LAB:-
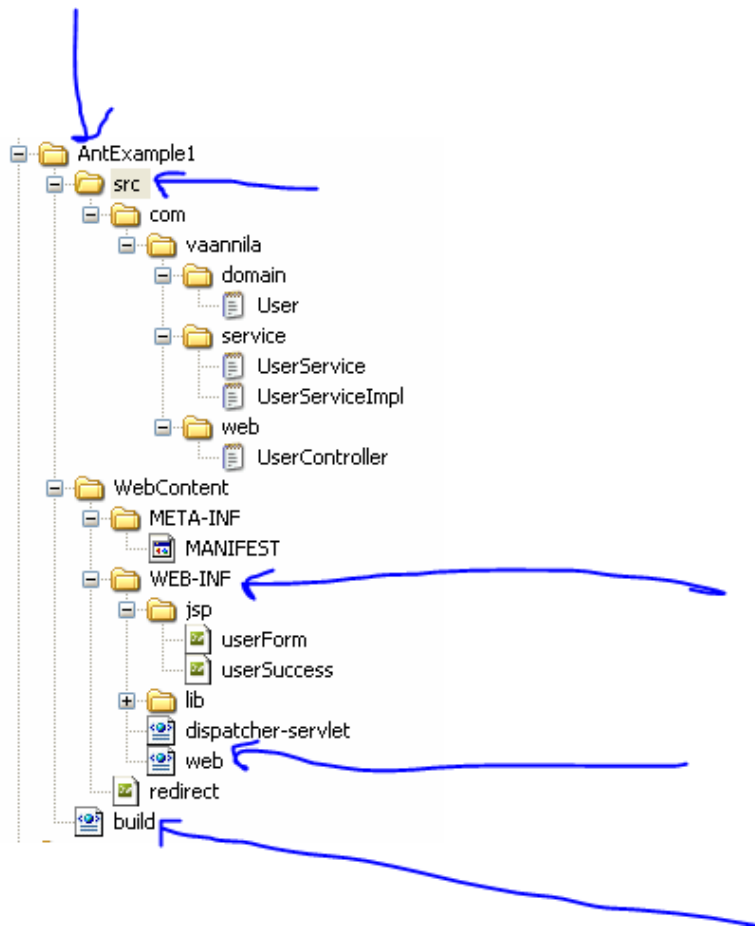
Login to the ec2 with your own user without directly.

Source Code structure(Soruce Code Mangememnt Tool(SVN/CVS/Github)

Build.xml

```xml
<project name="AntExample1" default="war">

    <path id="compile.classpath">
            <fileset dir="WebContent/WEB-INF/lib">
                    <include name="*.jar"/>
            </fileset>
    </path>

    <target name="init">
            <mkdir dir="build/classes"/>
            <mkdir dir="dist" />
    </target>

    <target name="compile" depends="init" >
            <javac destdir="build/classes" debug="true" srcdir="src">
                    <classpath refid="compile.classpath"/>
            </javac>
    </target>

    <target name="war" depends="compile">
            <war destfile="dist/AntExample.war" webxml="WebContent/WEB-INF/web.xml">
                    <fileset dir="WebContent"/>
                    <lib dir="WebContent/WEB-INF/lib"/>
                    <classes dir="build/classes"/>
            </war>
    </target>

    <target name="clean">
            <delete dir="dist" />
            <delete dir="build" />
    </target>
```
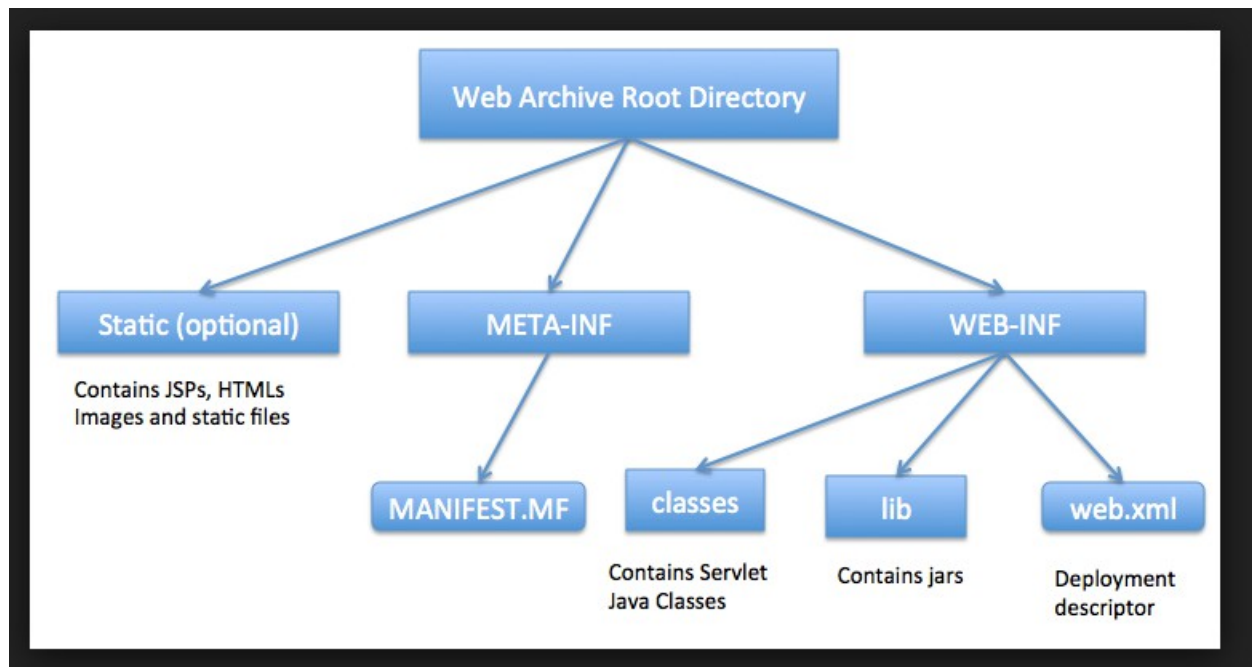
WAR file Structure

Difference between EAR and WAR ?

