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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

UNIT 3-SERVER SIDE PROGRAMMING

3.4 INSTALLING AND CONFIGURING APACHE TOMCAT WEB SERVER

- A development environment is where you would develop your Servlet, test them and finally run them.
- Like any other Java program, you need to compile a servlet by using the Java compiler javac and after compilation the servlet application, it would be deployed in a configured environment to test and run..
- This development environment setup involves the following steps –

3.4.1 Setting up Java Development Kit

- This step involves downloading an implementation of the Java Software Development Kit (SDK) and setting up PATH environment variable appropriately.
- You can download SDK from Oracle's Java site – [Java SE Downloads](#).
- Once you download your Java implementation, follow the given instructions to install and configure the setup. Finally set PATH and JAVA_HOME environment variables to refer to the directory that contains java and javac, typically java_install_dir/bin and java_install_dir respectively.
- If you are running Windows and installed the SDK in C:\jdk1.8.0_65, you would put the following line in your C:\autoexec.bat file.

```
set PATH =
```

```
C:\jdk1.8.0_65\bin;%PAT
```

```
H% set JAVA_HOME =
```

```
C:\jdk1.8.0_65
```

- Alternatively, on Windows NT/2000/XP, you could also right-click on My Computer, select Properties, then Advanced, then Environment Variables. Then, you would update the PATH value and press the OK button.
- On Unix (Solaris, Linux, etc.), if the SDK is installed in /usr/local/jdk1.8.0_65 and you use the C shell, you would put the following into your .cshrc file.



```
setenv PATH
    /usr/local/jdk1.8.0_65/bin:$
PATH setenv JAVA_HOME
    /usr/local/jdk1.8.0_65
```

- Alternatively, if you use an Integrated Development Environment (IDE) like Borland JBuilder, Eclipse, IntelliJ IDEA, or Sun ONE Studio, compile and run a simple program to confirm that the IDE knows where you installed Java.

3.4.2 Setting up Web Server – Tomcat

- A number of Web Servers that support servlets are available in the market. Some web servers are freely downloadable and Tomcat is one of them.
- Apache Tomcat is an open source software implementation of the Java Servlet and Java Server Pages technologies and can act as a standalone server for testing servlets and can be integrated with the Apache Web Server. Here are the steps to setup Tomcat on your machine –
- Download latest version of Tomcat from <https://tomcat.apache.org/>.
- Once you downloaded the installation, unpack the binary distribution into a convenient location. For example in C:\apache-tomcat-8.0.28 on windows, or /usr/local/apache-tomcat-8.0.289 on Linux/Unix and create CATALINA_HOME environment variable pointing to these locations.
- Tomcat can be started by executing the following commands on windows machine –

```
%CATALINA_HOME%\bin\startup.bat or
```

```
C:\apache-tomcat-8.0.28\bin\startup.bat
```

- Tomcat can be started by executing the following commands on Unix (Solaris, Linux, etc.) machine –

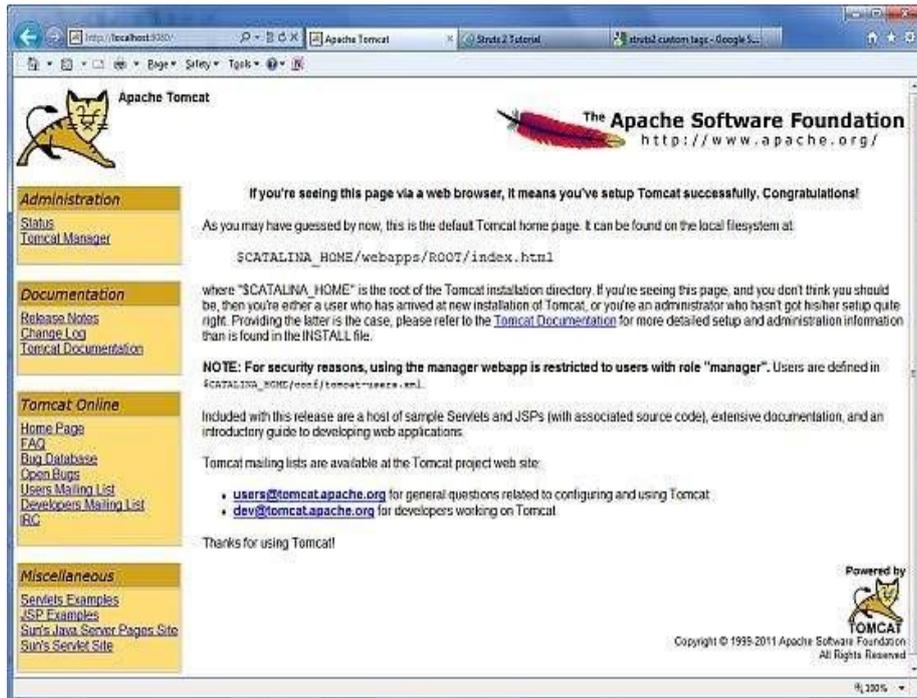
```
$CATALINA_HOME
```

```
bin/startup.sh
```

or

```
/usr/local/apache-tomcat-8.0.28/bin/startup.sh
```

- After startup, the default web applications included with Tomcat will be available by visiting <http://localhost:8080/>. If everything is fine then it should display following result –



- Further information about configuring and running Tomcat can be found in the documentation included here, as well as on the Tomcat web site – <http://tomcat.apache.org>
- Tomcat can be stopped by executing the following commands on windows machine –

C:\apache-tomcat-8.0.28\bin\shutdown

- Tomcat can be stopped by executing the following commands on Unix (Solaris, Linux, etc.) machine –

/usr/local/apache-tomcat-8.0.28/bin/shutdown.sh

3.4.3 Setting Up the CLASSPATH

- Since servlets are not part of the Java Platform, Standard Edition, you must identify the servlet classes to the compiler.
- If you are running Windows, you need to put the following lines in your C:\autoexec.bat file.

set CATALINA = C:\apache-tomcat-8.0.28

set CLASSPATH = %CATALINA%\common\lib\servlet-api.jar;%CLASSPATH%

- Alternatively, on Windows NT/2000/XP, you could go to My Computer → Properties → Advanced → Environment Variables. Then, you would update the CLASSPATH value and press the OK button.
- On Unix (Solaris, Linux, etc.), if you are using the C shell, you would put the

following lines
into your .cshrc file.

```
setenv CATALINA = /usr/local/apache-tomcat-8.0.28
```

```
setenv CLASSPATH $CATALINA/common/lib/servlet-api.jar:$CLASSPATH
```

- **NOTE** – Assuming that your development directory is C:\ServletDevel (Windows) or /usr/ServletDevel (Unix) then you would need to add these directories as well in CLASSPATH in similar way as you have added above.