Министерство образования Республики Беларусь

Министерство науки и высшего образования Российской Федерации

МЕЖГОСУДАРСТВЕННОЕ ОБРАЗОВАТЕЛЬНОЕ

УЧРЕЖДЕНИЕ ВЫСШЕГО ОБРАЗОВАНИЯ

«БЕЛОРУССКО-РОССИЙСКИЙ УНИВЕРСИТЕТ»

Кафедра «Автоматизированные системы управления»»

**Лабораторная работа № 5. Сервлеты**

Выполнил: студент гр.ИСИТ-191

Харкевич А. В.

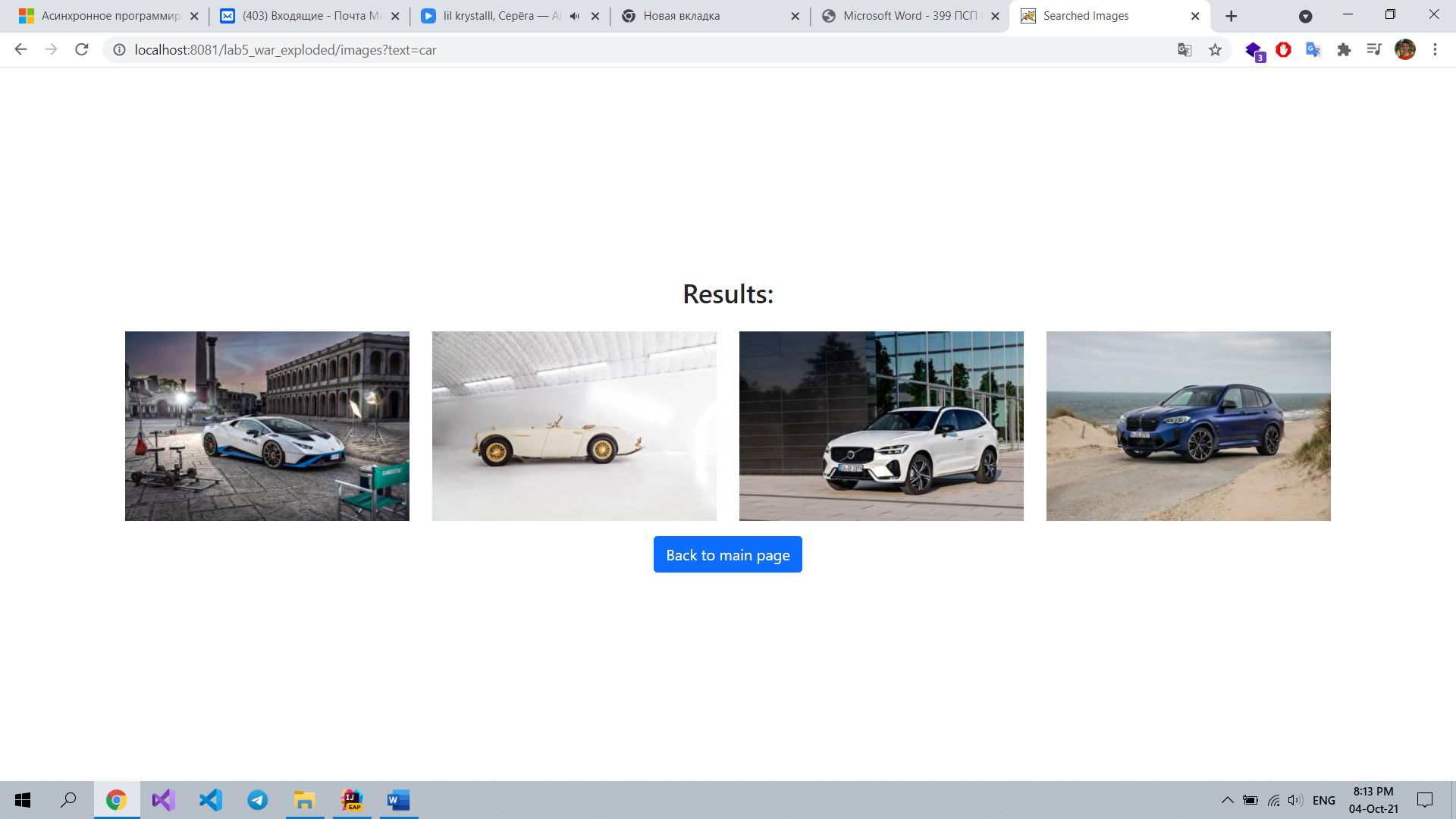
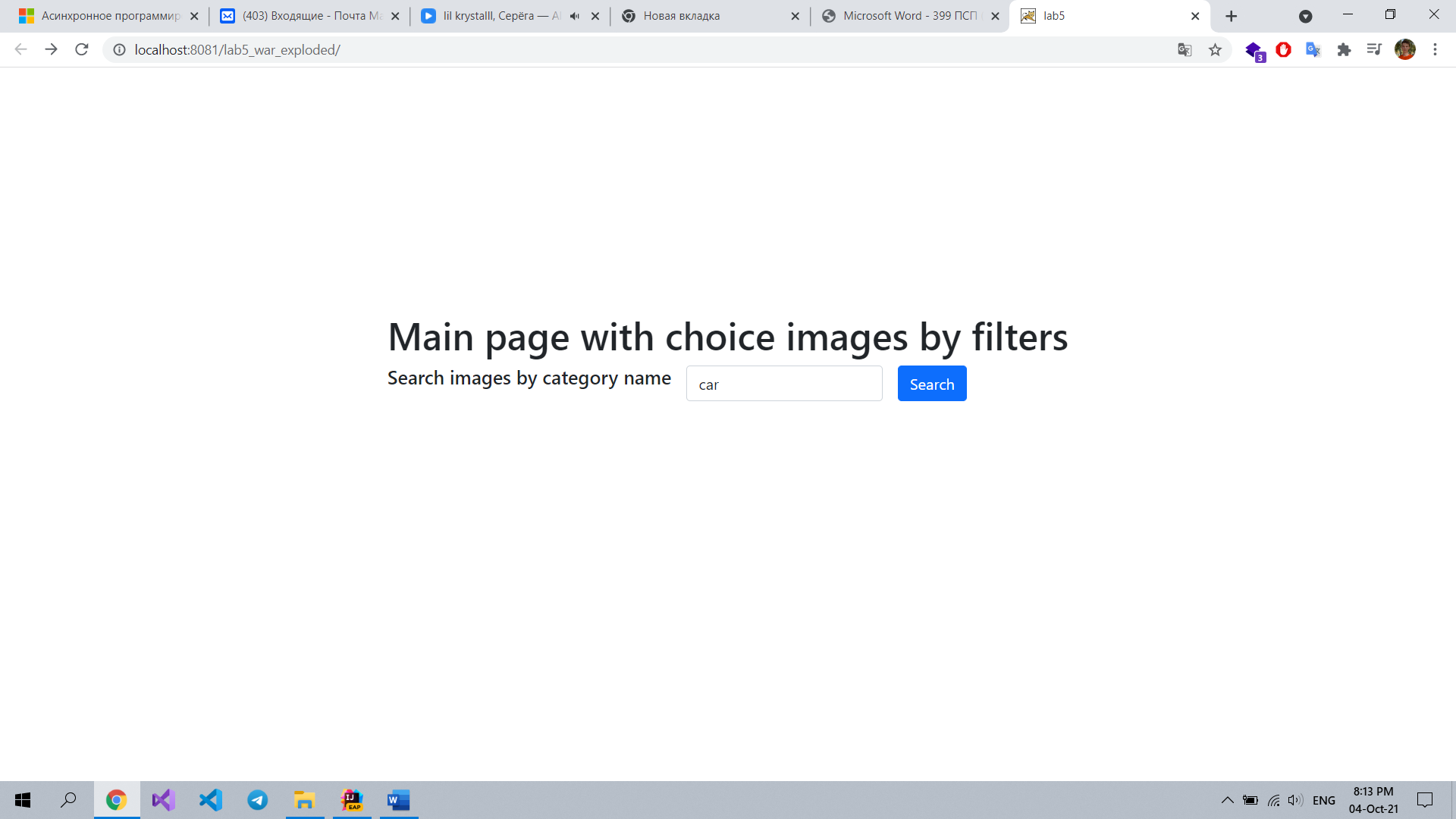
Проверил: Денисевич Д. А.