Flow of request

WAR

browser---->localhost:8080/filename------------->tomcat/webapps/<filename>---->web.xml---->welcomfile

EAR

browser---->localhost:8080/filename------------->jboss/deployments-->application.xml--->webmodule----->contextroot----

WAR---->web.xml---->welcomfile

Apache Tomcat

Java based server(WAR)

Container: Web Container(Servlet Container)

Port number: http(8080),https(8443),ajp(advance jserv protocol-8009)

Important file: server.xml

Important log file: catalina.out

Pre-req: JDK/JRE(java development kit/Java Runtime Environment)

Version: 9.x

On the live: 6/7/8/9

License type: OpenSource

Tomcat Directory Structure

ApacheTomcat-xx(CATALINA_HOME/CATALINA_BASE)(Tomcat home directory)

→bin(startup.sh,shutdown.sh,setenv.sh,catalina.sh)

→conf(server.xml,context.xml,tomcat-users.xml,logging.properties)

→lib(*.jar(servelet-api.jar,jasper.jar))

→webapp(Deployment Directory(*.war))

→work(temporary directory and it can be deleted)

→tmp(temporary directory)

→logs(catalina.out)

```
[root@localhost /apache-tomcat-8.5.15]# ls -ltr
total 120
drwxr-xr-x. 2 root root  4096 May  5 12:03 work
drwxr-xr-x. 2 root root  4096 May  5 12:03 logs
drwxr-xr-x. 7 root root  4096 May  5 12:03 webapps
drwxr-xr-x. 2 root root  4096 May  5 12:03 temp
-rw-r--r--. 1 root root 16416 May  5 12:03 RUNNING.txt
-rw-r--r--. 1 root root  7241 May  5 12:03 RELEASE-NOTES
-rw-r--r--. 1 root root  1774 May  5 12:03 NOTICE
-rw-r--r--. 1 root root 58153 May  5 12:03 LICENSE
drwxr-xr-x. 2 root root  4096 May  5 12:03 lib
drwxr-xr-x. 2 root root  4096 May  5 12:03 conf
drwxr-xr-x. 2 root root  4096 May  5 12:03 bin
[root@localhost apache-tomcat-8.5.15]# pwd
/opt/apache-tomcat-8.5.15
```

JAVA Installation

JDK/JRE Installation

JAVA (SUN)----->oracle java(jrocket-weblogic)

       --->IBM (IBM java—IBM Products)

->Redhat->openjdk

->Apple ->Apple Java

We use mostly sun java in the projects.SUN java(oracle).

To know which java or version we are using: **java –version**

JAVA Instalaltion Ways→RPM(you need todownload the package from outside url(internet)) ,YUM(baseurl),zip/tar.gz(you need to download the package).

To install java with yum

yum install java

yum--→/etc/yum.repos.d/*.repo -→checks for the package(baseurl).

To check installed or not.

java –version

rpm installation

Download the package from repository url.

http://www.oracle.com/technetwork/java/javase/downloads/index.html

Once you downloaded the jdk..xxx.rpmpackage,copy this file to remote unix server(filezilla/winscp).

Goto the rpm package residing location and execute the follow command to do installation.

[root@localhostopt]#**rpm -ivh jdk-8u141-linux-x64.rpm**

I= install v=verbose h=hash value

[root@localhostopt]#java -version
java version "1.8.0_141"
Java(TM) SE Runtime Environment (build 1.8.0_141-b15)

Java HotSpot(TM) 64-Bit Server VM (build 25.141-b15, mixed mode)

[root@localhost opt]#

Tomcat Installation.

https://tomcat.apache.org/download-80.cgi

8.5.23

Please see the README file for packaging information. It explains what every distribution contains.

Binary Distributions

- Core:
  - zip (pgp, md5, sha1)
  - tar.gz (pgp, md5, sha1)
  - 32-bit Windows zip (pgp, md5, sha1)
  - 64-bit Windows zip (pgp, md5, sha1)
  - 32-bit/64-bit Windows Service Installer (pgp, md5, sha1)
- Full documentation:
  - tar.gz (pgp, md5, sha1)
- Deployer:
  - zip (pgp, md5, sha1)
  - tar.gz (pgp, md5, sha1)
- Extras:
  - JMX Remote jar (pgp, md5, sha1)
  - Web services jar (pgp, md5, sha1)
- Embedded:
  - tar.gz (pgp, md5, sha1)
  - zip (pgp, md5, sha1)

