

ex.2 Java folder structure

Wednesday, 4 September 2024

7:34 PM

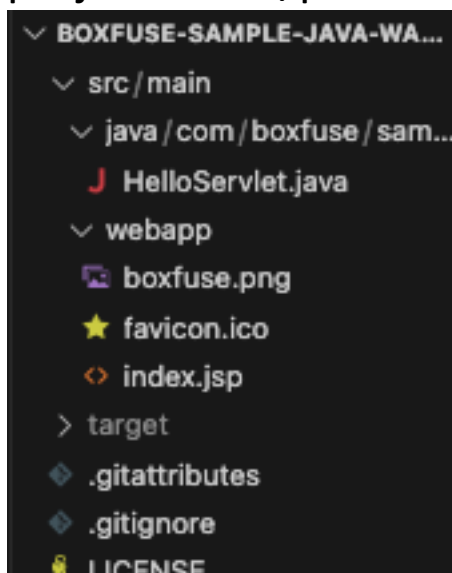
is this a good Java app folder structure?

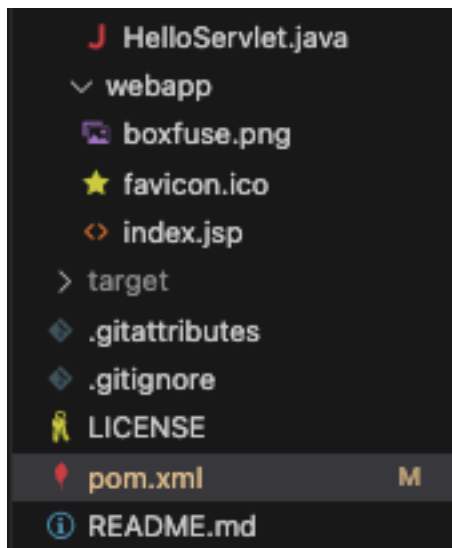
```
./src/main/java/IP/ToDoListApplication/App/Task.java
./src/main/java/IP/ToDoListApplication/App/ToDoList.java
./src/main/java/IP/ToDoListApplication/DataSorting/DateSorting.java
./src/main/java/IP/ToDoListApplication/DataSorting/ProjectSorting.java
./src/main/java/IP/ToDoListApplication/Features/Actions.java
./src/main/java/IP/ToDoListApplication/Features/AddTask.java
./src/main/java/IP/ToDoListApplication/Features/EditTask.java
./src/main/java/IP/ToDoListApplication/Features/MarkAsDone.java
./src/main/java/IP/ToDoListApplication/Features/RemoveTask.java
./src/main/java/IP/ToDoListApplication/Features/TasksDisplay.java
./src/main/java/IP/ToDoListApplication/SaveRead/ReadFromFile.java
./src/main/java/IP/ToDoListApplication/SaveRead/SaveTasksToFile.java
./src/main/java/IP/ToDoListApplication/Main.java
```

