**МИНОБРНАУКИ РОССИИ**

**Санкт-Петербургский государственный**

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**Кафедра вычислительной техники**

**отчет**

**по лабораторной работе № 3**

**по дисциплине «Web-программирование»**

**Тема: «ПОСТРОЕНИЕ WEB-ПРИЛОЖЕНИЙ С ИСПОЛЬЗОВАНИЕМ ТЕХНОЛОГИИ СЕРВЛЕТОВ»**

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**Цель работы**

Знакомство с технологией построения web-приложений на основе сервлетов.

**Задание**

1. Выберите предметную область для лабораторной работы и разработайте для нее web-приложение.
2. Создайте Maven проект для web-приложения.
3. Разработайте HTML-страницу и сервлет для Web-приложения. Сервлет должен принимать параметры инициализации и один или более динамических параметров.
4. По команде Maven install создайте war-архив и поместите его на сервере Apache Tomcat.
5. Запустите Web-сервер и обратитесь к сервлету из браузера, проверьте правильность отображения HTML-страницы и работу сервлета.
6. Сгенерируйте документацию для сервлета с помощью команды Maven build и просмотрите ее в браузере.

**Выполнение работы**

Скриншоты, иллюстрирующие работу web-приложения представлены на рис. 1 и рис. 2.

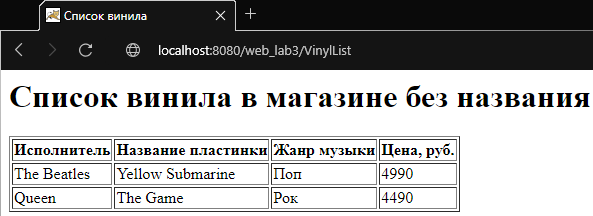


Рис. 1. Работа web-приложения

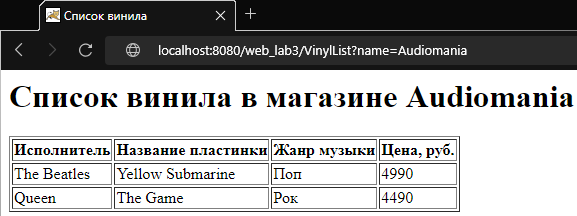


Рис. 2. Работа web-приложения с заданным значением параметра name

**Текст сервлета (файл VinylList.java)**

package web.lab3;

import java.io.IOException;

import jakarta.servlet.ServletException;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import java.io.PrintWriter;

/\*\*

\* Servlet implementation class VinylList

\*/

public class VinylList extends HttpServlet {

private static final long serialVersionUID = 1L;

/\*\*

\* @see HttpServlet#HttpServlet()

\*/

public VinylList() {

super();

// TODO Auto-generated constructor stub

}

/\*\*

\* Processes requests for both HTTP <code>GET</code> and <code>POST</code> methods.

\*

\* @param request servlet request

\* @param response servlet response

\* @throws ServletException if a servlet-specific error occurs

\* @throws IOException if an I/O error occurs

\*/

protected void processRequest(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

request.setCharacterEncoding("utf-8"); // Задание типа кодировки для параметров запроса

String name = request.getParameter("name"); // Чтение параметра name из запроса

response.setContentType("text/html;charset=UTF-8"); // Задание типа содержимого для ответа (в том числе кодировки)

PrintWriter out = response.getWriter(); // Получение потока для вывода ответа

try {

// Создание HTML-страницы

out.println("<html>");

out.println("<head><title>Список винила</title></head>");

out.println("<body>");

out.println("<h1>Список винила в магазине " + (name != null ? name : "без названия") + "</h1>");

out.println("<table border='1'>");

out.println("<tr><td><b>Исполнитель</b></td><td><b>Название пластинки</b></td><td><b>Жанр музыки</b></td><td><b>Цена, руб.</b></td></tr>");

out.println("<tr><td>The Beatles</td><td>Yellow Submarine</td><td>Поп</td><td>4990</td></tr>");

out.println("<tr><td>Queen</td><td>The Game</td><td>Рок</td><td>4490</td></tr>");

out.println("</table>");

out.println("</body>");

out.println("</html>");

} finally {

out.close(); // Закрытие потока вывода

}

}

/\*\*

\* Handles the HTTP <code>GET</code> method.