Source Code Distributions

```
[root@localhost bin]# sh catalina.sh start
Using CATALINA_BASE:   /opt/apache-tomcat-8.5.15
Using CATALINA_HOME:   /opt/apache-tomcat-8.5.15
Using CATALINA_TMPDIR: /opt/apache-tomcat-8.5.15/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/apache-tomcat-8.5.15/bin/bootstrap.jar:/opt/apache-tomcat-8.5.15/bin/tomcat-juli.jar
Tomcat started.
[root@localhost bin]#
```

```
[root@localhost bin]# sh catalina.sh stop
Using CATALINA_BASE:   /opt/apache-tomcat-8.5.15
Using CATALINA_HOME:   /opt/apache-tomcat-8.5.15
Using CATALINA_TMPDIR: /opt/apache-tomcat-8.5.15/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/apache-tomcat-8.5.15/bin/bootstrap.jar:/opt/apache-tomcat-8.5.15/bin/tomcat-juli.jar
[root@localhost bin]#
```

Check Tomcat process running or not

(Process owner and Process id ,ppid,time and terminal)

```
[root@localhost bin]# ps -ef | grep tomcat
root      3327     1 44 02:11 pts/1    00:00:02 /usr/bin/java -Djava.util.logging.config.file=/opt/apache-tomcat-8.5.15/
conf/logging.properties -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -Djdk.tls.ephemeralDHKeySize=204
8 -Djava.protocol.handler.pkgs=org.apache.catalina.webresources -classpath /opt/apache-tomcat-8.5.15/bin/bootstrap.jar:/op
t/apache-tomcat-8.5.15/bin/tomcat-juli.jar -Dcatalina.base=/opt/apache-tomcat-8.5.15 -Dcatalina.home=/opt/apache-tomcat-8.
5.15 -Djava.io.tmpdir=/opt/apache-tomcat-8.5.15/temp org.apache.catalina.startup.Bootstrap start
root      3371  2859  0 02:11 pts/1    00:00:00 grep tomcat
[root@localhost bin]#
```

```
[root@localhost bin]# ./shutdown.sh
Using CATALINA_BASE:   /opt/apache-tomcat-8.5.15
Using CATALINA_HOME:   /opt/apache-tomcat-8.5.15
Using CATALINA_TMPDIR: /opt/apache-tomcat-8.5.15/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/apache-tomcat-8.5.15/bin/bootstrap.jar:/opt/apache-tomcat-8.5.15/bin/tomcat-juli.jar
[root@localhost bin]# ps -ef | grep tomcat
root      3404  2859  0 02:15 pts/1    00:00:00 grep tomcat
[root@localhost bin]# ./startup.sh
Using CATALINA_BASE:   /opt/apache-tomcat-8.5.15
Using CATALINA_HOME:   /opt/apache-tomcat-8.5.15
Using CATALINA_TMPDIR: /opt/apache-tomcat-8.5.15/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/apache-tomcat-8.5.15/bin/bootstrap.jar:/opt/apache-tomcat-8.5.15/bin/tomcat-juli.jar
Tomcat started.
[root@localhost bin]# ps -ef | grep tomcat
root      3419     1 60 02:16 pts/1    00:00:01 /usr/bin/java -Djava.util.logging.config.file=/opt/apache-tomcat-8.5.15/
conf/logging.properties -Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -Djdk.tls.ephemeralDHKeySize=204
8 -Djava.protocol.handler.pkgs=org.apache.catalina.webresources -classpath /opt/apache-tomcat-8.5.15/bin/bootstrap.jar:/op
t/apache-tomcat-8.5.15/bin/tomcat-juli.jar -Dcatalina.base=/opt/apache-tomcat-8.5.15 -Dcatalina.home=/opt/apache-tomcat-8.
5.15 -Djava.io.tmpdir=/opt/apache-tomcat-8.5.15/temp org.apache.catalina.startup.Bootstrap start
root      3436  2859  0 02:16 pts/1    00:00:00 grep tomcat
[root@localhost bin]#
```

Log Files

```
[root@localhost apache-tomcat-8.5.15]# pwd
/opt/apache-tomcat-8.5.15
[root@localhost apache-tomcat-8.5.15]# cd logs
[root@localhost logs]# ls -ltr
total 52
-rw-r-----. 1 root root     0 Oct 18 02:09 manager.2017-10-18.log
-rw-r-----. 1 root root     0 Oct 18 02:09 host-manager.2017-10-18.log
-rw-r-----. 1 root root     0 Oct 18 02:09 localhost_access_log.2017-10-18.txt
-rw-r-----. 1 root root  1392 Oct 18 02:16 localhost.2017-10-18.log
-rw-r-----. 1 root root 20697 Oct 18 02:16 catalina.out
-rw-r-----. 1 root root 20697 Oct 18 02:16 catalina.2017-10-18.log
[root@localhost logs]# pwd
/opt/apache-tomcat-8.5.15/logs
[root@localhost logs]#
```

More filename

Less filename

Head filename

Tail filename

Vi filename

Head -100 filename

Tail -500 filename

Tail -50f filanem(last 50 lines + updated next lines)