Compiling a Java app using Maven

Folder structure, we must have a pom.xml

projectFolder/pom.xml





```
pom.xml M X
pom.xml
1 <project xmlns="http://maven.apache.org/POM/4.0.0" xmlns:xsi="http://www.w3.
  org/2001/XMLSchema-instance"
2   xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 http://maven.
    apache.org/maven-v4_0_0.xsd">
3   <modelVersion>4.0.0</modelVersion>
4
5   <!-- Basic project details -->
6   <groupId>com.boxfuse.samples</groupId>
7   <artifactId>hello</artifactId>
8   <packaging>war</packaging>
9   <version>1.0</version>
10  <name>helloWorld</name>
11  <url>https://github.com/boxfuse/boxfuse-sample-java-war-hello</url>
12
13  <!-- Java version -->
14  <properties>
15    <project.build.sourceEncoding>UTF-8</project.build.sourceEncoding>
16    <maven.compiler.source>14</maven.compiler.source>
17    <maven.compiler.target>14</maven.compiler.target>
18    <maven.compiler.release>14</maven.compiler.release>
19  </properties>
20
21  <dependencies>
22    <dependency>
23      <!-- Servlet API, provided by the server -->
24      <groupId>javax.servlet</groupId>
25      <artifactId>javax.servlet-api</artifactId>
26      <version>3.1.0</version>
27      <scope>provided</scope>
28    </dependency>
29
30    <!-- JSP API, provided by the server -->
31    <dependency>
32      <groupId>javax.servlet.jsp</groupId>
33      <artifactId>javax.servlet.jsp-api</artifactId>
```



```

34         <version>2.3.3</version>
35         <scope>provided</scope>
36     </dependency>
37
38
39 </dependencies>
40 <build>
41     <plugins>
42         <!-- Maven Compiler Plugin -->
43         <plugin>
44             <groupId>org.apache.maven.plugins</groupId>
45             <artifactId>maven-compiler-plugin</artifactId>
46             <version>3.9.0</version>

```

**** A Workable pom.xml sample in Sep 2024 ****

pom.xml

```

<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/maven-v4\_0\_0.xsd">
    <modelVersion>4.0.0</modelVersion>
    <!-- Basic project details -->
    <groupId>com.boxfuse.samples</groupId>
    <artifactId>hello</artifactId>
    <packaging>war</packaging>
    <version>1.0</version>
    <name>helloWorld</name>
    <url>https://github.com/boxfuse/boxfuse-sample-java-war-hello</url>
    <!-- Java version -->
    <properties>
        <project.build.sourceEncoding>
UTF-8</project.build.sourceEncoding>
        <maven.compiler.source>14</maven.compiler.source>
        <maven.compiler.target>14</maven.compiler.target>
        <maven.compiler.release>14</maven.compiler.release>
    </properties>
    <dependencies>
        <dependency>
            <!-- Servlet API, provided by the server -->
            <groupId>javax.servlet</groupId>
            <artifactId>javax.servlet-api</artifactId>
            <version>3.1.0</version>
            <scope>provided</scope>
        </dependency>

```



```

    </dependency>
    <!-- JSP API, provided by the server -->
    <dependency>
        <groupId>javax.servlet.jsp</groupId>
        <artifactId>javax.servlet.jsp-api</artifactId>
        <version>2.3.3</version>
        <scope>provided</scope>
    </dependency>

</dependencies>
<build>
    <plugins>
        <!-- Maven Compiler Plugin -->
        <plugin>
            <groupId>org.apache.maven.plugins</groupId>
            <artifactId>maven-compiler-
plugin</artifactId>
            <version>3.9.0</version>
            <configuration>
                <release>${maven.compiler.release}
</release>
                <!-- <source>${maven.compiler.source}
</source>
                <target>${maven.compiler.target}
</target> -->
            </configuration>
        </plugin>
        <!-- Maven WAR Plugin -->
        <plugin>
            <groupId>org.apache.maven.plugins</groupId>
            <artifactId>maven-war-plugin</artifactId>
            <version>3.3.1</version>
            <configuration>
                <!-- Customize according to your
project needs -->
                <failOnMissingWebXml>
false</failOnMissingWebXml> <!-- Set to true if web.xml is
necessary -->
            </configuration>
        </plugin>

    </plugins>
</build>
</project>

