

# Lab2: Code Modernization

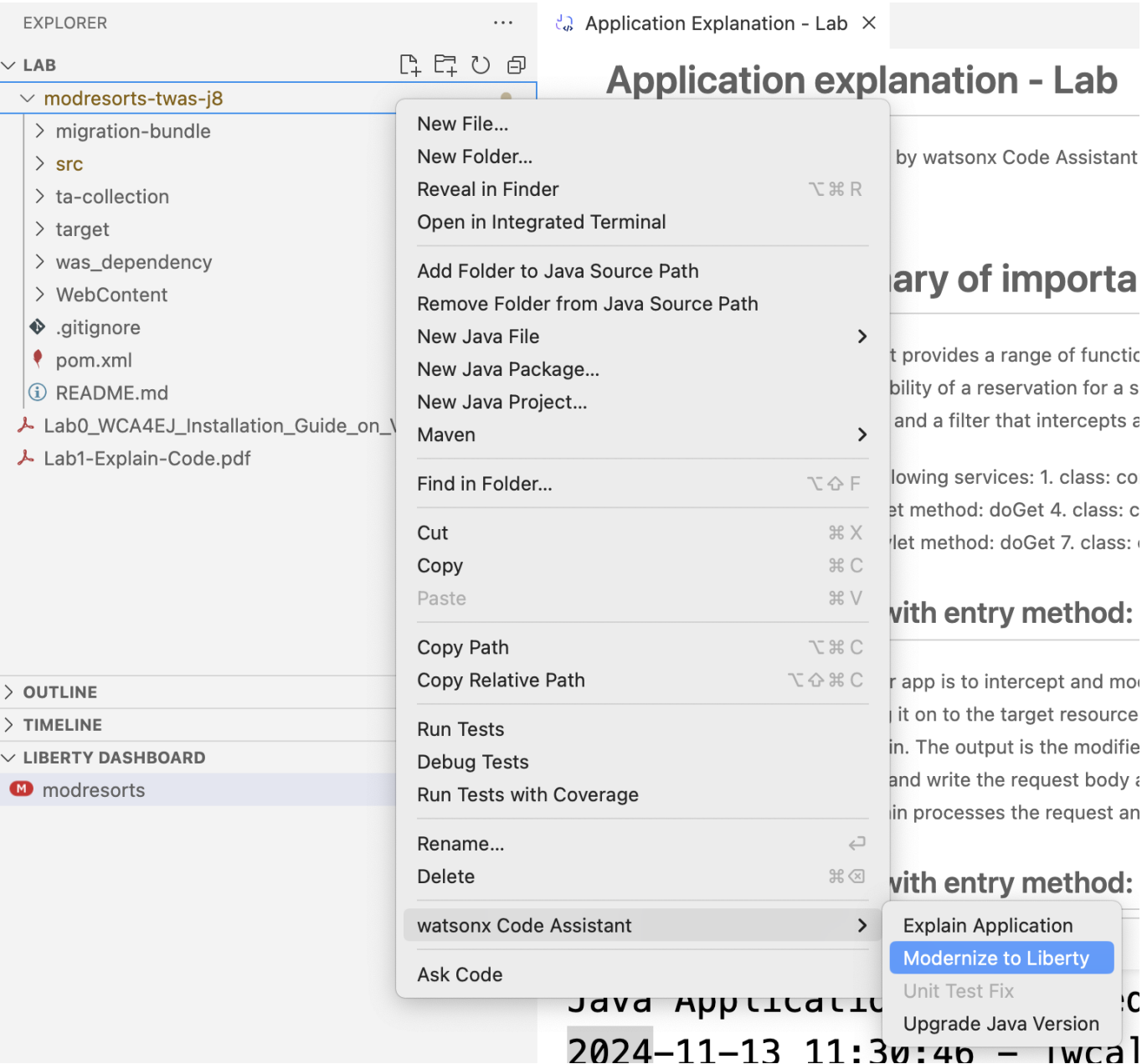
This document gives step-by-step guide to finish Lab2.