Nullyfy a file (>filename)

```
[root@localhost logs]# tail -f catalina.out
18-Oct-2017 02:26:18.643 INFO [main] org.apache.catalina.core.StandardServer.await A valid shutdown command was received v
ia the shutdown port. Stopping the Server instance.
18-Oct-2017 02:26:18.644 INFO [main] org.apache.coyote.AbstractProtocol.pause Pausing ProtocolHandler ["http-nio-8080"]
18-Oct-2017 02:26:18.655 INFO [main] org.apache.coyote.AbstractProtocol.pause Pausing ProtocolHandler ["ajp-nio-8009"]
18-Oct-2017 02:26:18.658 INFO [main] org.apache.catalina.core.StandardService.stopInternal Stopping service [Catalina]
18-Oct-2017 02:26:18.712 INFO [main] org.apache.coyote.AbstractProtocol.stop Stopping ProtocolHandler ["http-nio-8080"]
18-Oct-2017 02:26:18.715 INFO [main] org.apache.coyote.AbstractProtocol.stop Stopping ProtocolHandler ["ajp-nio-8009"]
18-Oct-2017 02:26:18.717 INFO [main] org.apache.coyote.AbstractProtocol.destroy Destroying ProtocolHandler ["http-nio-8080
"]
18-Oct-2017 02:26:18.718 INFO [main] org.apache.coyote.AbstractProtocol.destroy Destroying ProtocolHandler ["ajp-nio-8009"
]
```

```
18-Oct-2017 02:28:32.195 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deployment of
 web application directory [/opt/apache-tomcat-8.5.15/webapps/docs] has finished in [38] ms
18-Oct-2017 02:28:32.196 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web
 application directory [/opt/apache-tomcat-8.5.15/webapps/ROOT]
18-Oct-2017 02:28:32.230 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deployment of
 web application directory [/opt/apache-tomcat-8.5.15/webapps/ROOT] has finished in [34] ms
18-Oct-2017 02:28:32.233 INFO [main] org.apache.coyote.AbstractProtocol.start Starting ProtocolHandler ["http-nio-8080"]
18-Oct-2017 02:28:32.273 INFO [main] org.apache.coyote.AbstractProtocol.start Starting ProtocolHandler ["ajp-nio-8009"]
18-Oct-2017 02:28:32.288 INFO [main] org.apache.catalina.startup.Catalina.start Server startup in 1395 ms
```



```
web application directory [/opt/apache-tomcat-8.5.15/webapps/docs] has finished in [38] ms
18-Oct-2017 02:28:32.196 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deploying web
 application directory [/opt/apache-tomcat-8.5.15/webapps/ROOT]
18-Oct-2017 02:28:32.230 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deployment of
 web application directory [/opt/apache-tomcat-8.5.15/webapps/ROOT] has finished in [34] ms
18-Oct-2017 02:28:32.233 INFO [main] org.apache.coyote.AbstractProtocol.start Starting ProtocolHandler ["http-nio-8080"]
18-Oct-2017 02:28:32.273 INFO [main] org.apache.coyote.AbstractProtocol.start Starting ProtocolHandler ["ajp-nio-8009"]
18-Oct-2017 02:28:32.288 INFO [main] org.apache.catalina.startup.Catalina.start Server startup in 1395 ms
^C
[root@localhost logs]# ls -ltr
```

Check Types of Log levels in Tomcat ?

INFO

SEVERE

WARN

FINER

FINEST

FINE

About The WEBAPPS

We do deployment of war files or exploded directories.

```
[root@localhost apache-tomcat-8.5.15]# pwd
/opt/apache-tomcat-8.5.15
[root@localhost apache-tomcat-8.5.15]# cd webapps/
[root@localhost webapps]# ls -ltr
total 20
drwxr-xr-x.  3 root root 4096 May  5 12:03 ROOT
drwxr-xr-x.  5 root root 4096 May  5 12:03 manager
drwxr-xr-x.  5 root root 4096 May  5 12:03 host-manager
drwxr-xr-x.  6 root root 4096 May  5 12:03 examples
drwxr-xr-x. 14 root root 4096 May  5 12:03 docs
[root@localhost webapps]# pwd
/opt/apache-tomcat-8.5.15/webapps
[root@localhost webapps]#
```

Deployment of Sample.war

```
/opt/apache-tomcat-8.5.15/webapps
[root@localhost webapps]# cd /opt/
[root@localhost opt]# ls -ltr
total 176780
drwxr-xr-x. 2 root root      4096 May 17  2013 rh
drwxr-xr-x. 9 root root      4096 May  5 12:06 apache-tomcat-8.5.15
-rw-r--r--. 1 root root 169980729 Oct 18 01:44 jdk-8u141-linux-x64.rpm
-rw-r--r--. 1 root root  11015137 Oct 18 02:02 apache-tomcat-8.5.15-windows-x64.zip
-rw-r--r--. 1 root root      4606 Oct 18 02:35 sample.war
[root@localhost opt]# pwd
/opt
[root@localhost opt]# cp sample.war /opt/apache-tomcat-8.5.15/webapps/
[root@localhost opt]# cd /opt/apache-tomcat-8.5.15/webapps/
[root@localhost webapps]# ls -ltr
total 32
drwxr-xr-x.  3 root root 4096 May  5 12:03 ROOT
drwxr-xr-x.  5 root root 4096 May  5 12:03 manager
drwxr-xr-x.  5 root root 4096 May  5 12:03 host-manager
drwxr-xr-x.  6 root root 4096 May  5 12:03 examples
drwxr-xr-x. 14 root root 4096 May  5 12:03 docs
-rw-r--r--.  1 root root 4606 Oct 18 02:35 sample.war
drwxr-x---.  5 root root 4096 Oct 18 02:36 sample
[root@localhost webapps]#
```

