МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ

федеральное государственное автономное образовательное учреждение высшего образования «САНКТ-ПЕТЕРБУРГСКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ АЭРОКОСМИЧЕСКОГО ПРИБОРОСТРОЕНИЯ»

ИНСТИТУТ ВЫЧИСЛИТЕЛЬНЫХ СИСТЕМ И ПРОГРАММИРОВАНИЯ

КАФЕДРА компьютерных технологий и программной инженерии			
ОТЧЕТ ЗАЩИЩЕН С ОЦЕНКОЙ			
ПРЕПОДАВАТЕЛЬ			
ассистент			Кочин Д.А.
должность, уч. степен	ь, звание	подпись, дата	инициалы, фамилия
ОТЧЕТ О ЛАБОРАТОРНОЙ РАБОТЕ №5 «Разработка приложения с использованием thymeleaf» по курсу: Технологии разработки серверных информационных систем			
РАБОТУ ВЫПОЛНИЛ			
СТУДЕНТ ГР. №	4932	06.12.2021	С.И. Коваленко
_		подпись, дата	инициалы, фамилия

Санкт-Петербург 2021

Цель работы

Познакомится с основами написания форм с использованием Thymeleaf.

Задание:

- 1. Реализуй те задачи из лабораторной работы 1 средствами Thymeleaf.
- 2 Обратите внимание на локализацию приложения. Русский язык должен поддерживаться.

Вариант: 9. Складской учет.

Описание разрабатываемого продукта:

LoginPage

```
<!DOCTYPE html>
</head>
   div.error{
       background-color: rgba(219, 112, 147, 0.67);
<a href="/" >Home</a>
   <div class="error" th:if="${param.error}">
    </div>
```

