

# C212/A592 Spring 17 Lab 11

Intro to Software Systems

## Instructions:

- Review the requirements given below and Complete your work. Please submit link of your site through Canvas.
- The grading scheme is provided on Canvas

## Lab11: Installing Apache Tomcat, Java Servlets

Follow these steps:

1. Log into burrow. Use puTTY and access **burrow.soic.indiana.edu** to login. For more information visit <https://uisapp2.iu.edu/confluence-prd/pages/viewpage.action?pageId=114491559>

If you are not familiar with using remote login shells or file transfer, visit

<https://uisapp2.iu.edu/confluence-prd/display/SOICKB/SSH+Remote+Logins+and+File+Transfer+to+Linux+Servers>

If you are not familiar with Linux, here is a list of basic commands

[http://www.comptechdoc.org/os/linux/usersguide/linux\\_ugbasics.html](http://www.comptechdoc.org/os/linux/usersguide/linux_ugbasics.html)

2. Create **c212-workspace** folder and move there.

```
[aabhutta@silo ~]$ pwd
/u/aabhutta
[aabhutta@silo ~]$ mkdir c212-workspace
[aabhutta@silo ~]$ cd c212-workspace/
[aabhutta@silo c212-workspace]$
```

3. Bring the archive, uncompress and unarchive it.

```
[aabhutta@silo c212-workspace]$ cp /l/www/classes/a348/spr2013/software/apache-tomcat-7.0.35.tar.gz .
```

```
[aabhutta@silo c212-workspace]$ gunzip apache-tomcat-7.0.35.tar.gz
[aabhutta@silo c212-workspace]$ tar xf apache-tomcat-7.0.35.tar
[aabhutta@silo c212-workspace]$
```

4. Move into the newly created folder.

```
[aabhutta@silo c212-workspace]$ cd apache-tomcat-7.0.35/
```

5. Move into **conf**, set up server.xml (put your own **port numbers** in it. You can find your Port numbers on canvas).

```
[aabhutta@silo apache-tomcat-7.0.35]$ cd conf
[aabhutta@silo conf]$ mv server.xml server.xml-distr
[aabhutta@silo conf]$ nano -w server.xml
```

The contents of server.xml file are shown below:

```
-bash-4.2$ cat server.xml
```

```
<Server port="24100" shutdown="SHUTDOWN">

  <GlobalNamingResources>
    <!-- Used by Manager webapp -->
    <Resource name="UserDatabase" auth="Container"
      type="org.apache.catalina.UserDatabase"
      description="User database that can be updated and saved"
      factory="org.apache.catalina.users.MemoryUserDatabaseFactory"
      pathname="conf/tomcat-users.xml" />
  </GlobalNamingResources>

  <Service name="Catalina">
    <Connector port="24099" />

    <Engine name="Catalina" defaultHost="localhost">
      <Realm className="org.apache.catalina.realm.UserDatabaseRealm"
        resourceName="UserDatabase" />
      <Host name="localhost" appBase="webapps" />
    </Engine>

  </Service>
</Server>
```

```
-bash-4.2$
```

6. Also define yourself as manager in tomcat-users.xml.

Here's what my file looks like:

```
[aabhutta@silo conf]$ pwd
/u/aabhutta/c212-workspace/apache-tomcat-7.0.35/conf
[aabhutta@silo conf]$ ls -ld tomcat-users.xml
-rw----- 1 aabhutta students 160 Oct 28 13:09 tomcat-users.xml
[aabhutta@silo conf]$ nano -w tomcat-users.xml
```

The contents of **tomcat-users.xml** file are shown below:

```
[aabhutta@silo conf]$ cat tomcat-users.xml
```

```
<?xml version='1.0' encoding='utf-8'?>
```

```
<tomcat-users>
  <role rolename="manager-gui"/>
  <user username="test" password="p3ngu1n" roles="manager-gui"/>
</tomcat-users>
```

```
[aabhutta@silo conf]$
```

I have basically removed all comments and added just what was needed.