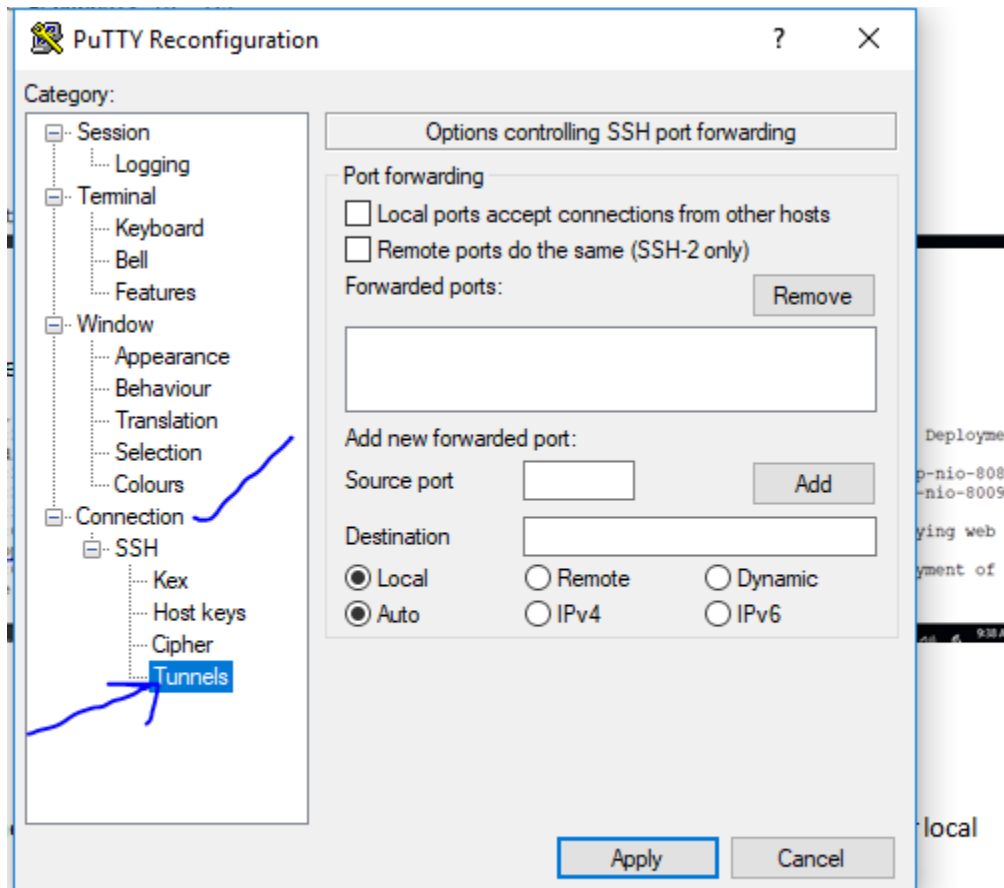After deployment of the war file check log file and observe last lines of the file.

```
application directory [/opt/apache-tomcat-8.5.15/webapps/ROOT]
18-Oct-2017 02:28:32.230 INFO [localhost-startStop-1] org.apache.catalina.startup.HostConfig.deployDirectory Deployment of
 web application directory [/opt/apache-tomcat-8.5.15/webapps/ROOT] has finished in [34] ms
18-Oct-2017 02:28:32.233 INFO [main] org.apache.coyote.AbstractProtocol.start Starting ProtocolHandler ["http-nio-8080"]
18-Oct-2017 02:28:32.273 INFO [main] org.apache.coyote.AbstractProtocol.start Starting ProtocolHandler ["ajp-nio-8009"]
18-Oct-2017 02:28:32.288 INFO [main] org.apache.catalina.startup.Catalina.start Server startup in 1395 ms
18-Oct-2017 02:36:02.609 INFO [localhost-startStop-2] org.apache.catalina.startup.HostConfig.deployWAR Deploying web appli
cation archive [/opt/apache-tomcat-8.5.15/webapps/sample.war]
18-Oct-2017 02:36:02.698 INFO [localhost-startStop-2] org.apache.catalina.startup.HostConfig.deployWAR Deployment of web a
pplication archive [/opt/apache-tomcat-8.5.15/webapps/sample.war] has finished in [89] ms
```

Access the remote application(Note: When remote server doesn't have **public ip**) into your local system.