Logout

Выводы

•

```
Приложение:
```

```
// @filename \src\main\java\suai\trsis2021\labs\Lab4Application.java
package suai.trsis2021.labs;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
@SpringBootApplication
public class Lab4Application {
     public static void main(String[] args) {
            SpringApplication.run(Lab4Application.class, args);
     }
}
//@filename\src\main\java\suai\trsis2021\labs\controller\RestApiController.java
package suai.trsis2021.labs.controller;
import com.google.gson.Gson;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.HttpStatus;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.*;
import suai.trsis2021.labs.entity.ItemEntity;
import suai.trsis2021.labs.exceptions.ItemNotFoundException;
import suai.trsis2021.labs.service.ItemService;
import java.util.Arrays;
@RestController
@RequestMapping("/items")
public class RestApiController {
  @Autowired
 private ItemService itemService;
 private static final Gson gson = new Gson();
 @PostMapping("add")
 public ResponseEntity<String> addCost(@RequestBody ItemEntity cost){
   try {
     if(itemService.addItem(cost)) {
       return ResponseEntity.status(HttpStatus.CREATED).body(gson.toJson("Item added
successfully"));
     throw new ItemNotFoundException(gson.toJson("Item don't found"));
   } catch (ItemNotFoundException e){
ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
```

```
} catch (Exception e){
              e.printStackTrace();
              return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body("RestApiController error -
> " + e.getMessage() +
                       "\n\n" + Arrays.toString(e.getStackTrace()));
         }
    }
    @DeleteMapping("delete/{id}")
    public ResponseEntity<String> deleteCost(@PathVariable Long id){
         try {
              if (itemService.deleteItem(id)){
                  return ResponseEntity.status(HttpStatus.OK).body(gson.toJson("Item delete
successfully"));
              throw new ItemNotFoundException("Item don't found");
         } catch (ItemNotFoundException e){
ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
         }catch (Exception e){
Response Entity. status (HttpStatus.INTERNAL\_SERVER\_ERROR). body (gson.toJson ("RestApiContains)) and the properties of the properties o
roller error"));
         }
    }
    @PutMapping("put/{id}")
    public ResponseEntity<String> putCost(@RequestBody ItemEntity cost){
         try {
              if(itemService.putItem(cost)) {
                  return ResponseEntity.status(HttpStatus.ACCEPTED).body(gson.toJson("Item updated
successfully"));
              throw new ItemNotFoundException(gson.toJson("Item don't found"));
         } catch (ItemNotFoundException e){
ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
         }catch (Exception e){
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body(gson.toJson("RestApiCont
roller error"));
         }
    }
    @GetMapping("get/all")
    public ResponseEntity<Object> getCostList(){
         try {
              return ResponseEntity.status(HttpStatus.OK).body(itemService.getItems());
```

```
}catch (Exception e){
     return
ResponseEntity.status(HttpStatus.INTERNAL_SERVER_ERROR).body(gson.toJson("RestApiCont
roller error"));
   }
 }
 @GetMapping("get/{id}")
 public ResponseEntity<String> getCost(@PathVariable Long id){
   try {
     return
ResponseEntity.status(HttpStatus.FOUND).body(gson.toJson(itemService.getItem(id)));
   }catch (ItemNotFoundException e){
     return
ResponseEntity.status(HttpStatus.NOT_FOUND).body(gson.toJson(e.getMessage()));
   }catch (Exception e){
     return