```

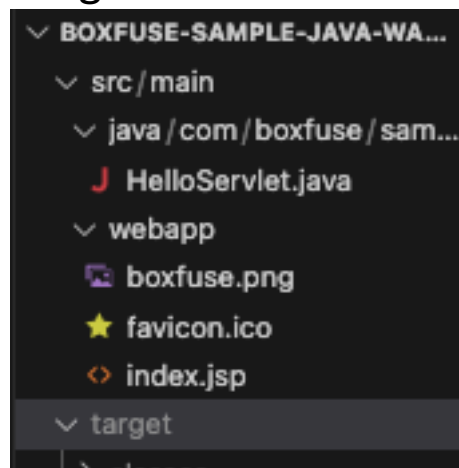

To compile into a .war file

pwd => currentProjectFolder

mvn clean install;

```
wings-mac-mini:boxfuse-sample-java-war-hello jiaqilv$ mvn clean install;
[INFO] Scanning for projects...
[INFO]
[INFO] -----< com.boxfuse.samples:hello >-----
[INFO] Building helloWorld 1.0
[INFO] from pom.xml
[INFO] -----[ war ]-----
[INFO]
[INFO] --- clean:3.2.0:clean (default-clean) @ hello ---
[INFO] Deleting /Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/target
[INFO]
[INFO] --- resources:3.3.1:resources (default-resources) @ hello ---
[INFO] skip non existing resourceDirectory /Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/src/main/resources
[INFO]
[INFO] --- compiler:3.9.0:compile (default-compile) @ hello ---
[INFO] Changes detected - recompiling the module!
[INFO] Compiling 1 source file to /Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/target/classes
[INFO]
[INFO] --- resources:3.3.1:testResources (default-testResources) @ hello ---
[INFO] skip non existing resourceDirectory /Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/src/test/resources
[INFO]
[INFO] --- compiler:3.9.0:testCompile (default-testCompile) @ hello ---
[INFO] No sources to compile
[INFO]
[INFO] --- surefire:3.2.5:test (default-test) @ hello ---
[INFO] No tests to run.
[INFO]
[INFO] --- war:3.3.1:war (default-war) @ hello ---
[INFO] Packaging webapp
[INFO] Assembling webapp [hello] in [/Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/target/hello-1.0]
[INFO] Processing war project
[INFO] Copying webapp resources [/Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/src/main/webapp]
[INFO] Building war: /Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/target/hello-1.0.war
[INFO]
[INFO] --- install:3.1.2:install (default-install) @ hello ---
[INFO] Installing /Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/pom.xml to /Users/jiaqilv/.m2/repository/com/boxfuse/samples/hello/1.0/hello-1.0.pom
[INFO] Installing /Users/jiaqilv/Desktop/vscode/boxfuse-sample-java-war-hello/target/hello-1.0.war to /Users/jiaqilv/.m2/repository/com/boxfuse/samples/hello/1.0/hello-1.0.war
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 1.264 s
[INFO] Finished at: 2024-09-04T21:11:28+08:00
[INFO]
```

'target' folder comes up



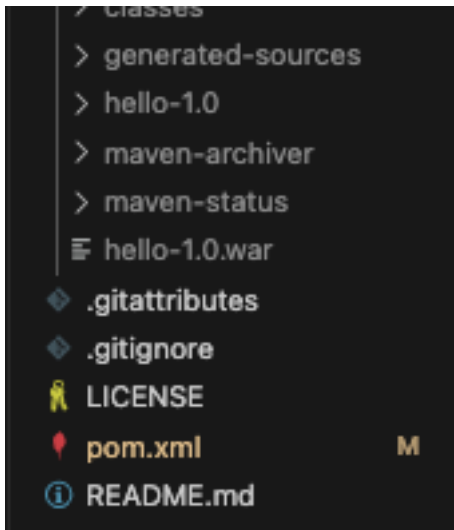
/re

/re

.0]

osi

aqi



Deploy to Tomcat Server

<http://localhost:8080>

i. Configure credentials for managing Apache Tomcat
`cd /usr/local/apache-tomcat-9.0.93/conf;`

```
wings-mac-mini:conf jiaqilv$ pwd
/usr/local/apache-tomcat-9.0.93/conf
wings-mac-mini:conf jiaqilv$
```

`sudo vim /usr/local/apache-tomcat-9.0.93/conf/tomcat-users.xml;`

```
wings-mac-mini:conf jiaqilv$ pwd
/usr/local/apache-tomcat-9.0.93/conf
wings-mac-mini:conf jiaqilv$ sudo vim ./tomcat-users.xml;
Password:
```