On Top of putty opened session →Rightclick→ChangeSettings→
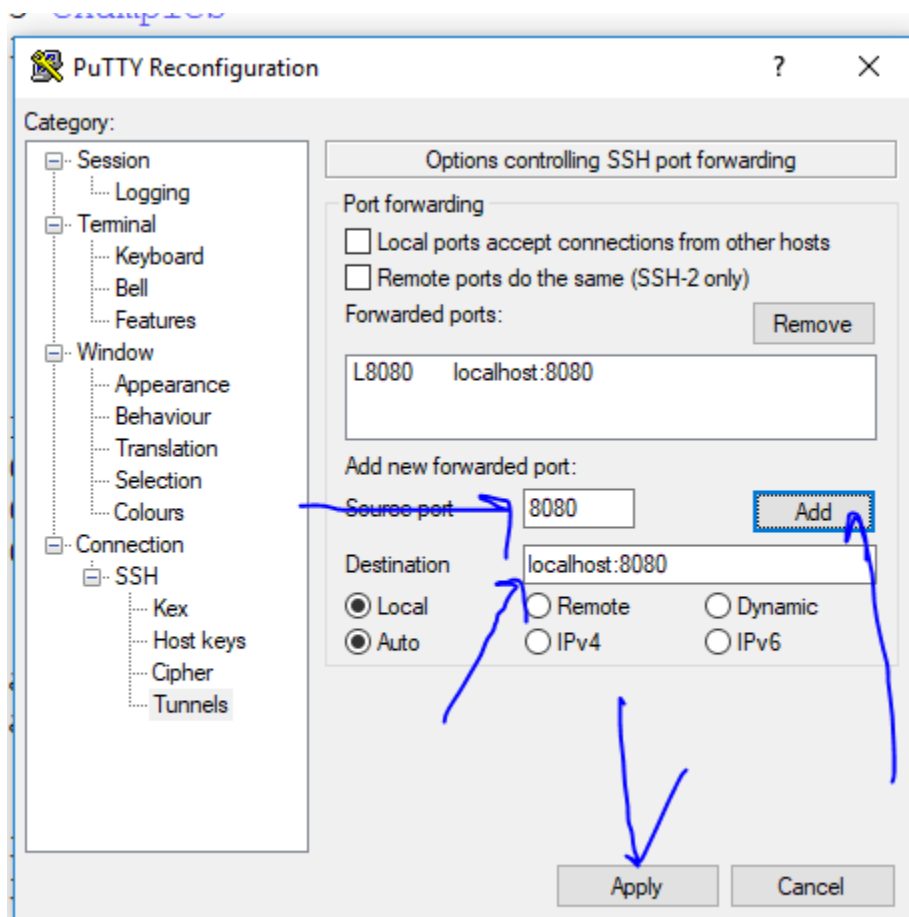
After enabling the tunneling check its active or not (in your local system)

```
C:\Users\Gangi reddy>netstat -ano | find  ":8080"
  TCP    127.0.0.1:8080       0.0.0.0:0        LISTENING    13676
  TCP    [::1]:8080           [::]:0           LISTENING    13676

C:\Users\Gangi reddy>
```

Access the page.

Sample "Hello, World" Application

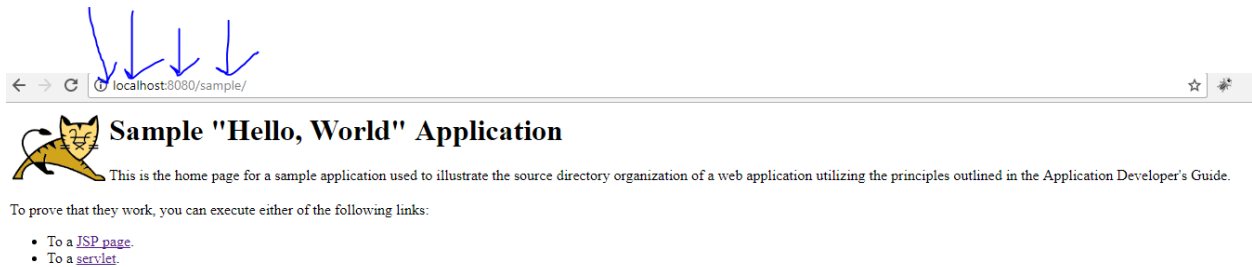This is the home page for a sample application used to illustrate the source directory organization of a web application utilizing the principles outlined in the Application Developer's Guide.

To prove that they work, you can execute either of the following links:

- To a JSP page.
- To a servlet.

How request forwarded to Tomcat from apache(Without port number).

```
protocal://<hostname/ip>:<port>/<applicationame/contextroot

www.sample.com
================
protocal:http
hostname:www.sample.com------------->DNS(IP)
port:80

======================>IP----->80---->Apache(Proxy- ReverseProxy)--------------->8080(http)/8009(ajp)-->Tomcat
```

http://localhost:8080/sample---------->Directly Tomcat
www.sample.com/---->Via Apache To Tomcat(Benefit: No port number and security)

protocal://<hostname/ip>:<port>/<applicationame/contextroot

www.sample.com
================
protocal:http
hostname:www.sample.com------------->DNS(IP)
port:80

======================>IP----->80---->Apache(Proxy- ReverseProxy)--------------
>8080(http)/8009(ajp)-->Tomcat

Apache and Tomcat Integration
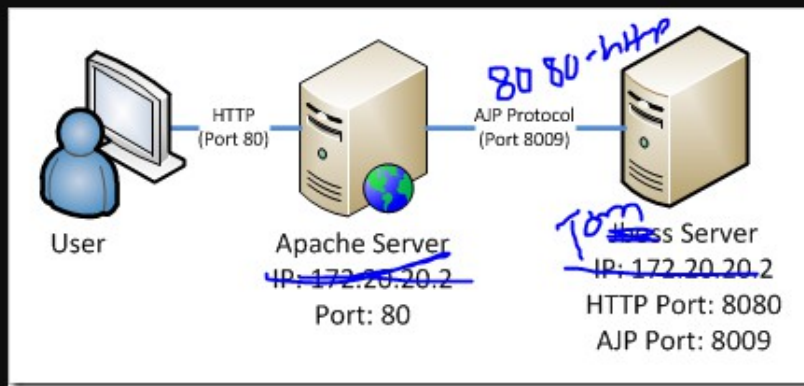
Enuser--→http(80)/https(443)-----→Apache---
→http(8080)/ajp(8009)------→Tomcat-----→JDBC(mysql-3306/mssql-
1433/oracle-1521/db2-50000)-----→DB
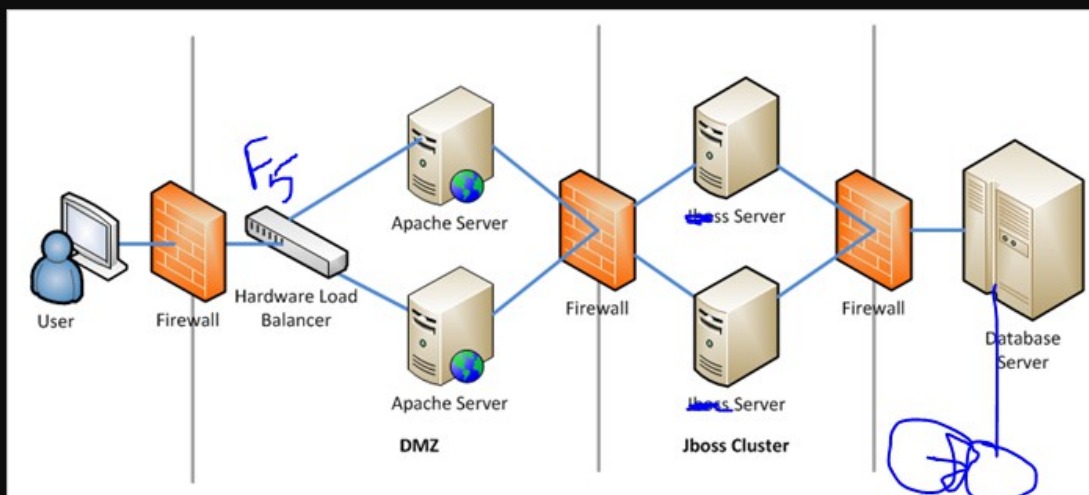
Apache and Tomcat integration done in multiple way