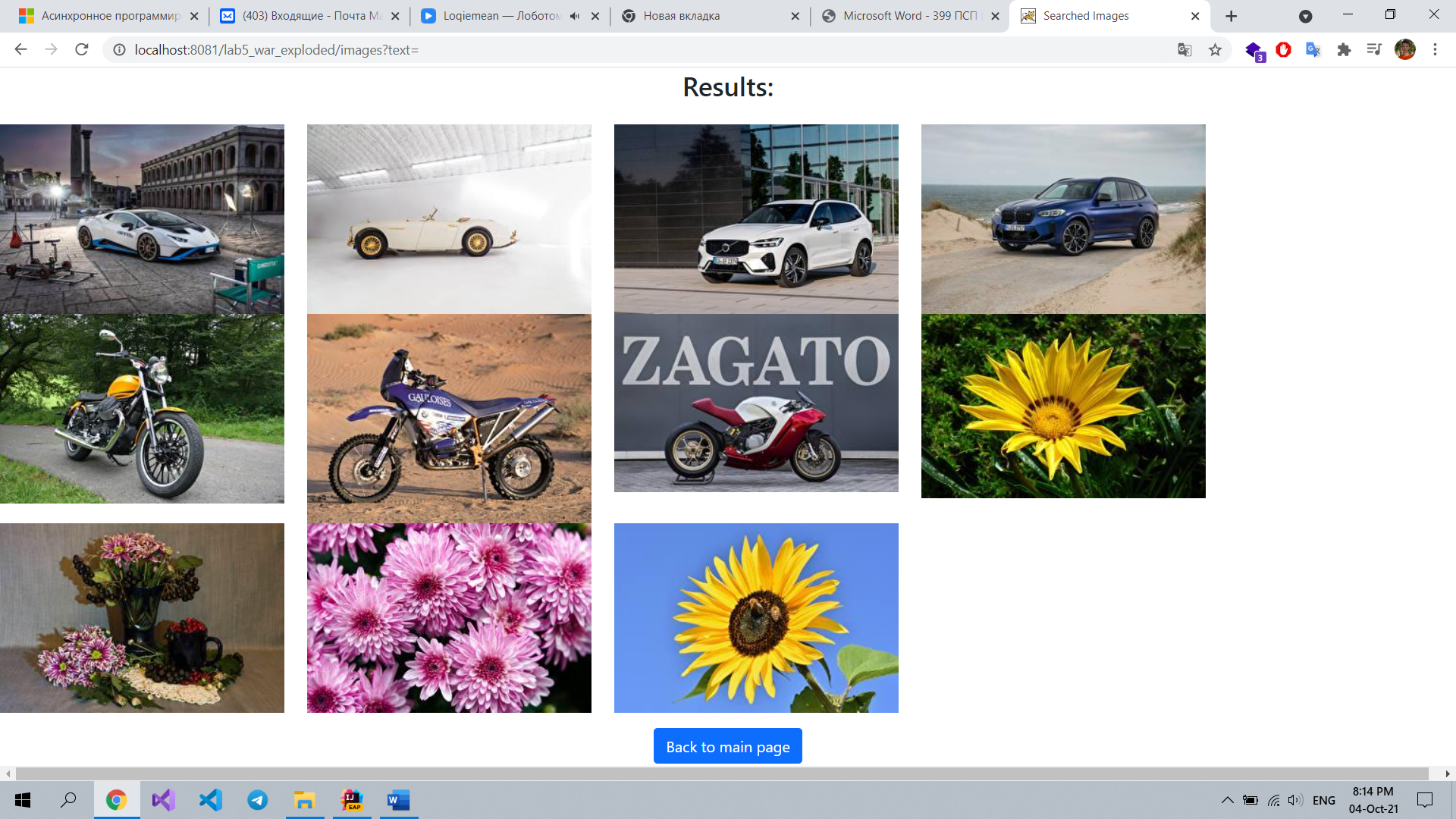
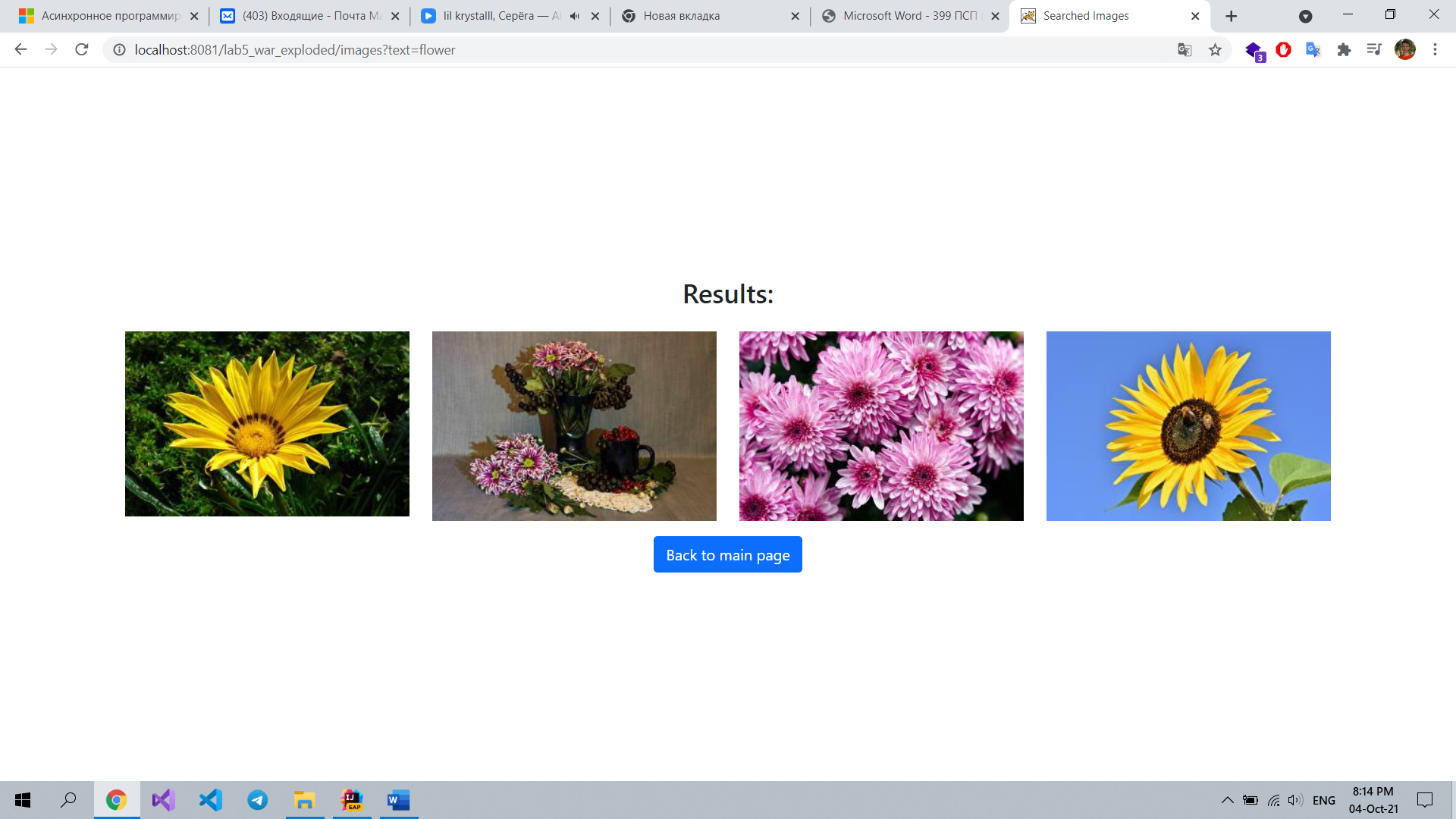