Add these 3 lines inside tomcat-users.xml

Remember to remove `<!-- -->` for commenting out

Remember to remove all `<must-be-changed>`

`<role rolename="manager-gui"/>`

`<role rolename="admin-gui"/>`

`<user username="admin" password="password" roles="manager-`

`admin-gui" />`

gui,manager-script,admin-gui"/>

```
<?xml version="1.0" encoding="UTF-8"?>
<tomcat-users xmlns="http://tomcat.apache.org/xml"
               xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
               xsi:schemaLocation="http://tomcat.apache.org/xml tomcat-users.xsd"
               version="1.0">

  <!--
    <user username="admin" password="<must-be-changed>" roles="manager-gui"/>
    <user username="robot" password="<must-be-changed>" roles="manager-script"/>
  -->
  <!--
    The sample user and role entries below are intended for use with the
    examples web application. They are wrapped in a comment and thus are ignored
    when reading this file. If you wish to configure these users for use with the
    examples web application, do not forget to remove the <!-- ..> that surrounds
    them. You will also need to set the passwords to something appropriate.
  -->

  <role rolename="tomcat"/>
  <role rolename="role1"/>
  <role rolename="manager-gui"/>
  <role rolename="manager-script"/>
  <role rolename="admin-gui"/>
  <user username="admin" password="password" roles="manager-gui,manager-script,admin-gui"/>
  <user username="tomcat" password="password" roles="tomcat"/>
  <user username="both" password="password" roles="tomcat,role1"/>
  <user username="role1" password="password" roles="role1"/>

</tomcat-users>
```

Save changes :w!

:q

Restart Tomcat service

Stopping Tomcat

sudo /usr/local/apache-tomcat-9.0.93/bin/shutdown.sh;

```
● wings-mac-mini:conf jiaqilv$ sudo /usr/local/apache-tomcat-9.0.93/bin/shutdown.sh;
Using CATALINA_BASE:   /usr/local/apache-tomcat-9.0.93
Using CATALINA_HOME:   /usr/local/apache-tomcat-9.0.93
Using CATALINA_TMPDIR: /usr/local/apache-tomcat-9.0.93/temp
Using JRE_HOME:        /Library/Java/JavaVirtualMachines/adoptopenjdk-14.jdk/Contents/Home
Using CLASSPATH:        /usr/local/apache-tomcat-9.0.93/bin/bootstrap.jar:/usr/local/apache-tomcat-9.0.93/bin/tomcat-juli.jar
Using CATALINA_OPTS:
NOTE: Picked up JDK_JAVA_OPTIONS:  --add-opens=java.base/java.lang=ALL-UNNAMED --add-opens=java.b
e/java.io=ALL-UNNAMED --add-opens=java.base/java.util=ALL-UNNAMED --add-opens=java.base/java.util
oncurrent=ALL-UNNAMED --add-opens=java.rmi/sun.rmi.transport=ALL-UNNAMED
```

Starting up Tomcat

sudo /usr/local/apache-tomcat-9.0.93/bin/startup.sh;

```
● wings-mac-mini:conf jiaqilv$ sudo /usr/local/apache-tomcat-9.0.93/bin/startup.sh;
Using CATALINA_BASE:   /usr/local/apache-tomcat-9.0.93
Using CATALINA_HOME:   /usr/local/apache-tomcat-9.0.93
```

-9

pas
l.c

```
Using CATALINA_TMPDIR: /usr/local/apache-tomcat-9.0.93/temp
Using JRE_HOME: /Library/Java/JavaVirtualMachines/adoptopenjdk-14.jdk/Contents/Home
Using CLASSPATH: /usr/local/apache-tomcat-9.0.93/bin/bootstrap.jar:/usr/local/apache-tomcat-9.0.93/bin/tomcat-juli.jar
Using CATALINA_OPTS:
Tomcat started.
```

Go to <http://localhost:8080/>

Server status

Username: admin


Password: password

Now, we are logged in!