ResponseEntity.status(HttpStatus.INTERNAL SERVER ERROR).body("RestApiController
error");
   }
 }
}
// @filename \src\main\java\suai\trsis2021\labs\controller\WebController.java
package suai.trsis2021.labs.controller;
import org.springframework.stereotype.Controller;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.RequestMapping;
import org.springframework.web.servlet.view.RedirectView;
@Controller
public class WebController {
 @GetMapping("")
 public RedirectView redirect(){
   return new RedirectView("/home");
 @RequestMapping("/login")
 public String login(){
   return "LoginPage";
 @GetMapping("/home")
 public String homePage() {
   return "HomePage";
 }
```

```
@GetMapping("/crud-pane")
  public String getAdminPage(){
   return "CrudPane";
  @GetMapping("/read-pane")
  public String getReadPage() {
   return "ReadPane";
  }
  @GetMapping("/forbidden-page")
  public String getForbiddenPage() {
   return "ForbiddenPage";
}
// @filename \src\main\java\suai\trsis2021\labs\entity\ItemEntity.java
package suai.trsis2021.labs.entity;
import lombok.*;
import javax.persistence.*;
import java.time.LocalDate;
@Table(schema = "trsis_tessier")
@Entity(name = "item")
public class ItemEntity {
  @GeneratedValue(strategy = GenerationType.IDENTITY)
  @Getter @Setter private Long id;
  @Getter @Setter private String section;
  @Getter @Setter private String name;
  @Getter @Setter private Integer count;
  @Column(name = "date_add")
  @Getter @Setter private LocalDate dateAdd;
  @Column(name = "storage_time")
  @Getter @Setter private Integer storageTime;
  @Column(name = "storage_price")
  @Getter @Setter private Integer storagePrice;
  public ItemEntity() {
    count = 1;
  public void countUp(){
```

```
count += 1;
 }
 public void countDown(){
   count -= 1;
}
//@filename\src\main\java\suai\trsis2021\labs\exceptions\ItemNotFoundException.java
package suai.trsis2021.labs.exceptions;
public class ItemNotFoundException extends Exception{
 public ItemNotFoundException(String message) {
   super(message);
 }
}
// @filename \src\main\java\suai\trsis2021\labs\model\Item.java
package suai.trsis2021.labs.model;
import lombok.*;
import suai.trsis2021.labs.entity.ItemEntity;
import java.time.LocalDate;
public class Item {
 public static Item toModel(ItemEntity entity){
   Item item = new Item();
   item.setId(entity.getId());
   item.setSection(entity.getSection());
   item.setName(entity.getName());
   item.setDateAdd(entity.getDateAdd());
   item.setStorageTime(entity.getStorageTime());
   item.setStoragePrice(entity.getStoragePrice());
   item.setCount(entity.getCount());
   return item;
 @Getter @Setter private Long id;
 @Getter @Setter private String section;
 @Getter @Setter private String name;
 @Getter @Setter private LocalDate dateAdd;
 @Getter @Setter private Integer storageTime;
  @Getter @Setter private Integer storagePrice;
```

```
@Getter @Setter private Integer count;
  public Item() {
   count = 1;
  public void countUp(){
   count += 1;
  }
  public void countDown(){
    count -= 1:
 }
}
// @filename \src\main\java\suai\trsis2021\labs\repository\ItemRepository.java
package suai.trsis2021.labs.repository;
import org.springframework.data.jpa.repository.JpaRepository;
import org.springframework.data.jpa.repository.Modifying;
import org.springframework.data.jpa.repository.Query;
import org.springframework.stereotype.Repository;
import suai.trsis2021.labs.entity.ItemEntity;
import java.time.LocalDate;
import java.util.List;
import java.util.Optional;
@Repository
public interface ItemRepository extends JpaRepository<ItemEntity, Long> {
  @Modifying
  @Query("update item i " +
      "set i.section = ?1, " +