## Lab2 covers:

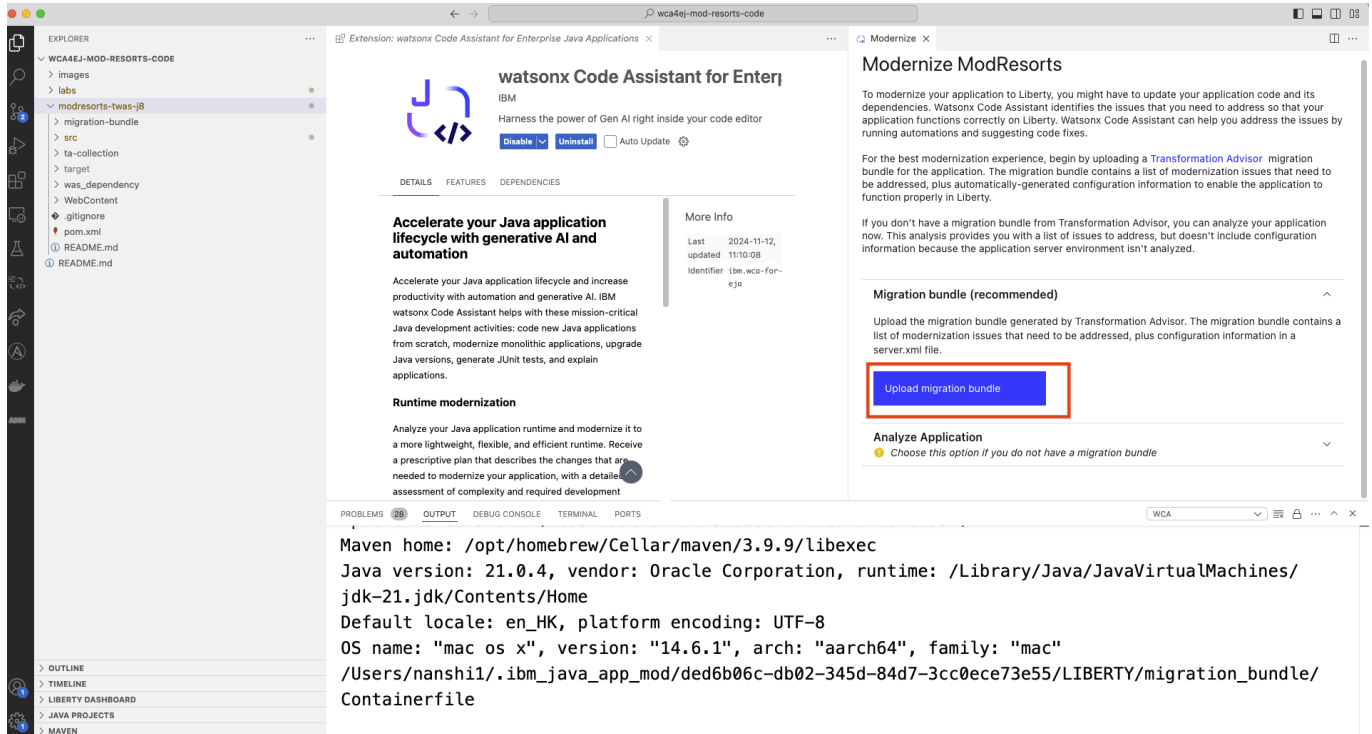
- Modernize code from WebSphere to Liberty