← → ↺

localhost:8080/manager/status

🔑 ☆



Server Status

Manager

[List Applications](#)[HTML Manager Help](#)[Manager](#)

Server Information

Tomcat Version	JVM Version	JVM Vendor	OS Name	OS Version
Apache Tomcat/9.0.93	14.0.2+12	AdoptOpenJDK	Mac OS X	10.16

JVM

Free Memory: 190.92 MiB Total Memory: 258.00 MiB Max Memory: 4096.00 MiB

Memory Pool	Type	Initial	Total	Maximum	Used
G1 Eden Space	Heap memory	25.00 MiB	158.00 MiB	-0.00 MiB	58.00 MiB
G1 Old Gen	Heap memory	231.00 MiB	97.00 MiB	4096.00 MiB	5.13 MiB (0%)
G1 Survivor Space	Heap memory	0.00 MiB	3.00 MiB	-0.00 MiB	2.94 MiB
CodeHeap 'non-nmethods'	Non-heap memory	2.43 MiB	2.43 MiB	5.57 MiB	1.20 MiB (21%)
CodeHeap 'non-profiled nmethods'	Non-heap memory	2.43 MiB	2.43 MiB	117.21 MiB	1.48 MiB (1%)
CodeHeap 'profiled nmethods'	Non-heap memory	2.43 MiB	6.68 MiB	117.21 MiB	6.63 MiB (5%)
Compressed Class Space	Non-heap memory	0.00 MiB	2.00 MiB	1024.00 MiB	1.78 MiB (0%)
Metaspace	Non-heap memory	0.00 MiB	17.75 MiB	-0.00 MiB	16.86 MiB

"http-nio-8080"

Max threads: 200 Current thread count: 10 Current threads busy: 1 Keep alive sockets count: 1
Max processing time: 326 ms Processing time: 0.359 s Request count: 2 Error count: 1 Bytes received: 0.00 MiB Bytes sent: 0.01 MiB

Stage	Time	Bytes Sent	Bytes Recv	Client (Forwarded)	Client (Actual)	VHost	Request
S	228 ms	0 KiB	0 KiB	0:0:0:0:0:0:1	0:0:0:0:0:0:1	localhost	GET /manager/status HTTP/1.1

P: Parse and prepare request S: Service F: Finishing R: Ready K: Keepalive

⌵

Save password?

Username

admin

Password

password

Never

Save

Passwords are saved to [Google Password Manager](#) on this device.

3. Using a Script/Terminal to deploy .war file to Tomcat Server

3. Using a Script or Command Line

If you prefer using a command line or need to script the deployment process:

1. Deploy Using curl or Similar Tool:

- You can use the Manager App's text interface to deploy using a command like:

```
curl --upload-file your-app.war "http://user:password@localhost:8080/manager/text/deploy?path=/yourAppName&update=true"
```

- Replace your-app.war, user, password, and /yourAppName with appropriate values.