7. Go up one folder and create **.tomcat-settings** as in class.

```
[aabhutta@silo conf]$ cd ..
[aabhutta@silo apache-tomcat-7.0.35]$ nano -w .tomcat-settings
[aabhutta@silo apache-tomcat-7.0.35]$ echo $JAVA_HOME

[aabhutta@silo apache-tomcat-7.0.35]$ source .tomcat-settings
[aabhutta@silo apache-tomcat-7.0.35]$ echo $JAVA_HOME
/usr/lib/jvm/java-1.7.0
[aabhutta@silo apache-tomcat-7.0.35]$ cat .tomcat-settings
```

```
-bash-4.2$ cat .tomcat-settings
JAVA_HOME=/usr/lib/jvm/java-1.7.0
export JAVA_HOME

CATALINA_HOME=/u/aabhutta/c212-workspace/apache-tomcat-7.0.35
export CATALINA_HOME

CLASSPATH=.:$CATALINA_HOME/lib/servlet-api.jar
export CLASSPATH
```

Run source .tomcat-settings and check \$JAVA\_HOME, \$CATALINA\_HOME as done above.  
(Don't forget to use your own **username**).

8. Now start the server.

```
$CATALINA_HOME/bin/startup.sh
```

9. Change your home page, add name, picture, link to old page.

```
[aabhutta@silo apache-tomcat-7.0.35]$ pwd
/u/aabhutta/c212-workspace/apache-tomcat-7.0.35
[aabhutta@silo apache-tomcat-7.0.35]$ cd $CATALINA_HOME/webapps/ROOT
[aabhutta@silo ROOT]$ nano -w index.html

[aabhutta@silo ROOT]$ cat index.html
```



```
[aabhutta@silo ~]$ ps -ef | grep aabhutta
root    44370 144698 0 21:38 ?        00:00:00 sshd: aabhutta [priv]
aabhutta 44467 44370 0 21:38 ?        00:00:00 sshd: aabhutta@pts/36
aabhutta 44476 44467 0 21:38 pts/36  00:00:00 -bash
aabhutta 45476 44476 0 21:41 pts/36  00:00:00 ps -ef
aabhutta 45477 44476 0 21:41 pts/36  00:00:00 grep --color=auto aabhutta
aabhutta 95518 1 0 Nov08 ?        00:02:52 /usr/lib/jvm/java-1.7.0/bin/java -
Djava.util.logging.config.file=/u/aabhutta/c212-workspace/apache-tomcat-
7.0.35/conf/logging.properties -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -
Djava.endorsed.dirs=/u/aabhutta/c212-workspace/apache-tomcat-7.0.35/endorsed -classpath
/u/aabhutta/c212-workspace/apache-tomcat-7.0.35/bin/bootstrap.jar:/u/aabhutta/c212-
workspace/apache-tomcat-7.0.35/bin/tomcat-juli.jar -Dcatalina.base=/u/aabhutta/c212-
workspace/apache-tomcat-7.0.35 -Dcatalina.home=/u/aabhutta/c212-workspace/apache-
tomcat-7.0.35 -Djava.io.tmpdir=/u/aabhutta/c212-workspace/apache-tomcat-7.0.35/temp
org.apache.catalina.startup.Bootstrap start
```

This should show all of the running tasks (with username and task ID). If you see multiple instances of tomcat, kill them one by one using the ID. See example below:

```
[aabhutta@silo ~]$ kill 95518
[aabhutta@silo ~]$ ps -ef | grep aabhutta
root    44370 144698 0 21:38 ?        00:00:00 sshd: aabhutta [priv]
aabhutta 44467 44370 0 21:38 ?        00:00:00 sshd: aabhutta@pts/36
aabhutta 44476 44467 0 21:38 pts/36  00:00:00 -bash
aabhutta 49363 44476 0 21:46 pts/36  00:00:00 ps -ef
aabhutta 49364 44476 0 21:46 pts/36  00:00:00 grep --color=auto aabhutta
```

Now restart the server.