Web Service

Deployment & Interface Documentation

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Table Of Contents

1. Introduction

The following document details the general deployment for the web service component of the Bluetooth Poker application. The deployment of the web service was completed with the assistance of ECE IT, who facilitated with the setup of the basic hardware and loaded a base OS image. This deployment document makes the assumption that setup environment is the Scientific Linux 6 distribution OS image that was provided, but an attempt will be made to at least mention the utilized and programs that are required.

2. Web Service Setup

1. Setup Apache HTTPd (Provided in OS Image)
2. Download and extract Tomcat 7 - http://tomcat.apache.org/ - to /usr/tomcat7
3. http://tomcat.apache.org/tomcat-7.0-doc/proxy-howto.html#Apache_2.0_Proxy_Support
   a. **In httpd.conf in /etc/httpd/conf/httpd.conf(depending on install)**
      i. **Uncomment if not already so**: LoadModule proxy_module {path-to-modules}/mod_proxy.so
      ii. **Set:** ServerName labtest.ece.ualberta.ca:80
      iii. **Set:** Listen 80
      iv. **Add to end of the file:**

```
#Java Proxies
################
#Test Servlet
ProxyPass        /test  http://labtest.ece.ualberta.ca:8080/clock
ProxyPassReverse /test  http://labtest.ece.ualberta.ca:8080/clock

ProxyPass        /login  http://labtest.ece.ualberta.ca:8080/PokerWebService/LoginServlet
ProxyPassReverse /login  http://labtest.ece.ualberta.ca:8080/PokerWebService/LoginServlet

ProxyPass        /logout  http://labtest.ece.ualberta.ca:8080/PokerWebService/LogoutServlet
ProxyPassReverse /logout  http://labtest.ece.ualberta.ca:8080/PokerWebService/LogoutServlet

ProxyPass        /register  http://labtest.ece.ualberta.ca:8080/PokerWebService/RegisterServlet
ProxyPassReverse /register  http://labtest.ece.ualberta.ca:8080/PokerWebService/
RegisterServlet

ProxyPass        /upload  http://labtest.ece.ualberta.ca:8080/PokerWebService/UploadServlet
ProxyPassReverse /upload  http://labtest.ece.ualberta.ca:8080/PokerWebService/
UploadServlet

ProxyPass        /personalstatistics  http://labtest.ece.ualberta.ca:8080/PokerWebService/
PersonalStatisticsServlet
```

ProxyPassReverse /personalstatistics http://labtest.ece.ualberta.ca:8080/PokerWebService/PersonalStatisticsServlet

ProxyPass /rankstatistics http://labtest.ece.ualberta.ca:8080/PokerWebService/RankingStatisticsServlet
ProxyPassReverse /rankstatistics http://labtest.ece.ualberta.ca:8080/PokerWebService/RankingStatisticsServlet

ProxyPass /communitystatistics http://labtest.ece.ualberta.ca:8080/PokerWebService/CommunityStatisticsServlet
ProxyPassReverse /communitystatistics http://labtest.ece.ualberta.ca:8080/PokerWebService/CommunityStatisticsServlet

      b. **In /usr/tomcat7/conf/server.xml:**
          i. Add to file:

```
 <Connector port="8080"
        proxyName="testServlet"
        proxyPort="80"/>

  <Connector port="8080" protocol="HTTP/1.1"
         connectionTimeout="20000"
         redirectPort="8443" />
```

      c. **In /usr/tomcat7/conf/server.xml:**
          i. <user username="USER" password="PASS" roles="tomcat,manager-gui"/>
4. Start HTTpd:
    a. sudo /etc/rc.d/init.d/httpd start
5. Start Tomcat:
    a. /usr/tomcat7/bin/startup.sh

Note to stop:
/usr/tomcat7/bin/shutdown.sh
sudo /etc/rc.d/init.d/httpd stop

2. Web Service Development Environment

This section requires section 1 to be completed.

One of the steps in the deployment process from the source to production requires the use of the eclipse Java EE environment in order to export the required WAR file. For this reason we have included the setup process for eclipse Java EE.

1. Navigate to http://www.eclipse.org/downloads/
2. Download and extract Eclipse IDE for Java EE Developers to a desired location
3. Run Eclipse executable
4. Select Desired workspace path

3. Import Project

5. Under WebContext->META-INF->Context.xml set database address to appropriate address for either of the two settings.
6. Under WebContext->META-INF->web.xml set which database to use - "home" or "uni".

