Guide to using Group MySQL databases for ECS506

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1. Group Databases

Each group will receive a username, password and database name in an email from us.
This database will be shared among the group members, and a very clear way of avoiding any clashes is to use a unique prefix for each member. E.g. Rob would use "rob_" prefix for all tables he creates. Then, Kate would name her tables starting with "kate_".
If the group decides on common design for some tables, then you might want to name it without a prefix, so it is clear that everybody uses this table.

Note:
Should the group decide to use a different database other than the one provided by us, you have to make absolutely sure that your application will run without problems on a random windows machine with JVM installed. You can assume we will run it on campus, but not necessarily from the ITL.

2. Connecting to your group databases (On / Off Campus)

Command Line
1. Open a shell on bert.eecs.qmul.ac.uk
    Windows
    > Open Putty or download from here
    > Enter hostname = bert.eecs.qmul.ac.uk
    > Click Open
    > When prompted enter following
    > Username = your EECS username
    > Password = EECS password
    Linux / Mac
    > Open Terminal
    > *ssh EECSusername@bert.eecs.qmul.ac.uk*
    > *Enter your EECS password when promted*

2. Connect to the dbprojects database server with your group database name

    i..e. *mysql -u SEGA -D SEGA -h dbprojects.eecs.qmul.ac.uk -p*
    The password for this will be the group database password that has been supplied to you.

3. This will give a **mysql>** prompt. From here you can enter MySQL commands to modify your database.

    For importing a SQL file directly to the database type the following command,
    SOURCE file.sql

    Note: This file will need to be in the root of your home directory

3. MySQL and Java

To connect to your group database through Java you will need a few basic essentials as follows,

Java MySQL Connector library

Use platform independent version
http://dev.mysql.com/downloads/connector/j/

Basic Connection Code

```
import java.sql.*;

String loginUser = "SEG*";                    //Replace * with group letter
String loginPasswd = "******";         //Replace **** with group password
String databaseName = "SEG*";               //Replace * with group letter
//On Campus
//String loginUrl = "jdbc:mysql://dbprojects.eecs.qmul.ac.uk:3306/" + databaseName;

//Off Campus (requires reverse tunnelling see next section)
//String loginUrl = "jdbc:mysql://localhost:3307/" + databaseName;

 try {
        Class.forName("com.mysql.jdbc.Driver");
        dbcon = DriverManager.getConnection(loginUrl, loginUser, loginPasswd);

        Statement statement = dbcon.createStatement();

        String query = "SELECT * FROM table";

        // Perform the query
        ResultSet rs = statement.executeQuery(query);

        etc....
}
catch (ClassNotFoundException ex) {
        System.err.println("ClassNotFoundException: " + ex.getMessage());
        throw new ServletException("Class not found Error");
}
catch (SQLException ex) {
        System.err.println("SQLException: " + ex.getMessage());
}
```

Note:
This is by no means all the complete code for connecting to MySQL from Java and making queries.

4. MySQL Off Campus

To use the EECS MySQL off campus, you need to setup reverse tunnel forwarding for the 3306 MySQL database port.

1. Open terminal shell and enter following command

ssh -N -L **3307**:dbprojects.eecs.qmul.ac.uk:3306 **username**@bert.eecs.qmul.ac.uk

This will now forward all local requests to port 3307 to the remote 3306 port on dbprojects/bert for connection to mysql.

In your java code you can simply change the connection string to the following
*String loginUrl = "jdbc:mysql://**localhost:3307**/" + databaseName;*

dbprojects.eecs.qmul.ac.uk ➔ **localhost**
3306 ➔ **3307**

For more info see https://webprojects.eecs.qmul.ac.uk/info/faq.php

5. MySQL and phpMyAdmin

Many of will try and use phpMyAdmin to interface with your databases.
You **can only** host phpMyAdmin on the webprojects webserver.

If you host phpMyAdmin elsewhere and try connect to your database on dbprojects, your connection **will** be refused.

6. Other EECS databases & web services

Each EECS student has access to the Webprojects server, where you can retrieve your login details for your individual MySQL / Oracle / Postgres database logins and details for access to the PHP webserver (where you can host phpMyAdmin).

https://webprojects.eecs.qmul.ac.uk/info/details.php

MySQL info – https://webprojects.eecs.qmul.ac.uk/info/mysql.php

PHP Webserver info – https://webprojects.eecs.qmul.ac.uk/info/webdav.php