Advanced SQL

Assignment #1
PLC Server

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Prerequisites

Java Development Kit 1.6

The JDK must be installed. It can be found here:
http://www.oracle.com/technetwork/java/javase/downloads/jdk6u35-downloads-1836443.html

Execute the installer and proceed through the steps to install the JDK.

Play Framework 2.0

Play Framework 2.0 must be installed. It can be found here: http://download.playframework.org/releases/play-2.0.3.zip

Installation of Play 2.0

1. Extract zip to desired location
2. Add location of extracted Play 2.0 folder to the global %PATH% or $PATH environment variable
3. Full installation instructions can be found here: http://www.playframework.org/documentation/2.0.3/Installing

Apache Maven

Apache Maven 3.0.4 is required to build the PLC server. It can be found here:
http://maven.apache.org/download.html

Installation of Maven

1. Extract zip to desired location
2. Add location bin directory of extracted Play 2.0 folder to the global %PATH% or $PATH environment variable

1. Installation

Download the PLC application server set and extract the .zip file to a location on the hard drive.

2. PLC Server

Starting the PLC server simply involves double clicking “run.bat” found in **“plc”**

3. Client Server

Starting the Client website simply involves double clicking “run.bat” found in **“server”**

This will automatically start Internet Explorer. If the machine does not have Internet Explorer, then please point your web browser to http://127.0.0.1:9000.

Configuration

1. PLC Server

The PLC Server is configured through **plc-configuration.xml** found in the **“config”** dir of the archive generated by the build.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE properties SYSTEM "http://java.sun.com/dtd/properties.dtd">
<properties>
    <entry key="verbose">false</entry>
    <entry key="port">9015</entry>
    <entry key="rates">150.0, 15, 10.5</entry>
    <entry key="failureRate">100</entry>
</properties>
```

verbose is a boolean value specifying the amount of logging done.

port is which port the server should listen on for requests.

rates is a comma separated list of how many HWK each plc should report using per second. More PLCs can be added by simply adding another number to the list

failureRate is often the server should simulate a fault. 100 means 1 fault per 100 across all PLCs. If the value is 0 then the server will not simulate any faults.

2. Client Server

The Client Server is configured through **application.conf** found in **“projects/server/conf”**.

The server defines the following options. In the following format: key=”value”.

Any line that begins with # is ignored by the configuration reader.

```
# ====================================
# PLC website configuration below
# ====================================

# PLC server address
oplc_server_address="127.0.0.1"
# PLC server port
oplc_server_port="9015"

# Email Configuration
smtp.host="watson.conestogac.on.ca"
# Port number for the email server
smtp.port=”25”
# Use SSL
smtp.ssl=”no”
# Username for issuing emails (also doubles as default From for emails)
smtp.user="hkhani-cc@conestogac.on.ca"
# Password for the SMTP user
smtp.password="your_password"
```

oplc_server_address is the PLC server address

oplc_server_port is the PLC server port

smtp.host is the address of the email server

smtp.port is the port number for the email server

smtp.ssl is a true/false option for SSL

smtp.user is the username for issuing emails (also doubles as default *From* for emails)

smtp.password is the password for the SMTP user

Future Thoughts

In the future it would be great to have Google Charts, Website authentication, support for multiple PLC servers and a GUI for managing the PLC server.

The main issue that would have to be solved before moving ahead with these would be to replace the Anorm SQL framework with another framework that properly supports Dates and is easier maintain and use. After this issue is solved, the Google Charts would be easy to implement and the application would have a solid foundation.

Support for multiple PLC servers is completely feasible in the architectural design of the application. It would require changing the way the configuration files are processed in the PLC Server and Client Server applications. After which, everything would proceed as it normally would with a single PLC server. This is also true for running the Client Server application on multiple machines.