4. Export WAR File

This section focuses on installing the process required to import the automated test suite into the eclipse based environment.

1. Download and extract the the Bluetooth Poker Automated test suite to a known location.
2. In the Eclipse environment, choose File -> Import...
3. Under "General", choose "Existing Projects into Workspace"
4. In the "Select Root Directory", select the path to the extracted folder where the automated test suite is located. Eclipse will automatically detect any existing projects within that folder; kindly double check that the Project Name is correct. At time of writing the WebService project is in a folder called PokerWebService within the main source folder.
5. Click "Finish". The project should now be imported to the selected Workspace.

5. MySql Database

This section details the database setup that is required by the database. For the course of this document we are assuming that database is already installed and running. ECE IT provided the mysql instance and the ece493grp2 database.

1. **Start a terminal session and navigate to the directory that contains an sql script file with the contents(assuming install.sql):**

```sql
delimiter $$

USE `ece493grp2`$$

DROP TABLE IF EXISTS `game_actions`$$
DROP TABLE IF EXISTS `games`$$
DROP TABLE IF EXISTS `misc_data`$$
DROP TABLE IF EXISTS `user_table`$$

delimiter $$

CREATE TABLE `game_actions` (
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `accountID` int(11) NOT NULL,
  `gameID` int(11) NOT NULL,
  `type` varchar(45) NOT NULL,
  `position` int(11) NOT NULL,
  `hand` varchar(45) DEFAULT NULL,
  `communityCards` varchar(45) DEFAULT NULL,
  `pot` int(11) NOT NULL DEFAULT '0',
  `bet` int(11) NOT NULL DEFAULT '0',
  PRIMARY KEY (`id`,`accountID`,`gameID`)
) ENGINE=InnoDB AUTO_INCREMENT=317 DEFAULT CHARSET=utf8$$


delimiter $$

CREATE TABLE `game_optimality` (
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `game_id` int(11) NOT NULL,
  `account_id` int(11) NOT NULL,
  `optimality` double NOT NULL DEFAULT '0',
  PRIMARY KEY (`id`)
) ENGINE=InnoDB AUTO_INCREMENT=37 DEFAULT CHARSET=utf8$$


delimiter $$

CREATE TABLE `games` (
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `gameUUID` varchar(45) NOT NULL,
  `date_uploaded` date NOT NULL,
  PRIMARY KEY (`id`,`gameUUID`),
  UNIQUE KEY `gameUUID_UNIQUE` (`gameUUID`)
```

```
) ENGINE=InnoDB AUTO_INCREMENT=103 DEFAULT CHARSET=utf8$$


delimiter $$

CREATE TABLE `misc_data` (
 `id` int(11) NOT NULL AUTO_INCREMENT,
 `accountID` varchar(45) NOT NULL,
 `name` varchar(45) NOT NULL,
 `value` blob NOT NULL,
 `date_uploaded` date NOT NULL,
  PRIMARY KEY (`id`,`accountID`)
) ENGINE=InnoDB AUTO_INCREMENT=236 DEFAULT CHARSET=utf8$$


delimiter $$

CREATE TABLE `user_table` (
 `id` int(11) NOT NULL AUTO_INCREMENT,
 `username` varchar(200) NOT NULL,
 `password` mediumtext NOT NULL,
 `auth_token` varchar(200) DEFAULT NULL,
 `optimality_ALL` double DEFAULT '0',
 `optimality_DAY` double NOT NULL DEFAULT '0',
 `optimality_WEEK` double DEFAULT '0',
 `optimality_MONTH` double DEFAULT '0',
 `optimality_YEAR` double DEFAULT '0',
 `net_money_ALL` int(11) DEFAULT '0',
 `net_money_DAY` int(11) DEFAULT '0',
 `net_money_WEEK` int(11) DEFAULT '0',
 `net_money_MONTH` int(11) DEFAULT '0',
 `net_money_YEAR` int(11) DEFAULT '0',
 `rank_cache_data` date DEFAULT NULL,
  PRIMARY KEY (`id`,`username`),
  UNIQUE KEY `username_UNIQUE` (`username`),
  UNIQUE KEY `auth_token_UNIQUE` (`auth_token`)
) ENGINE=InnoDB AUTO_INCREMENT=56 DEFAULT CHARSET=utf8$$
```

2. **Login to the MySQL server:**
   - mysql -u USERNAME-p -h SERVER -P PORT
   - Then enter password