1.mod_jk(external)

2.mod_proxy(inbuilt in apache)

Request---->Apache----------->Tomcat

Mod_proxy

In httpd.conf->Enable all *proxy*.so modules(.so)

Add below lines in httpd.conf (Single Tomcat)

```
<VirtualHost *:80>
        ServerName www.shoppingcart.test.com
        RedirectMatch ^/$ /shoppingcart/

        ProxyRequests off
        ProxyPreserveHost on

        ProxyPass /shoppingcart http://localhost:8080/shoppingcart/
        ProxyPassReverse /shoppingcart
http://localhost:8080/shoppingcart/

</virtualHost>
```

Restart apache.

With multiple Tomcat(change port numbers for second tomcat)

8005== some other port

8080= some other port

8443= some other port

8009= some other port

```
<VirtualHost *:80>
     ServerName www.shoppingcart.test.com
     RedirectMatch  ^/$ /shoppingcart/

     ProxyRequests off
     ProxyPreserveHost on
ProxyPass /shoppingcart  balancer://shr
stickysession=JSESSIONID
     ProxyPassReverse/shoppingcartbalancer://shr
stickysession=JSESSIONID

     <Proxy balancer://shr>
          BalancerMember http://localhost:8080/shoppingcart
          BalancerMember http://localhost:10000/shoppingcart

     </Proxy>
```

```
<Location /balancer-manager>

          SetHandler balancer-manager

     </Location>
```

</virtualHost>

About The Conext.xml(Datasouce info/DBinfo)

Application -->DB

DB username

DB password

DB Name

Where my DB is running

JNDI name

Protocal://<dbhostname>:<port>/DBname

Oracle:1521

Mysql-3306

**DB2-50000**

MSSql- 1433

Or

<CATINA_HOME/conf/context.xml(JDBC/Datasource)(server.xml)

```
[root@localhost conf]# ls -ltr
total 232
-rw-r--r--. 1 root root 172936 May  5 12:03 web.xml
-rw-r--r--. 1 root root   2691 May  5 12:03 tomcat-users.xsd
-rw-r--r--. 1 root root   2208 May  5 12:03 tomcat-users.xml
-rw-r--r--. 1 root root   7678 May  5 12:03 server.xml
-rw-r--r--. 1 root root   3692 May  5 12:03 logging.properties
-rw-r--r--. 1 root root   2410 May  5 12:03 jaspic-providers.xsd
-rw-r--r--. 1 root root   1172 May  5 12:03 jaspic-providers.xml
-rw-r--r--. 1 root root   1368 May  5 12:03 context.xml
-rw-r--r--. 1 root root   7528 May  5 12:03 catalina.properties
-rw-r--r--. 1 root root  13155 May  5 12:03 catalina.policy
drwxr-x---. 3 root root   4096 Oct 18 02:09 Catalina
[root@localhost conf]# pwd
/opt/apache-tomcat-8.5.15/conf
[root@localhost conf]#
```

