearch.id}</td>
            <td>${userSearch.name}</td>
            <td>${userSearch.email}</td>
            <td>${userSearch.password}</td>
        </tr>
    </table>

    <br />
    <br />
    <br />
    <br />
    <br />
    <br />
    <form:form action="update" method="post" commandName="update">
        <h3>Update This User?</h3>
        <p>User ID: ${userSearch.id}</p>
        <input type="hidden" name="id" id="id" value="${userSearch.id}" required/>
        <label for="name">New Name:</label><br/>
        <input type="text" name="name" id="name" value="${userSearch.name}"
required/><br/>
        <label for="email">New Email:</label><br/>
        <input type="text" name="email" id="email" value="${userSearch.email}"
required/><br/>
        <label for="password">New Password:</label><br/>

```

```

        <input type="text" name="password" id="password" value="${userSearch.password}"
required/><br/><br/>
        <input type="submit" value="Submit"/>
    </form:form>
    <br />
    <br />
    <a href="/">Return to Menu</a>
</body>
</html>

```

Create update.jsp

```

<html>
<body>
<h2>Update Successful</h2>
Updated User Credentials: ${updatedUser.toString()}
<br/><br/>
<a href="/">Return to Menu</a>
</body>
</html>

```

Create users.jsp

```

<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<html>
<style>
table {
float: left;
}

table, th, td {
border: 1px solid black;
}
</style>
<head></head>
<body>
    <h2>Users Page</h2>
    <table>
    <tr><th>ID</th><th>Name</th><th>Email</th><th>Password</th></tr>
    <c:forEach items="${users}" var="user" varStatus="count">
        <tr id="${count.index}">
            <td>${user.id}</td>
            <td>${user.name}</td>
            <td>${user.email}</td>
            <td>${user.password}</td>
        </tr>
    </c:forEach>
    </table>
</body>
</html>

```