3. **In the MySQL instance run:**
   source install.sql

6. Deployment

1. On the server:
   a. Navigate to http://labtest.ece.ualberta.ca:8080/ in the browser
   b. Click manage app
   c. Put the username / password added in 2, #3c
   d. Scroll down to "WAR file to deploy"
   e. Click "Choose File", navigate to the war file generated in 2, press deploy
2. Wait about and the web service should be live

7. Web Service Interface

This section details the interface to the web service, including the json requests and json responses. All calls to the web service need to be made through **http post requests**, with the appropriate json data**.**

1. **Register Servlet:**
http://<SERVER>:8080/PokerWebService/RegisterServlet (Local)
http://labtest.ece.ualberta.ca/register

   {"username":"asdf","password":"asdf"}
   Ex: Success
   => {"Success":"TRUE","Message":"TRUE"}

   EX: Failure
   => {"Success":"FALSE","Message":"Username already in use."}

2. **Login Servlet:**
http://<SERVER>:8080/PokerWebService/LoginServlet
http://labtest.ece.ualberta.ca/login

{"username":"asdf","password":"asdf"}

Ex:Success   =>{"Success":"TRUE","Message":"TRUE","AuthenticationToken":"7f3ff095-bf82-4188-87b3-7b6dfab435b1"}

Ex: Failure
=>{"Success":"FALSE","Message":"Invalid Login."}

3. **Upload Servlet**:

   EX:

       {

"username":"asdf2",
"password":"asdf",
"authenticationToken":"62b4197a-1f73-4d8f-83b7-8f3e5996276e",
"games": [{
        "gameID": 1,
        "gameActions": [{
                "action": "START",
                "pot": 122,
                "bet": 20,
                "hand": "DA;S2",
                "communityCards": ""
        },
        {
                "action": "CHECK",
                "pot": 12,
                "bet": 0,
                "hand": "DA;S2",
                "communityCards": "CA;C2;C5"
        },
        {
                "action": "CALL",
                "pot": 12,
                "bet": 22,
                "hand": "DA;S2",
                "communityCards": "CA;C2;C5;C9"
        },
        {
                "action": "RAISE",
                "pot": 12,
                "bet": 23,
                "hand": "DA;S2",
                "communityCards": "CA;C2;C5;C9;HT"
        },
        {
                "action": "CHECK",
                "pot": 12,
                "bet": 0,
                "hand": "DA;S2",
                "communityCards": "CA;C2;C5;C9;HT"
        },
        {
                "action": "LOSS",
                "pot": 36,
                "bet": 0,

```
                            "hand": "DA;S2",
                            "communityCards": "CA;C2;C5;C9;HT"
                    },
                    {
                            "action": "END",
                            "pot": 36,
                            "bet": 0,
                            "hand": "DA;S2",
                            "communityCards": "CA;C2;C5;C9;HT"
                    }]
            }               }],
        "miscDatas": [{
                "name": "MoneyGenerated",
                "value": 1000000
        }]
    }
```

4. Ranking Ranking Statistics Servlet:

http://<SERVER>:8080/PokerWebService/RankingStatisticsServlet
http://labtest.ece.ualberta.ca/rankstatistics

```
            {
            "skip":1,(Number of position to skip- ex start at #5 position)
            "max":2,   (Max number to return)
            "rank_type":"net_money" (or "optimality" - defaults to net_money)
        "timeframe": "DAY",
            "username":"asdf2",
            "authenticationToken":"fda5e7cd-702a-47bc-9ef8-71488d7e1d0b",
            }
```

Success:
```
{
    "Success": "TRUE",
    "Message": "Ranking Results",
    "ranked_statistics": [{
            "position": 2,
            "username": "asdf",
            "rankValue": 0.0
    },
    {
            "position": 3,
            "username": "ddddd",
            "rankValue": -1.1999964E7
    }],
    "my_ranked_statistics": {
```

```
                "position": 2,
                "username": "ddddd",
                "rankValue": -1.1999964E7
        }
}
```

5. Community Statistics Servlet:

http://<SERVER>:8080/PokerWebService/CommunityStatisticsServlet
http://labtest.ece.ualberta.ca/communitystatistics

```
        {
   "timeframe": "ALL",
        "username":"ddddd",
        "authenticationToken":"c00f1bb0-bd51-4c25-b0c4-e8f6c4992072"
        }
```