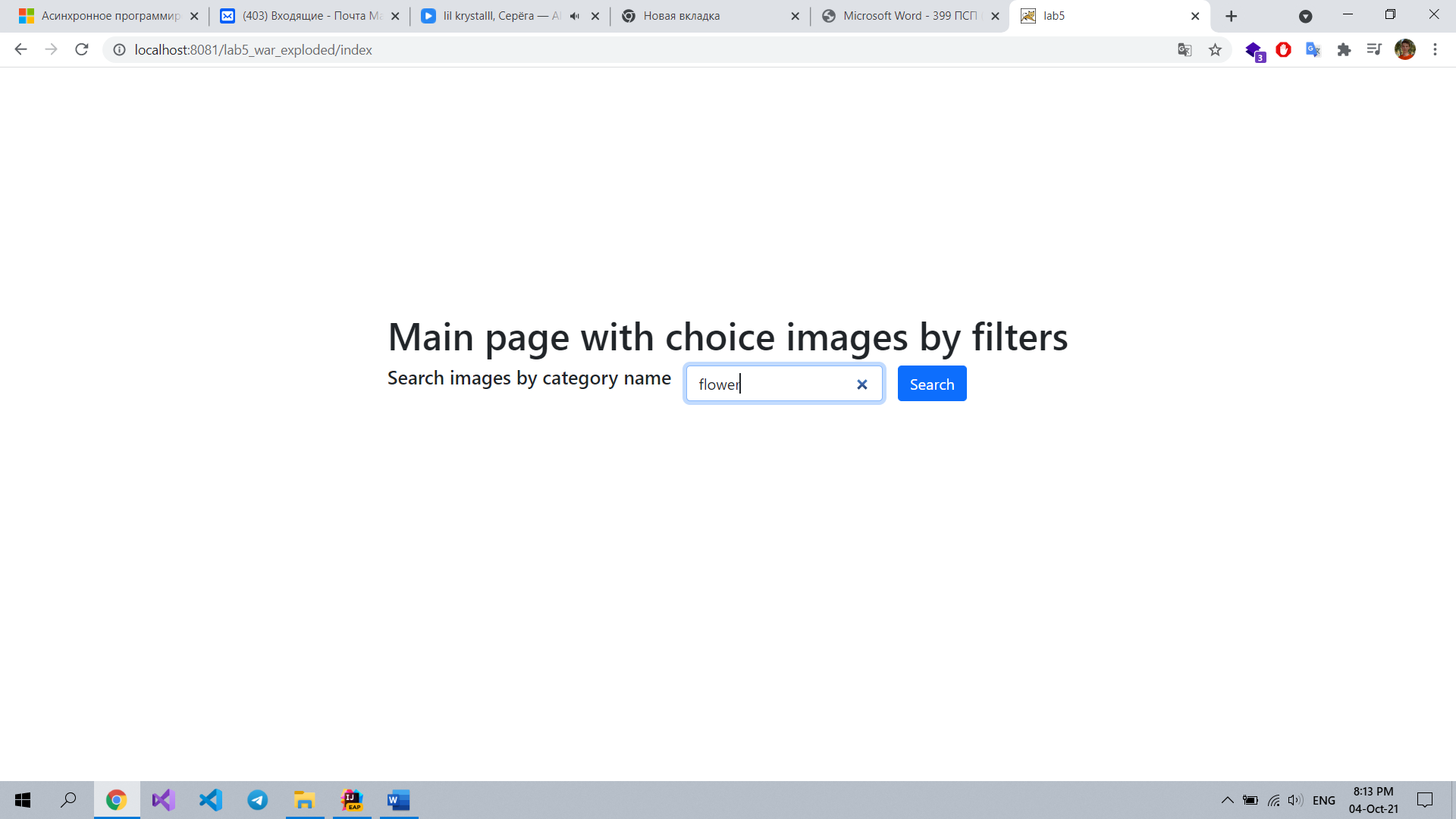
Могилев, 2021