\*

\* @param request servlet request

\* @param response servlet response

\* @throws ServletException if a servlet-specific error occurs

\* @throws IOException if an I/O error occurs

\*/

@Override

protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

processRequest(request, response);

}

/\*\*

\* Handles the HTTP <code>POST</code> method.

\*

\* @param request servlet request

\* @param response servlet response

\* @throws ServletException if a servlet-specific error occurs

\* @throws IOException if an I/O error occurs

\*/

@Override

protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

processRequest(request, response);

}

}

**Текст файла web.xml**

<!DOCTYPE web-app PUBLIC

"-//Sun Microsystems, Inc.//DTD Web Application 2.3//EN"

"http://java.sun.com/dtd/web-app\_2\_3.dtd" >

<web-app>

<display-name>Archetype Created Web Application</display-name>

<servlet>

<servlet-name>VinylList</servlet-name>

<display-name>VinylList</display-name>

<description></description>

<servlet-class>web.lab3.GameList</servlet-class>

</servlet>

<servlet-mapping>

<servlet-name>VinylList</servlet-name>

<url-pattern>/VinylList</url-pattern>

</servlet-mapping>

</web-app>

**Текст файла 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 http://maven.apache.org/xsd/maven-4.0.0.xsd">

<modelVersion>4.0.0</modelVersion>

<groupId>VN</groupId>

<artifactId>web\_lab3</artifactId>

<version>0.0.1-SNAPSHOT</version>

<packaging>war</packaging>

<name>web\_lab3 Maven Webapp</name>

<!-- FIXME change it to the project's website -->

<url>http://www.example.com</url>

<properties>

<project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>

<maven.compiler.source>1.7</maven.compiler.source>

<maven.compiler.target>1.7</maven.compiler.target>

</properties>

<dependencies>

<dependency>

<groupId>junit</groupId>

<artifactId>junit</artifactId>

<version>4.11</version>

<scope>test</scope>

</dependency>

<dependency>

<groupId>jakarta.servlet</groupId>

<artifactId>jakarta.servlet-api</artifactId>

<version>5.0.0</version>

<scope>provided</scope>

</dependency>

<dependency>

<groupId>jakarta.servlet.jsp</groupId>

<artifactId>jakarta.servlet.jsp-api</artifactId>

<version>3.0.0</version>

<scope>provided</scope>

</dependency>

</dependencies>

<build>

<finalName>web\_lab3</finalName>

<pluginManagement><!-- lock down plugins versions to avoid using Maven defaults (may be moved to parent pom) -->

<plugins>

<plugin>

<artifactId>maven-clean-plugin</artifactId>

<version>3.1.0</version>

</plugin>

<!-- see http://maven.apache.org/ref/current/maven-core/default-bindings.html#Plugin\_bindings\_for\_war\_packaging -->

<plugin>

<artifactId>maven-resources-plugin</artifactId>

<version>3.0.2</version>

</plugin>

<plugin>

<artifactId>maven-compiler-plugin</artifactId>

<version>3.8.0</version>

</plugin>

<plugin>

<artifactId>maven-surefire-plugin</artifactId>

<version>2.22.1</version>

</plugin>

<plugin>

<artifactId>maven-war-plugin</artifactId>

<version>3.2.2</version>

</plugin>

<plugin>

<artifactId>maven-install-plugin</artifactId>

<version>2.5.2</version>

</plugin>

<plugin>

<artifactId>maven-deploy-plugin</artifactId>

<version>2.8.2</version>

</plugin>

<plugin>

<groupId>org.apache.maven.plugins</groupId>

<artifactId>maven-javadoc-plugin</artifactId>

<version>3.1.1</version>

<executions>

<execution>

<id>attach-javadocs</id>

<goals>

<goal>javadoc</goal>

</goals>

</execution>

</executions>

</plugin>

</plugins>

</pluginManagement>

</build>

</project>

***Method Summary***

**All Methods**

**Instance Methods**

**Concrete Methods**

doDelete, doHead, doOptions, doPut, doTrace, getLastModified, service, service

**Methods inherited from class jakarta.servlet.http.HttpServlet**

**Документация сервлета, сгенерированная Javadoc**

**Package** [web.lab3](file://localhost/C:/eclipse/workspace/web_lab3/target/site/apidocs/web/lab3/package-summary.html)

**Class VinylList**

[java.lang.Object](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html)