Success:

```
{
                "Success": "TRUE",
                "Message": "SUCCESS",
                "community_statistics": {
                        "totalDollarsBetOnCalls": 198,
                        "totalDollarsBetOnBets": 0,
                        "totalDollarsBetOnRaises": 207,
                        "totalDollarsBetOnReRaises": 0,
                        "totalDollarsBet": 585,
                        "avgDollarsBetOnCalls": 22,
                        "avgDollarsBetOnBets": 0,
                        "avgDollarsBetOnRaises": 23,
                        "avgDollarsBetOnReRaises": 0,
                        "totalNumberOfBets": 0,
                        "totalNumberOfChecks": 18,
                        "totalNumberOfCalls": 9,
                        "totalNumberOfFolds": 0,
                        "totalNumberOfRaise": 9,
                        "totalNumberOfReRaise": 0,
                        "totalNumberOfPotsWon": 6,
                        "totalNumberOfPotsLoss": 3,
                        "totalNumberOfPots": 9,
                        "avgPotOnChecks": 12,
                        "avgPotOnCalls": 12,
                        "avgPotOnBets": 0,
                        "avgPotOnRaises": 12,
                        "avgPotOnReRaises": 0,
                        "avgPotOnFolds": 0,
```

```
                    "avgPotOnWins": 36,
                    "avgPotOnLoses": 36,
                    "totalDollarsWon": 216,
                    "totalDollarsLoss": 108,
                    "totalDollarsFolded": 0,
                    "moneyGenerated": 59000000,
                    "gamesPlayed": 3,
                    "netMoney": -58999892,
                    "avgBet": 21
            }
        }
```

6. **Personal Statistics Servlet:**

http://<SERVER>:8080/PokerWebService/PersonalStatisticsServlet
http://labtest.ece.ualberta.ca/personalstatistics

```
        {
  "timeframe": "ALL",
        "username":"ddddd",
        "authenticationToken":"c00f1bb0-bd51-4c25-b0c4-e8f6c4992072"
        }

{
        "Success": "TRUE",
        "Message": "SUCCESS",
        "personal_statistics": {
                "totalDollarsBetOnCalls": 66,
                "totalDollarsBetOnBets": 0,
                "totalDollarsBetOnRaises": 69,
                "totalDollarsBetOnReRaises": 0,
                "totalDollarsBet": 195,
                "avgDollarsBetOnCalls": 22,
                "avgDollarsBetOnBets": 0,
                "avgDollarsBetOnRaises": 23,
                "avgDollarsBetOnReRaises": 0,
                "totalNumberOfBets": 0,
                "totalNumberOfChecks": 6,
                "totalNumberOfCalls": 3,
                "totalNumberOfFolds": 0,
                "totalNumberOfRaise": 3,
                "totalNumberOfReRaise": 0,
                "totalNumberOfPotsWon": 2,
                "totalNumberOfPotsLoss": 1,
                "avgPotOnChecks": 12,
                "avgPotOnCalls": 12,
```

```
                    "avgPotOnBets": 0,
                    "avgPotOnRaises": 12,
                    "avgPotOnReRaises": 0,
                    "avgPotOnFolds": 0,
                    "avgPotOnWins": 36,
                    "avgPotOnLoses": 36,
                    "totalDollarsWon": 72,
                    "totalDollarsLoss": 36,
                    "totalDollarsFolded": 0,
                    "winPercentage": 7200.0,
                    "moneyGenerated": 0,
                    "gamesPlayed": 3,
                    "netMoney": 36,
                    "avgBet": 21,
                    "netMoneyRanking": 2
            }
}
```

7. Logout Servlet:

http://<SERVER>:8080/PokerWebService/LogoutServlet
http://labtest.ece.ualberta.ca/logout

```
        {
                "username": "asdf2",
                "authenticationToken": "fda5e7cd-702a-47bc-9ef8-71488d7e1d0b"
        }
```

Ex:Success
=>{"Success":"TRUE","Message":"TRUE"}

Ex: Failure
=>{"Success":"FALSE","Message":"Invalid Login."}

8. Additional Notes

A quick note should be made about the JVM and heap size. On the server provided by ECE IT didn't have this issue, but for my personal windows environment I had to change the settings for Tomcat and the heap size for java:

In <TOMCAT>/bin/catalina.bat:
Find the line starting with: `set JAVA_OPTS=%JAVA_OPTS% -Dja...`
and append:
`-Xms1024m -Xmx1024m -XX:MaxPermSize=1024m`

Untested but if this issue occurs on a linux based machine:

In <TOMCAT>/bin/catalina.sh:

```
export CATALINA_OPTS="-Xms=512M -Xmx=1024M"
```