**Вариант 7**

**Цель работы:** создать сервлет и взаимодействующие с ним пакеты Java-классов и JSP-страницы.

**Задание:** Выбор изображения по тематике (природа, автомобили, дети и т. д.) и его отображение.





**MainServlet.Java**

package com.example.lab5;  
  
import javax.servlet.ServletException;  
import javax.servlet.annotation.WebServlet;  
import javax.servlet.http.HttpServlet;  
import javax.servlet.http.HttpServletRequest;  
import javax.servlet.http.HttpServletResponse;  
import java.io.IOException;  
import java.util.ArrayList;  
  
@WebServlet("/index")  
public class MainServlet extends HttpServlet {  
 public void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException, ServletException {  
 response.setContentType("text/html");  
  
 getServletContext().getRequestDispatcher("/index.jsp").forward(request, response);  
 }  
  
 public void destroy() {  
 }  
}

**ImageServlet.java**

package com.example.lab5;  
  
import java.io.\*;  
import java.util.ArrayList;  
import javax.servlet.ServletException;  
import javax.servlet.http.\*;  
import javax.servlet.annotation.\*;  
  
@WebServlet("/images")  
public class ImageServlet extends HttpServlet {  
 private ImageService imageService = new ImageService();  
 private String message;  
  
 public void init() {  
 message = "Results:";  
 }  
  
 public void doGet(HttpServletRequest request, HttpServletResponse response) throws IOException, ServletException {  
 response.setContentType("text/html");  
  
 String categoryName = request.getParameter("text");  
  