2. Verify Deployment:

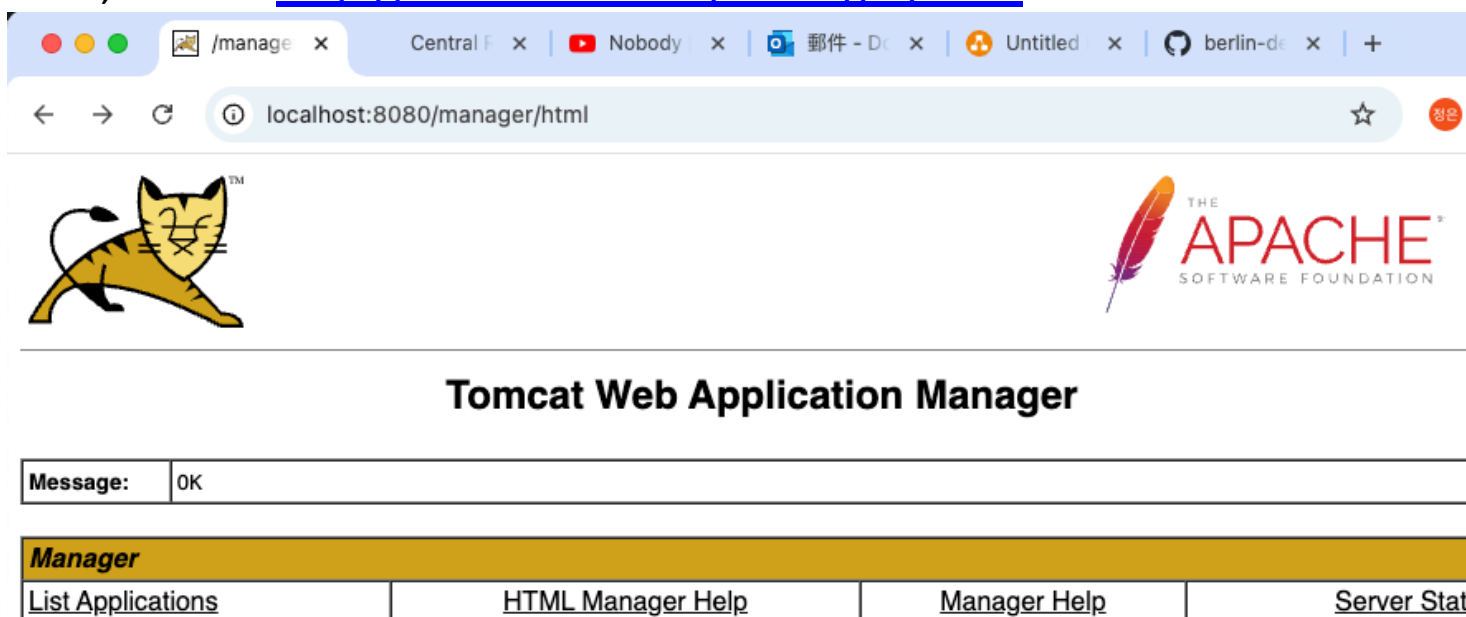
- Check the output from the command for a success message.
- Access your application as described earlier to ensure it's running.

Hands-on example for deployment

```
sudo curl --upload-file ./ "http://admin:password@localhost:8080/manager/text/deploy?path=/TodoListApplication-1.0&update=true";
```

```
wings-mac-mini:boxfuse-sample-java-war-hello jiaqilv$ sudo curl --upload-file ./target/hello-1.0.war "http://admin:password@localhost:8080/manager/text/deploy?path=/helloWorld&update=true";
OK - Deployed application at context path [/helloWorld]
wings-mac-mini:boxfuse-sample-java-war-hello jiaqilv$
```

Now, we see <http://localhost:8080/manager/html>



Manager			
List Applications	HTML Manager Help	Manager Help	Server Status

admin



us

Applications					
Path	Version	Display Name	Running	Sessions	Commands
/	None specified	Welcome to Tomcat	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/TodoListApp	None specified		true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/docs	None specified	Tomcat Documentation	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/examples	None specified	Servlet and JSP Examples	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/helloWorld	None specified		true	1	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/host-manager	None specified	Tomcat Host Manager Application	true	0	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>
/manager	None specified	Tomcat Manager Application	true	1	<div>Start Stop Reload Undeploy</div> <div>Expire sessions with idle ≥ 30 minutes</div>

http://localhost:8080/helloWorld

Boxfu x

HTTP x

Centr x

Nobo x

郵件 - x

Devo x

Un titl x

+


localhost:8080/helloWorld/

☆

정보

⋮

Congratulations!



boxfuse

You have successfully launched your Instance!

This Instance is running on **null** and has the id **null** .

It is based on the Image **null** generated from **null**

Now it's your turn!

Check out [this](#) from GitHub, modify it and give it a name!

[illegible]

1