     " i.name = ?2," +
     " i.dateAdd = ?3," +
      " i.storageTime = ?4," +
     " i.storagePrice = ?5," +
      " i.count = ?6"+
      "where i.id = ?7")
  void updateCostById(
      String section,
      String name,
      LocalDate dateAdd,
      Integer storageTime,
      Integer storagePrice,
      Integer count,
```

```
Long id
  );
  List<ItemEntity> findByName(String name);
  Optional<ItemEntity> findById(Long id);
// @filename \src\main\java\suai\trsis2021\labs\service\ItemService.java
package suai.trsis2021.labs.service;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Service;
import org.springframework.transaction.annotation.Transactional;
import suai.trsis2021.labs.entity.ItemEntity;
import suai.trsis2021.labs.exceptions.ItemNotFoundException;
import suai.trsis2021.labs.model.Item;
import suai.trsis2021.labs.repository.ItemRepository;
import java.util.LinkedList;
import java.util.List;
import java.util.Optional;
@Service
@Transactional
public class ItemService {
  @Autowired
  private ItemRepository itemRepository;
  public boolean addItem(ItemEntity item){
   if(isEmptyItem(item)) {
      return false;
   }
   try {
      ItemEntity c = findItemEntity(item);
     if(c == null)
        itemRepository.save(item);
      }
      else{
        c.countUp();
        updateItemById(c);
      return true;
   }
    catch (Exception e){
      e.printStackTrace();
      return false;
```

```
}
public boolean deleteItem(Long id){
 try {
    Optional<ItemEntity> c = itemRepository.findById(id);
    if(c.isEmpty()){
     return false;
    ItemEntity item = c.get();
    if(item.getCount() > 1){
      item.countDown();
      updateItemById(item);
    else{
     itemRepository.deleteById(id);
    return true;
 }catch (Exception e){
    return false;
 }
}
public boolean putItem(ItemEntity item){
 if(isEmptyItem(item)) {
    return false;
 }
  Optional<ItemEntity> c = itemRepository.findById(item.getId());
 if(c.isEmpty()){
    return false;
 }
 ItemEntity itemEntity = c.get();
 itemEntity.setSection(item.getSection());
 itemEntity.setName(item.getName());
 itemEntity.setDateAdd(item.getDateAdd());
 itemEntity.setStorageTime(item.getStorageTime());
 itemEntity.setStoragePrice(item.getStoragePrice());
 updateItemById(itemEntity);
 return true;
}
public List<Item> getItems(){
  List<Item> items = new LinkedList<>();
 itemRepository.findAll().forEach(e -> items.add(Item.toModel(e)));
 return items:
```

```
}
public Item getItem(Long id) throws ItemNotFoundException {
  var item = itemRepository.findById(id);
  if(item.isEmpty()){
    throw new ItemNotFoundException("Item don't found");
  return Item.toModel(item.get());
public ItemEntity findItemEntity(ItemEntity item) {
  for (var c : itemRepository.findByName(item.getName())) {
    if (equalItems(c, item)) {
      return c;
    }
  }
  return null;
private void updateItemById(ItemEntity item){
  itemRepository.updateCostById(
    item.getSection(),
    item.getName(),
    item.getDateAdd(),
    item.getStorageTime(),
    item.getStoragePrice(),
    item.getCount(),
    item.getId()
  );
}
private boolean equalItems(ItemEntity e1, ItemEntity e2){
  return e1.getSection().equals(e2.getSection())
      && e1.getName().equals(e2.getName())
      && e1.getDateAdd().equals(e2.getDateAdd())
      && e1.getStorageTime().equals(e2.getStorageTime())
      && e1.getStoragePrice().equals(e2.getStoragePrice());
}
private boolean isEmptyItem(ItemEntity item){
  return item.getSection() == null
    || item.getName() == null
    || item.getDateAdd() == null
    || item.getStorageTime() == null
    || item.getStoragePrice() == null;
}
```