### 1. Application analysis

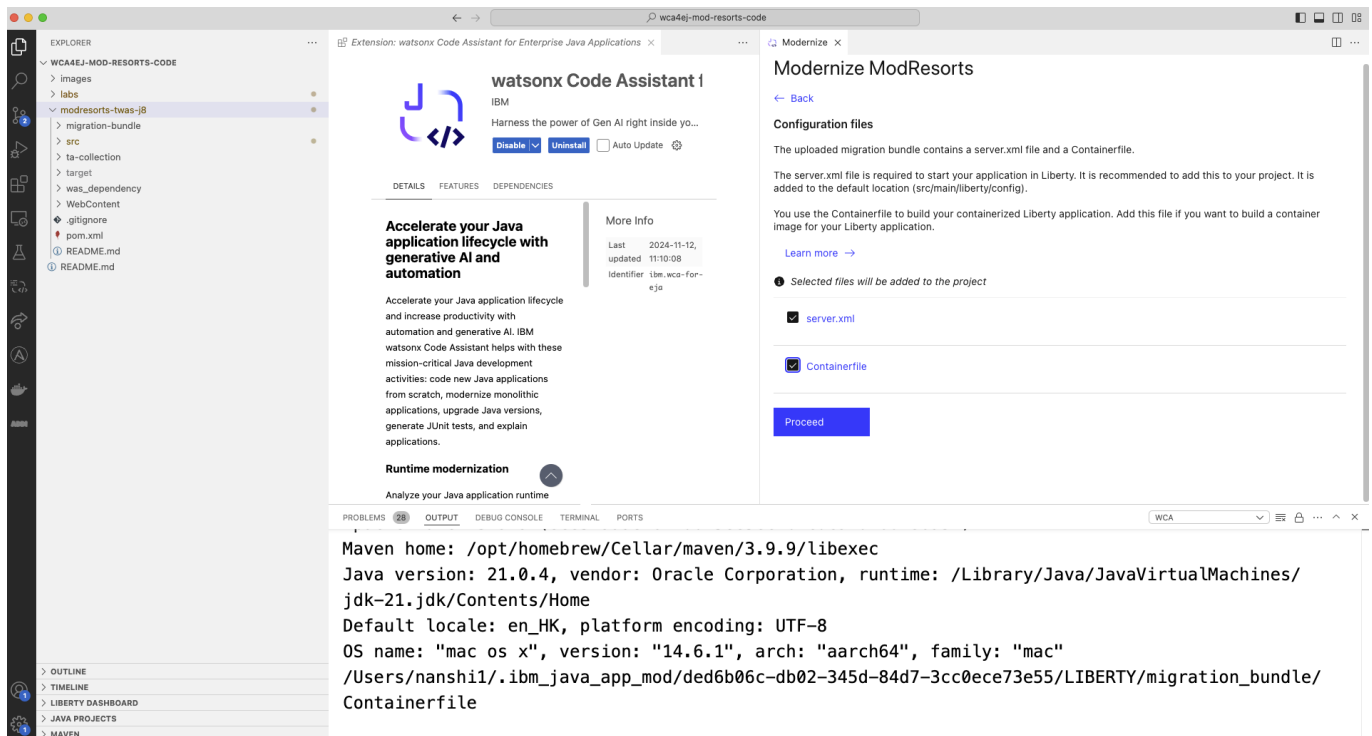
Right click on the `modresorts-twas-j8` folder and select `watsonx Code Assistant - Modernize to Liberty`.



A `Modernize` tab will show up. Click `Upload migration bundle`, and select the file in our code asset `modresorts-twas-j8/migration-bundle/modresorts.ear_migrationBundle.zip`



Select both files to be included and **Proceed**.



After analysis, the report will show you issues with this application to be fixed. 3 of them can be automated, 1 of them needs assistance. For the automated fixes, we click **Run automated fixes**.

Modernize

Modernize ModResorts

[Return to upload / analyze](#)

Application analysis parameters

App server

WebSphere Application Server traditional V9.0 to Open Liberty

Java version

IBM Java 8 to IBM Java 8

[View technology report](#) | [View inventory report](#) | [View analysis report](#)

Issues 4

Generated on 27 June 2024 at 17:43

Issues are categorized by type of fixes available. Click the **Rebuild and refresh** button to update the list.

[Show more](#)

Rebuild and refresh

Automated fixes3

Assisted fixes1

Self-directed fixes0

Additional information5

Instructions

Modernize to Liberty

Use the default InitialContext JNDI properties

Getting the server name on Liberty

Avoid using the deprecated WSSecurityHelper revokeSSOCookies and getLTPACookieFromSSOToken methods

Run automated fixes

2. Apply Fixes

For the assisted fixes, you can click the **Instructions** dropdown to see the step which we will guide you. Now we expand the dropdowns of the issue as shown. There are clear instructions on how to fix this issue at the bottom.

Automated fixes	Assisted fixes	Self-directed fixes	Additional information
3	1	0	5

Instructions

Modernize to Liberty

The WebSphere Servlet API was superseded by a newer implementation

The WebSphere Servlet API was superseded by standard Servlet 3.0 functionality.  
This rule flags Java code that has references to the following classes and packages because they are not available on Liberty.

- com.ibm.servlet.ClientList
- com.ibm.servlet.ClientListElement
- com.ibm.servlet.MLNotFoundException...

[Read more →](#)

src/main/java/com/acme/modres/UpperServlet.java

There is one occurrence of this issue in this file. You will have to resolve it sequentially.