 ArrayList<String> imgs = imageService.getImagesByCategory(categoryName);  
  
 request.setAttribute("imgs", imgs);  
 request.setAttribute("name", message);  
  
 getServletContext().getRequestDispatcher("/images.jsp").forward(request, response);  
 }  
  
 public void destroy() {  
 }  
}

**ImageService.java**

package com.example.lab5;  
  
import javax.imageio.ImageIO;  
import java.awt.image.BufferedImage;  
import java.io.ByteArrayOutputStream;  
import java.io.File;  
import java.io.IOException;  
import java.nio.file.FileSystems;  
import java.util.ArrayList;  
import java.util.Base64;  
  
public class ImageService {  
 private final String carCategoryName = "cars";  
 private final String motorcycleCategoryName = "motorcycles";  
 private final String flowerCategoryName = "flowers";  
 private ArrayList<String> images;  
 private static final int *BUFFER\_SIZE* = 8192;  
  
 public ArrayList<String> getImagesByCategory(String categoryName) throws IOException {  
 images = new ArrayList<String>();  
  
 if (carCategoryName.contains(categoryName)) {  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\car1.jpg"))));  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\car2.jpg"))));  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\car3.jpg"))));  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\car4.jpg"))));  
 }  
  
 if (motorcycleCategoryName.contains(categoryName)) {  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\moto1.jpg"))));  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\moto2.jpg"))));  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\moto3.jpg"))));  
 }  
  
 if (flowerCategoryName.contains(categoryName)) {  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\flower1.jpg"))));  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\flower2.jpg"))));  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\flower3.jpg"))));  
 images.add(*imageToBase64*(ImageIO.*read*(new File("img\\flower4.jpg"))));  
 }  
  
 return images;  
 }  
  
 public static String imageToBase64(BufferedImage image) throws IOException {  
 ByteArrayOutputStream out = new ByteArrayOutputStream(*BUFFER\_SIZE*);  
 ImageIO.*write*(image, "jpg", out);  
 return Base64.*getEncoder*().encodeToString(out.toByteArray());  
 }  
}

**Index.jsp**

<%@ page contentType="text/html; charset=UTF-8" pageEncoding="UTF-8" %>  
<!DOCTYPE html>  
<html>  
<head>  
 <title>lab5</title>  
 <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.1/dist/css/bootstrap.min.css" rel="stylesheet"  
 integrity="sha384-F3w7mX95PdgyTmZZMECAngseQB83DfGTowi0iMjiWaeVhAn4FJkqJByhZMI3AhiU" crossorigin="anonymous">  
 <link rel="stylesheet" href="style.css">  
</head>  
<body>  
<div class="h-100 d-flex justify-content-center align-items-center">  
 <div class="grid">  
 <div class="row">  
 <h1>Main page with choice images by filters</h1>  
 </div>  
 <form method="get" name="frm" action="images">  
 <div class="row g-3">  
 <div class="col-auto">  
 <label><h5>Search images by category name</h5></label>  
 </div>  
 <div class="col-auto">  
 <input class="form-control" type="search" placeholder="Enter category name" name="text">  
 </div>  
 <div class="col-auto">  
 <input class="btn btn-primary" type="submit" value="Search">  
 </div>  
 </div>  
 </form>  
 </div>  
</div>  
</body>  
</html>

**Images.jsp**

<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>  
<html>  
<head>  
 <title>Searched Images</title>  
 <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.1.1/dist/css/bootstrap.min.css" rel="stylesheet"  
 integrity="sha384-F3w7mX95PdgyTmZZMECAngseQB83DfGTowi0iMjiWaeVhAn4FJkqJByhZMI3AhiU" crossorigin="anonymous">  
</head>  
<body>  
<div class="h-100 d-flex justify-content-center align-items-center">  
 <div class="grid">  
 <div class="d-flex justify-content-center mb-3">  
 <div class="row">  
 <h3>${name}</h3>  
 </div>  
 </div>  
 <div class="row">  
 <c:forEach var="img" items="${imgs}">  
 <div class="col-auto">  
 <tr>  
 <img src="data:image/jpg;base64, ${img}" alt="image not found"/>  
 </tr>  
 </div>  
 </c:forEach>  
 </div>  
 <div class="d-flex justify-content-center">  
 <div class="row">  
 <a href="index" class="btn btn-primary mt-3">Back to main page</a>  
 </div>  
 </div>  
 </div>  
</div>  
</body>  
</html>