}

```
// @filename \src\main\java\suai\trsis2021\labs\util\WebSecurityConfig.java
package suai.trsis2021.labs.util;
import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;
import org.springframework.security.config.annotation.web.builders.HttpSecurity;
import org.springframework.security.config.annotation.web.configuration.EnableWebSecurity;
import
org.springframework.security.config.annotation.web.configuration.WebSecurityConfigurerAdap
import org.springframework.security.core.userdetails.User;
import org.springframework.security.core.userdetails.UserDetails;
import org.springframework.security.core.userdetails.UserDetailsService;
import org.springframework.security.provisioning.InMemoryUserDetailsManager;
@Configuration
@EnableWebSecurity
public class WebSecurityConfig extends WebSecurityConfigurerAdapter {
 @Override
 protected void configure(HttpSecurity http) throws Exception {
   http.csrf().disable()
      .authorizeRequests()
       .antMatchers("/", "/home-page").permitAll()
        .antMatchers("/read-pane").hasAnyRole("USER", "ADMIN")
        .antMatchers("/crud-pane").hasRole("ADMIN")
     .and()
        .formLogin()
          .loginPage("/login")
         .permitAll()
      .and()
        .logout()
         .permitAll()
     .and()
        .exceptionHandling().accessDeniedPage("/forbidden-page");
 }
  @Bean
 @Override
 protected UserDetailsService userDetailsService() {
   UserDetails user = User.withDefaultPasswordEncoder()
        .username("user")
        .password("1")
       .roles("USER")
       .build();
   UserDetails admin = User.withDefaultPasswordEncoder()
```

```
.username("admin")
       .password("1")
       .roles("ADMIN")
       .build();
   return new InMemoryUserDetailsManager(user, admin);
 }
}
// @filename \src\main\resources\templates\CrudPane.html
<!DOCTYPE html>
<html lang="ru">
<head>
 <meta charset="UTF-8">
 <title>Складской учет</title>
 <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
</head>
<script type="text/javascript">
 $(document).ready(function(){
   refresh();
 })
 function refresh(){
   draw table();
 function draw_table(){
   $.ajax({
     url: "items/get/all",
     dataType: "json",
     contentType: "application/json",
     type: "GET",
     async: false,
     cache: false,
     success: function (data) {
       let $items = $('#items_table')
       let table = "";
       table +=
         " \n"+
             <th>id</th>\n" +
             Cекция\n"+
             <th>Название товара</th>\n" +
             Дата добавления\n"+
             Cpoк хранения\n"+
```

```
<th>Стоимость хранения\n" +
           Количество\n"+
           <th></th>n" +
           \n" +
       " ";
     for(let i=0; i<data.length; i++) {
       table +=
        "\n" +
           " + data[i].id + "\n" +
        " " + data[i].section + "\n" +
        " " + data[i].name + "\n" +
           " + data[i].dateAdd + "\n" +
          " + data[i].storageTime + "\n" +
           " + data[i].storagePrice + "\n" +
          " + data[i].count + "\n" +
            n" +
             <button onclick='deleteCost(" + data[i].id + ")'>Delete</button>\n" +
          \n" +
        " <td>\n" +
               <br>" +
             <button onclick='editCost(" + data[i].id + ")'>Edit</button>\n" +
        " \n" +
        "";
     }
     table += "";
     $items.html(table);
   },
   error: function (error) {
     console.log(error);
 });
function addCost() {
 $.ajax({
   url: "/items/add/",
   dataType: "json",
   contentType: "application/json",
   type: "POST",
   async: false,
   cache: false,
   data: JSON.stringify({
     section: $("#fieldSection").val(),
     name: $("#fiendName").val(),
     dateAdd: $("#fieldDateAdd").val(),
     storageTime: $("#fieldStorageTime").val(),
```

```
storagePrice: $("#fieldStoragePrice").val()
    }),
    success: function () {
      refresh();
    error: function (error) {
      console.log(error);
 });
function deleteCost(idCost){
 $.ajax({
    url: 'items/delete/'+ idCost,
    type: "DELETE",
    async: false,
    cache: false,
    dataType: "json",
    contentType: "application/json; charset=utf-8",
    success: function (){
      refresh();
    error: function (error){
      console.log(error);
 })
}
function editCost(idCost){
  $.ajax({
    url: "/items/put/" + idCost,
    dataType: "json",
    contentType: "application/json",
    type: "PUT",
    async: false,
    cache: false,
    data: JSON.stringify({
      id: idCost,
      section: $("#fieldSection").val(),
      name: $("#fiendName").val(),
      dateAdd: $("#fieldDateAdd").val(),
      storageTime: $("#fieldStorageTime").val(),
      storagePrice: $("#fieldStoragePrice").val()
    success: function (){
      refresh();
    error: function (error){
      console.log(error);
```

```
}
  })
</script>
<body>
 <div th:include="Logout"></div>
   <h1>Складской учет</h1>
   <div>
    <form>
      Ceкция
         <input type="text" name="section" id="fieldSection"> 
       Hазвание товара
         <input type="text" name="name" id="fiendName"> 