Detected line number might differ from actual.

1. Method doGet

Match Criteria - com.ibm.websphere.servlet.response.ResponseUtils

Detected line number - 29

Step 1: Get a code suggestion

Click "Help Me" after you select the class or the method that uses the ResponseUtils.encodeDataString() method

Help me

Step 2: Update build dependencies

Add the org.apache.commons.commons-text library as a dependency to your project's build configuration file

Step 3: Check the encoded data

Confirm that the data encoding via the Apache Commons Text library meets your application's needs

Now we click the name of the file that has issue and needs to be fixed. In the editor window, we select the entire class defined in here that uses the `ResponseUtils.encodeDataString()` method by highlighting. Then we click **Help me** to ask help from LLM.

Application Explanation - Lab

UpperServlet.java

modresorts-twas-j8 > src > main > java > com > acme > modres > UpperServlet.java > UpperServlet

11

12 import com.ibm.websphere.servlet.response.ResponseUtils;

13

14 @WebServlet("/resorts/upper")

15 public class UpperServlet extends HttpServlet {

16

17 private static final long serialVersionUID = 1L;

18

19 @Override

20 protected void doGet(HttpServletRequest request,

21 response.setContentType("text/html");

22

23 String originalStr = request.getParameter("originalStr");

24 if (originalStr == null) {

25 originalStr = "";

26 }

27

Explain | Document | Unit Test

Explain | Document | Unit Test

Modernize

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4 / 7

The chat with model window will show up and ask model for help. The model gives suggestions for fixing the issue.

## WATSONX CODE ASSISTANT: CHAT



## Chat session 2

AI

Here's how you can use the Apache Commons Text library to replace the `ResponseUtils.encodeDataString()` method:

```
import org.apache.commons.text.StringEscapeUtils;

@WebServlet("/resorts/upper")
public class UpperServlet extends HttpServlet {

    private static final long serialVersionUID = 1L;

    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse response) {
        response.setContentType("text/html");

        String originalStr = request.getParameter("input");
        if (originalStr == null) {
            originalStr = "";
        }

        String newStr = originalStr.toUpperCase();
        newStr = StringEscapeUtils.escapeHtml4(newStr);

        PrintWriter out = response.getWriter();
        out.print("<br/><b>capitalized input " + newStr + "</b>");
    }
}
```

To add a dependency on the Apache Commons Text library, add the following to your `pom.xml` file:

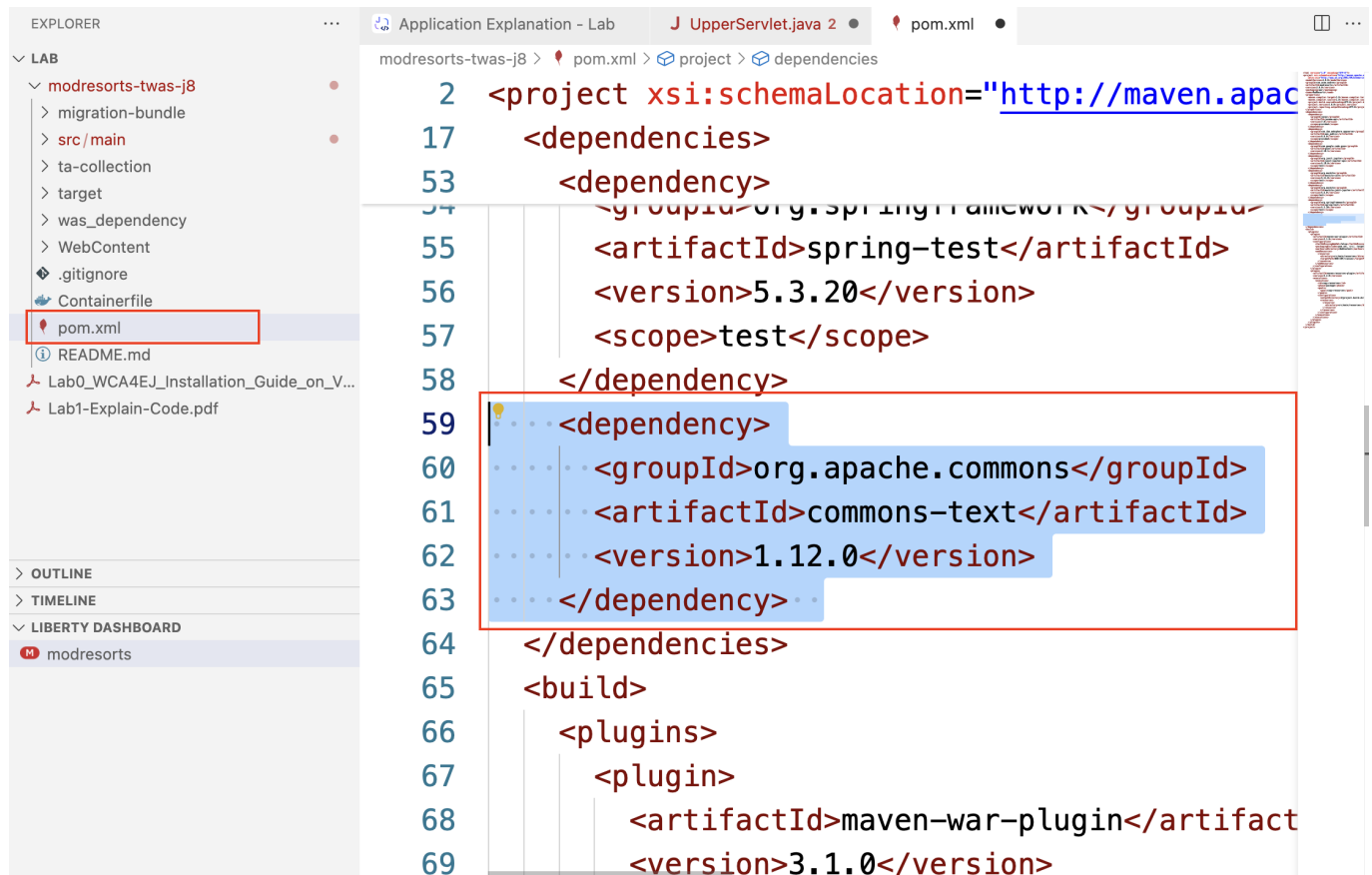
```
<dependency>
  <groupId>org.apache.commons</groupId>
  <artifactId>commons-text</artifactId>
```

```
<version>1.12.0</version>
</dependency>
```

 Type '/' to initiate an AI task 

There are 2 action items here.

- First need to change the code in the `UpperServlet.java` file using the copy code from chat.
- Second need to update `pom.xml` to reflect the dependency.



```

2  <project xsi:schemaLocation="http://maven.apache.org/xsd/maven-4.0.0.xsd" xmlns="http://maven.apache.org/POM/4.0.0"
17  <dependencies>
53  <dependency>
54  <groupId>org.springframework</groupId>
55  <artifactId>spring-test</artifactId>
56  <version>5.3.20</version>
57  <scope>test</scope>
58  </dependency>
59  <dependency>
60  <groupId>org.apache.commons</groupId>
61  <artifactId>commons-text</artifactId>
62  <version>1.12.0</version>
63  </dependency>
64  </dependencies>
65  <build>
66  <plugins>
67  <plugin>
68  <artifactId>maven-war-plugin</artifactId>
69  <version>3.1.0</version>

```

### 3. Rebuild Application

Now that we have all the fixes applied. If your `modresort` application is still running, please stop it by going to `TERMINAL` and `CTRL+C`. You can `Rebuild` and `refresh` to see that there are no more issues with the application.

Modernize

Modernize ModResorts

[Return to upload / analyze](#)

Application analysis parameters

App server

WebSphere Application Server traditional V9.0  
to Open Liberty

Java version

IBM Java 8 to IBM Java 8

[View technology report](#) | [View inventory report](#) | [View analysis report](#)

Issues 

0

Generated on 13 November 2024 at 12:29

Issues are categorized by type of fixes available. Click the **Rebuild and refresh** button to update the list.

[Show more](#)

Rebuild and refresh


Automated fixes0

Assisted fixes0

Self-directed fixes0

Additional information1

Instructions



No assisted fix issues identified

We can go to browser to view the new application. This time you will find that the Logout button is fixed.

localhost:9080/modresorts/login.jsp

Finish update

IBM-Technical

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IBM Tools


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AI Alliance

Citi Cards

Gartner - Magic Q...

Personal



LOG IN TO MODRESORTS

Username:

Password:

Log In