# Scenario 1: Install Liberty on GCP Linux VM and Deploy Hello World WAR

## 1. Folder Structure

```
~/liberty-app/
└── hello/
    ├── WEB-INF/
    │   ├── classes/
    │   │   └── HelloServlet.class
    │   └── web.xml
```

## 2. Java Servlet Code

```java
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class HelloServlet extends HttpServlet {
  protected void doGet(HttpServletRequest req, HttpServletResponse res)
throws IOException {
    res.setContentType("text/html");
    res.getWriter().println("<html><body style='background-
color:#f0f8ff;'>");
    res.getWriter().println("<h1>Hello, Liberty!</h1>");
    res.getWriter().println("</body></html>");
  }
}
```

## 3. Compile with Servlet API

```
cd ~/liberty-app
wget https://repo1.maven.org/maven2/javax/servlet/javax.servlet-
api/4.0.1/javax.servlet-api-4.0.1.jar -O servlet-api.jar
javac -cp servlet-api.jar hello/WEB-INF/classes/HelloServlet.java
```

## 4. Create `web.xml`

```xml
cat <<EOF > hello/WEB-INF/web.xml
<web-app xmlns="http://java.sun.com/xml/ns/javaee" version="3.0">
  <servlet>
    <servlet-name>HelloServlet</servlet-name>
    <servlet-class>HelloServlet</servlet-class>
  </servlet>
  <servlet-mapping>
    <servlet-name>HelloServlet</servlet-name>
    <url-pattern>/</url-pattern>
  </servlet-mapping>
</web-app>
EOF
```

## 5. Package WAR

```
cd hello
jar cvf hello.war *
```

## 6. Deploy WAR to Liberty

```
cp hello.war /opt/wlp/usr/servers/helloCubenSquare/apps/
```

## 7. Update `server.xml`

```
cat <<EOF > /opt/wlp/usr/servers/helloCubenSquare/server.xml
<server description="Hello Liberty">
  <featureManager>
    <feature>servlet-4.0</feature>
  </featureManager>
  <httpEndpoint host="*" httpPort="9080" />
  <webApplication location="hello.war" contextRoot="/hello" />
</server>
EOF
```

## 8. Restart Liberty

```
server restart helloCubenSquare
```

## 9. Access in Browser

```
http://<GCP_VM_EXTERNAL_IP>:9080/hello
```

You should now see the **Hello, Liberty!** message with a soft blue background.