       Дата добавления
         <input type="date" name="date_add" id="fieldDateAdd"> 
       Cpoк хранения
         <input type="number" name="storage_time" id="fieldStorageTime">  
       Стоимость хранения
         <input type="number" name="storage_price" id="fieldStoragePrice">  
      </form>
   </div>
   <button type="button" onclick='addCost()'>Добавить</button>
   <br>
   <hr>
   <div id="items_table"></div>
</body>
</html>
// @filename \src\main\resources\templates\ForbiddenPage.html
<!DOCTYPE html>
<html lang="ru">
<head>
 <meta charset="UTF-8">
 <title>Складской учет</title>
</head>
<body>
 <div style="text-align: center;">
   <h2>Доступ запрещен.</h2>
 </div>
```

```
</body>
// @filename \src\main\resources\templates\HomePage.html
<!DOCTYPE html>
<a href="http://www.w3.org/1999/xhtml">html xmlns="http://www.w3.org/1999/xhtml"</a>
  xmlns:th="https://www.thymeleaf.org"
  xmlns:sec="https://www.thymeleaf.org/thymeleaf-extras-springsecurity3"
  lang="ru">
<head>
 <title>Home</title>
</head>
<div th:include="Logout"></div>
<div>
 <h3>Pages</h3>
 <111>
   <
     <a href="login">Авторизация </a>
   <a href="crud-pane">Панель администратора</a>
      -->
<!--
   sec:authorize="hasAnyRole('USER', 'ADMIN')">
     <a href="read-pane">Панель пользователя </a>
 </div>
</html>
// @filename \src\main\resources\templates\LoginPage.html
<!DOCTYPE html>
<html lang="ru"
  xmlns="http://www.w3.org/1999/xhtml"
  xmlns:th="https://www.thymeleaf.org"
  xmlns:sec="https://www.thymeleaf.org/thymeleaf-extras-springsecurity3">
<head>
 <meta charset="UTF-8">
 <title>Логин</title>
</head>
<style>
 div.error{
   color: #000000;
   background-color: rgba(219, 112, 147, 0.67);
   text-align: center;
```

```
border-radius: 15px;
 }
 div.logout{
   color: #000000;
   background-color: rgba(152, 251, 152, 0.67);
   text-align: center;
   border-radius: 15px;
 }
</style>
<body>
<div th:include="Logout"></div>
<a href="/">Home</a>
<div style="
position: absolute;
top: 50%;
left: 50%:
margin-right: -50%;
transform: translate(-50%, -50%);
">
 <div class="error" th:if="${param.error}">
   Неверное имя пользователя или пароль.
 </div>
 <div class="logout" th:if="${param.logout}">
   Вы вышли из учетной записи.
 </div>
 <form th:action="@{/login}" method="post">
    Имя пользователя : 
      <input type="text" name="username"> 
     Пароль :  
      <input type="password" name="password"> 

      <input type="submit" value="Войти"/> 
   </form>
</div>
</body>
</html>
```

```
//@filename \src\main\resources\templates\Logout.html
<!DOCTYPE html>
<a href="http://www.w3.org/1999/xhtml" xmlns:th="https://www.thymeleaf.org" | <a href="http://www.thymeleaf.org" | <a href="http://www.thymeleaf.org" | <a href="http://www.thymeleaf.org" | <a href="http://www.thymeleaf.org" | <a href="https://www.thymeleaf.org" | <a href="https://www.thymeleaf.org
        xmlns:sec="https://www.thymeleaf.org/thymeleaf-extras-springsecurity3">
<body>
<form th:action="@{/logout}" method="post">
      <div th:if="${#request.userPrincipal!= null}" th:inline="text">
           Вы вошли как: [[${#httpServletRequest.remoteUser}]]
           <input type="submit" value="Выйти"/>
     </div>
</form>
</body>
</html>
// @filename \src\main\resources\templates\ReadPane.html
<!DOCTYPE html>
<html lang="ru">
<head>
     <meta charset="UTF-8">
     <title>Складской учет</title>
      <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.4.1/jquery.min.js"></script>
</head>
<script type="text/javascript">
     $(document).ready(function(){
           refresh();
     })
     function refresh(){
           draw_table();
     function draw table(){
           $.ajax({
                 url: "items/get/all",
                 dataType: "json",
                 contentType: "application/json",
                 type: "GET",
                 async: false,
                 cache: false.
                 success: function (data) {
                      let $items = $('#items_table')
                      let table = "";
                      table +=
```

```
" <tr>\n" +
            <th>id</th>\n" +
            Cекция\n"+
            <th>Название товара</th>\n" +
            Дата добавления\n"+
            <th>Срок хранения\n" +
            <th>Стоимость хранения\n" +
            Количество\n"+
        " ";
      for(let i=0; i<data.length; i++) {</pre>
        table +=
          "\n" +
          " <td>" + data[i].id + "</td>\n" +
          " " + data[i].section + "\n" +
          " " + data[i].name + "\n" +
          " " + data[i].dateAdd + "\n" +
          " <td>" + data[i].storageTime + "</td>\n" +
          " <td>" + data[i].storagePrice + "</td>\n" +
          " " + data[i].count + "\n" +
          "";
      }
      table += "";
      $items.html(table);
     },
     error: function (error) {
      console.log(error);
     }
   });
</script>
<body>
 <div th:include="Logout"></div>
 <div>
   <h1>Складской учет</h1>
   <div id='items_table'></div>
 </div>
</body>
</html>
```