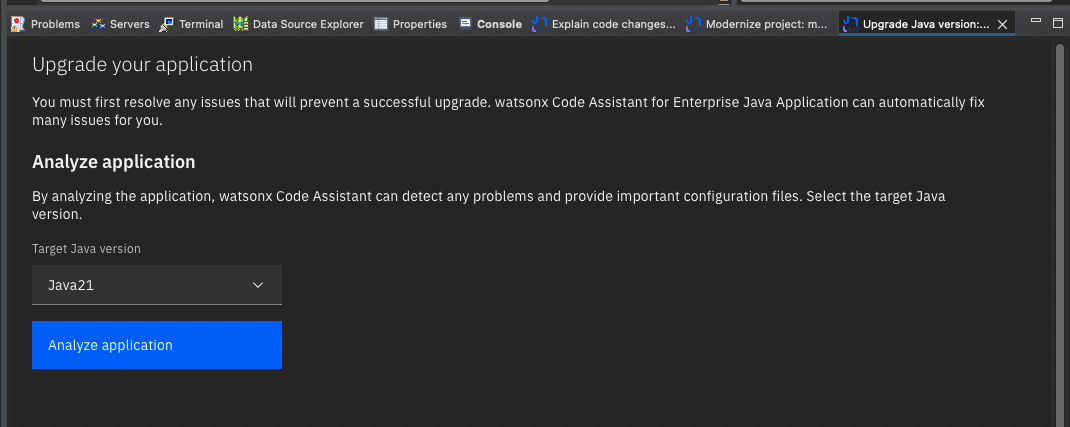
**Lab 2 [Upgrade Java]**

**Upgrade Java [From 8 to 21]**

此方案遵循前面的方案：現代化為 Liberty。它要求應用程式已經現代化為 Liberty。它從我們完成Modernize to Liberty場景的狀態中的代碼開始

1. Right click on the project, select **watsonx Code Assistant for Enterprise Java Applications,** then selectUpgrade Java version. You should see the following panel appear:



1. Before you analyze the application, the application needs to be built. If its not built at this point build it now (command line: **mvn clean package**, or via the IDE UI if you have that configured). See also the previous note on Java versions in the building section.
2. Ensure Java21 is selected and Click the **Analyze application** button. After a few moments you should see the issues. There is one issue with an auto fix, and one issue with a LLM assisted fix:

A screenshot of a computer

Description automatically generated

1. At this point we can run ModResorts in a Java21 environment to observe how the application is not functioning correctly **BEFORE** we fix the Java upgrade issues.

* Start the application using Liberty tools. Make sure its running with Java 21 but clicking **Start…** on the Liberty tools dashboard, and then selecting Java 21 in the JRE tab:

A screenshot of a computer

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* When the application is running, go to <http://localhost:9080/resorts,> and click the Where to drop-down. Select any value. You should observer ERRORs in the UI:

A screenshot of a computer screen

Description automatically generated

* These errors are ultimately the result of the Java upgrade issue with the MBeanOperatorInfo constructor which causes a server error when fetching data for the UI.

1. Back in Eclipse, Click the **Run auto-fixes** button.
2. Now we will resolve the other issue (**Behavior change in the** **javax.management.MBeanOperationInfo constructor)** with the help of the watsonx LLM.
3. Due to limitation in private preview release, it is not easy to know which piece of code the issue relates to. To see this, you need to click on the **View analysis report** link. In the report, find the issue and click on **Show result**s to reveal the file, method and line for the issue.

A screenshot of a web page

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1. Open the DMBeanUtils class in the IDE.
2. Select the getOps method beginning with the “public static” and finishing with the enclosing “}” and click **Help me** button:

A screenshot of a computer program

Description automatically generated

1. The code snippet should consist of the full getOps method, with the offending lines fixed. Replace your getOps method with the code returned from the LLM.

A computer screen shot of a program

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1. After saving your work, go back to the **Java Upgrade** panel, and click **Build and refresh**. After a couple of moments, you should observe all the issues are fixed.

A screenshot of a computer

Description automatically generated

1. Return to <http://localhost:9080/resorts,> and click the **Where to** down. Select any value. You should observe that the errors have disappeared.

ModResorts is now a Liberty application and is upgraded to Java21!