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Assessment Task – 5

Software Deployment

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# Create an Installation Package

## Java Project

Using the Tetris Java project from the Deploy AT Three assignment, I have modified the ‘pom.xml’ file to add the following plugin:

maven-assembly-plugin

“The Assembly Plugin for Maven enables developers to combine project output into a single distributable archive that also contains dependencies, modules, site documentation, and other files.” (Apache Maven Project, 2020)

This plugin provides several features, including the ability to consolidate files into a single archive. Further, it can create a manifested ‘jar’ file with all the dependencies – unpacked – and readily available to the program. This ‘jar’ file replaces the default executable file that does not include the dependencies.

Next, I have included both a ‘bash’ script file and a windows batch file, for running the program.

The result of the new build process, is three new archive files:

* DeployAT-Five-1.0.0-with-deps.jar
* DeployAT-Five-1.0.0-deploy-linux.tar.gz
* DeployAT-Five-1.0.0-deploy-win.zip

### DeployAT-Five-1.0.0-with-deps.jar

This file contains the class files of the program, and a MANIFEST.MF file with the entry:  
Main-Class: core.Tetris

### DeployAT-Five-1.0.0-deploy-linux.tar.gz

This file contains the above ‘jar’ file, and the bash script file:  
tetris

### DeployAT-Five-1.0.0-deploy-win.zip

This file contains the above ‘jar’ file, and the bash script file:  
tetris.bat

### pom.xml

The following is an exert from the project’s ‘pom.xml’ file:

<profiles>

<profile>

<id>release-profile</id>

<build>

<plugins>

<plugin>

<artifactId>maven-assembly-plugin</artifactId>

<version>3.3.0</version>

<configuration>

<descriptors>

<descriptor>src/assembly/distribution.xml</descriptor>

<descriptor>src/assembly/deploy-linux.xml</descriptor>

<descriptor>src/assembly/deploy-win.xml</descriptor>

</descriptors>

<archive>

<manifest>

<mainClass>${jar.manifest.mainClass}</mainClass>

<addBuildEnvironmentEntries>true</addBuildEnvironmentEntries>

<addDefaultImplementationEntries>true</addDefaultImplementationEntries>

</manifest>

</archive>

</configuration>

<executions>

<execution>

<id>make-assembly</id> <!-- this is used for inheritance merges -->

<phase>package</phase> <!-- bind to the packaging phase -->

<goals>

<goal>single</goal>

</goals>

</execution>

</executions>

</plugin>

</plugins>

</build>

</profile>

</profiles

### distribution.xml

<assembly xmlns="http://maven.apache.org/ASSEMBLY/2.1.0"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://maven.apache.org/ASSEMBLY/2.1.0 http://maven.apache.org/xsd/assembly-2.1.0.xsd">

<id>with-deps</id>

<formats>

<format>jar</format>

</formats>

<includeBaseDirectory>false</includeBaseDirectory>

<dependencySets>

<dependencySet>

<outputDirectory>/</outputDirectory>

<useProjectArtifact>true</useProjectArtifact>

<unpack>true</unpack>

<scope>runtime</scope>

</dependencySet>

</dependencySets>

</assembly>

### deploy-linux.xml

<assembly xmlns="http://maven.apache.org/ASSEMBLY/2.1.0"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://maven.apache.org/ASSEMBLY/2.1.0 http://maven.apache.org/xsd/assembly-2.1.0.xsd">

<id>deploy-linux</id>

<formats>

<format>tar.gz</format>

</formats>

<fileSets>

<fileSet>

<directory>${project.basedir}</directory>

<outputDirectory></outputDirectory>

<filtered>true</filtered>

<includes>

<include>tetris</include>

</includes>

<fileMode>0755</fileMode>

</fileSet>

<fileSet>

<directory>${project.build.directory}</directory>

<outputDirectory></outputDirectory>

<includes>

<include>${project.build.finalName}-with-deps.jar</include>

</includes>

</fileSet>

</fileSets>

</assembly>

### deploy-win.xml

<assembly xmlns="http://maven.apache.org/ASSEMBLY/2.1.0"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://maven.apache.org/ASSEMBLY/2.1.0 http://maven.apache.org/xsd/assembly-2.1.0.xsd">

<id>deploy-win</id>

<formats>

<format>zip</format>

</formats>

<fileSets>

<fileSet>

<directory>${project.basedir}</directory>

<outputDirectory></outputDirectory>

<filtered>true</filtered>

<includes>

<include>tetris.bat</include>

</includes>

</fileSet>

<fileSet>

<directory>${project.build.directory}</directory>

<outputDirectory></outputDirectory>

<includes>

<include>${project.build.finalName}-with-deps.jar</include>

</includes>

</fileSet>

</fileSets>

</assembly>

# Installing Program

The installation process is quite simple and straight forward.

1. Download the appropriate archive:
   1. Windows 10:  
      DeployAT-Five-1.0.0-deploy-win.zip
   2. Linux:  
      DeployAT-Five-1.0.0-deploy-linux.tar.gz
2. Unpack the archive into your preferred directory.
3. To run, execute the file as follows:
   1. Windows 10:  
      tetris.bat
   2. Linux:  
      tetris

Graphical user interface, text, application

Description automatically generated

Figure 1 - Windows 10 install

Graphical user interface, application

Description automatically generated

Figure 2 - Linux install - A

Graphical user interface, text, application

Description automatically generated

Figure 3 - Linux install - B

Graphical user interface, application

Description automatically generated

Figure 4 - Running under Windows 10

Graphical user interface, application

Description automatically generated

Figure 5 - Running under Linux

# Uninstalling Program

To uninstall the program, simply delete the directory you unpacked the files into.

Graphical user interface, text, application, email

Description automatically generated

Figure 6 - Uninstall - Windows 10 - A

Graphical user interface, text, application, email

Description automatically generated

Figure 7 - Uninstall - Windows 10 - B

Graphical user interface, application

Description automatically generated

Figure 8 - Uninstall - Linux - A

Graphical user interface, application

Description automatically generated

Figure 9 - Uninstall - Linux - B

# References

Apache Maven Project. (2020, 04 27). *Apache Maven Assembly Plugin.* Retrieved from Apache Maven Project: https://maven.apache.org/plugins/maven-assembly-plugin/