About server.xml

Tomcat architecture
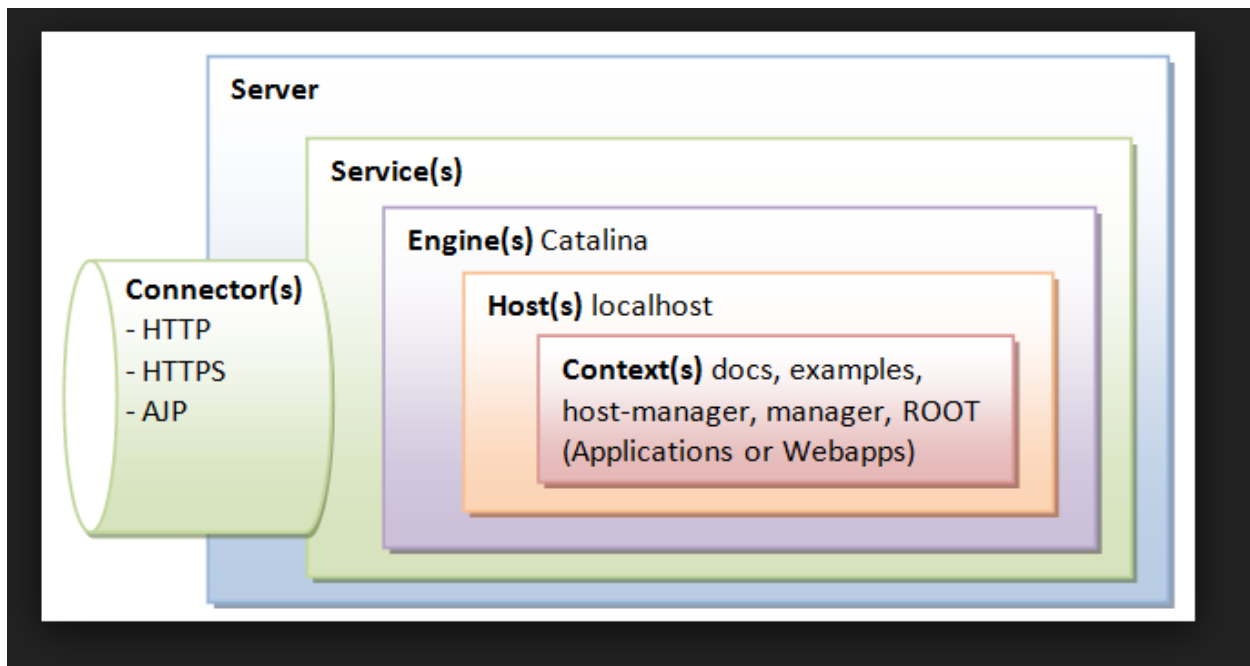
About Logging .properties.(CATALINA_BASE/conf/logging.properties)

Log-→Writing info

Log level
Log Appender-→console,file
Rotation-→size and time

```
[root@localhost conf]# cd ..
[root@localhost apache-tomcat-8.5.15]# cd logs
[root@localhost logs]# ls -ltr
total 24
-rw-r-----. 1 root root    0 Oct 18 02:09 manager.2017-10-18.log
-rw-r-----. 1 root root    0 Oct 18 02:09 host-manager.2017-10-18.log
-rw-r-----. 1 root root 1948 Oct 18 02:28 localhost.2017-10-18.log
-rw-r-----. 1 root root 7637 Oct 18 02:36 catalina.out
-rw-r-----. 1 root root 7637 Oct 18 02:36 catalina.2017-10-18.log
-rw-r-----. 1 root root  421 Oct 18 02:44 localhost_access_log.2017-10-18.txt
[root@localhost logs]# pwd
/opt/apache-tomcat-8.5.15/logs
[root@localhost logs]#
```

Logging.properties

```
handlers = 1catalina.org.apache.juli.AsyncFileHandler, 2localhost.org.apache.juli.AsyncFileHandler, 3manager.org.apache.ju
li.AsyncFileHandler, 4host-manager.org.apache.juli.AsyncFileHandler, java.util.logging.ConsoleHandler

.handlers = 1catalina.org.apache.juli.AsyncFileHandler, java.util.logging.ConsoleHandler

############################################################
# Handler specific properties.
# Describes specific configuration info for Handlers.
############################################################

1catalina.org.apache.juli.AsyncFileHandler.level = FINE
1catalina.org.apache.juli.AsyncFileHandler.directory = ${catalina.base}/logs
1catalina.org.apache.juli.AsyncFileHandler.prefix = catalina.

2localhost.org.apache.juli.AsyncFileHandler.level = FINE
2localhost.org.apache.juli.AsyncFileHandler.directory = ${catalina.base}/logs
2localhost.org.apache.juli.AsyncFileHandler.prefix = localhost.
--More--(46%)
```

LAB:- Make a catalina.out to be with your name .

Adding the tomcat admin console users in tomcat-users.xml

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

```
<role rolename="manager-status"/>
<user username="admin" password="admin" roles="manager-gui,manager-script,manager-jmx,manager-status"/>
```

Excerises:-

SSO

A=-----SSO--->username and pwd--->page---->ssopage------------>A
page

B=---SSO-->username and pwd--->page----->ssopage

C=----SSO->username and pwd--->page------>ssopage

aws configure-->sso--->sso page-->wso2 page

SSO----------------------------->page(uname and pwd)--ssopage

gmail------------->gmaillogin(identity providers)(Idp)

facebook---->face login page)(identity providers)(Idp)

wso2---->sso---->(testapp---ssopage---username and pwd--->gmail)

testapp---->testapp page login--->ssopage(service provider)(sP)

testapp--->ssopage--->uname and pwd-->@gmail.com/pwd----
>testapppgage

gmail

youtube

google drive

--------->Google login page-->

facebook(identiy provider) --------------->ws02---------------->aws
login(service provider)

LDAP/AD(Active Directory--Windows Server)-------->username and
pwd

symante---->sso login page-->identity provider LDAP and Service Proider(register)---->

Port number:10000--------→server.xml(connector)

Catalina.out--→name.out---------→logging.properties

/opt/logs/tomcat/--→logging.properties

/opt/apps/--→

<host--------- appBase="/opt/apps">

Interview Questions

Difference between kill -9 and kill -3 ?

Kill -3 <pid> is used to take thread dump.

Kill -9 <pid> is used to terminate process.

How to take thread and heap dumps ?(jstack and jmap are jdk tools)

Thread dump :jstack

Heap dump: jmap

Difference between thread dump and heap dump ?