jakarta.servlet.GenericServlet

jakarta.servlet.http.HttpServlet web.lab3.VinylList

**All Implemented Interfaces:**

jakarta.servlet.Servlet, jakarta.servlet.ServletConfig, [Serializable](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/io/Serializable.html)

public class **VinylList**

extends jakarta.servlet.http.HttpServlet

Servlet implementation class VinylList

**See Also:**

[Serialized Form](file://localhost/C:/eclipse/workspace/web_lab3/target/site/apidocs/serialized-form.html#web.lab3.VinylList)

***Constructor Summary***

**Constructors**

**Constructor Description**

**VinylList**()

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Modifier and Type**  protected void  protected void  protected void | **Method**  **doGet**  (jakarta.servlet.http.HttpServlet jakarta.servlet.http.HttpServletR  **doPost**  (jakarta.servlet.http.HttpServlet jakarta.servlet.http.HttpServletR  **processRequest**  (jakarta.servlet.http.HttpServlet jakarta.servlet.http.HttpServletR | | | **Description**  Handles the HTTP GET method.  Handles the HTTP POST method.  Processes requests for both HTTP GET  and POST methods. |
|  |  |  |  |  |

***Constructor Details***

public VinylList()

**See Also:**

HttpServlet()

**VinylList**

***Method Details***

protected void processRequest(jakarta.servlet.http.HttpServletRequest request,

jakarta.servlet.http.HttpServletResponse response) throws jakarta.servlet.ServletException,

[IOException](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/io/IOException.html)

Processes requests for both HTTP GET and POST methods.

**Parameters:**

request - servlet request

response - servlet response

**Throws:**

jakarta.servlet.ServletException - if a servlet-specific error occurs

[IOException](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/io/IOException.html) - if an I/O error occurs

protected void doGet(jakarta.servlet.http.HttpServletRequest request,

jakarta.servlet.http.HttpServletResponse response) throws jakarta.servlet.ServletException,

[IOException](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/io/IOException.html)

Handles the HTTP GET method.

**doGet**

**processRequest**

destroy, getInitParameter, getInitParameterNames, getServletConfig,

getServletContext, getServletInfo, getServletName, init, init, log, log

[clone](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#clone()) , [equals](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#equals(java.lang.Object)) , [finalize](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#finalize()) , [getClass](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#getClass()) , [hashCode](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#hashCode()) , [notify](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#notify()) , [notifyAll](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#notifyAll()) , [toString](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#toString()) ,

[wait](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#wait()) , [wait](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#wait(long)) , [wait](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html#wait(long%2Cint))

**Methods inherited from class java.lang.**[**Object**](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/lang/Object.html)

**Methods inherited from class jakarta.servlet.GenericServlet**

**Overrides:**

doGet in class jakarta.servlet.http.HttpServlet

**Parameters:**

request - servlet request

response - servlet response

**Throws:**

jakarta.servlet.ServletException - if a servlet-specific error occurs

[IOException](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/io/IOException.html) - if an I/O error occurs

protected void doPost(jakarta.servlet.http.HttpServletRequest request,

jakarta.servlet.http.HttpServletResponse response) throws jakarta.servlet.ServletException,

[IOException](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/io/IOException.html)

Handles the HTTP POST method.

**Overrides:**

doPost in class jakarta.servlet.http.HttpServlet

**Parameters:**

request - servlet request

response - servlet response

**Throws:**

jakarta.servlet.ServletException - if a servlet-specific error occurs

[IOException](https://docs.oracle.com/en/java/javase/17/docs/api/java.base/java/io/IOException.html) - if an I/O error occurs

**doPost**