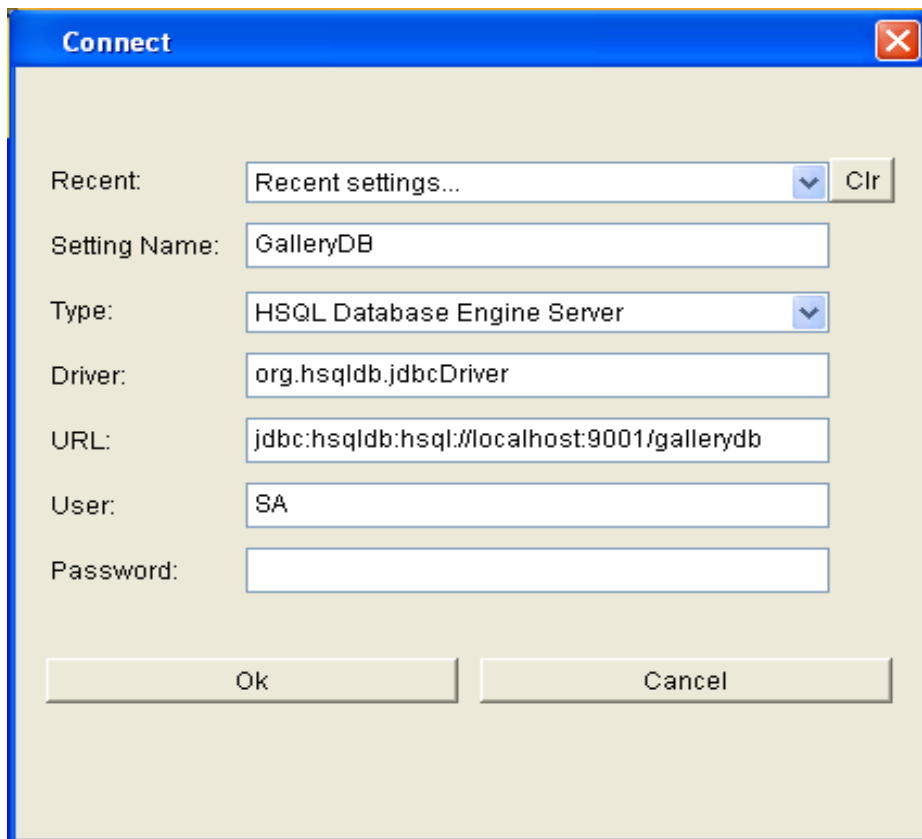# Java Immersion
Database Installation

A Relational Database is required to complete the Java Immersion project. We will be using HSQL an open-source Java database. These instructions will guide you through the steps required to setup the database and verify it is working.

<u>Install Database Server:</u>
1. In Eclipse create a new folder under your **Jars** project named **Database**.
2. Open a Browser to: **http://www.earl-family.net/IRS**
3. Download the following Jar files into the new Database folder in the Eclipse workspace:
    - **GalleryDB.jar**
    - **hsqldb-2.2.9.jar**
4. Open Windows Explorer and navigate to the folder containing these Jar files
5. Right Click **GalleryDB.jar** and choose **Open With** → **Java SE Binary** (see note below)
6. You will see a new icon in your **System Tray**, with a message **Server Started**
7. Right Click the **HSQLDB Icon** in the System Tray and select **Launch Database Manager**
8. On the connect screen enter the following items (see below):
    - Setting Name: **GalleryDB**
    - Type: **HSQL Database Engine Server**
    - Driver: **org.hsqldb.jdbcDriver**
    - URL: **jdbc:hsqldb:hsql://localhost:9001/gallerydb**
    - User: **SA**
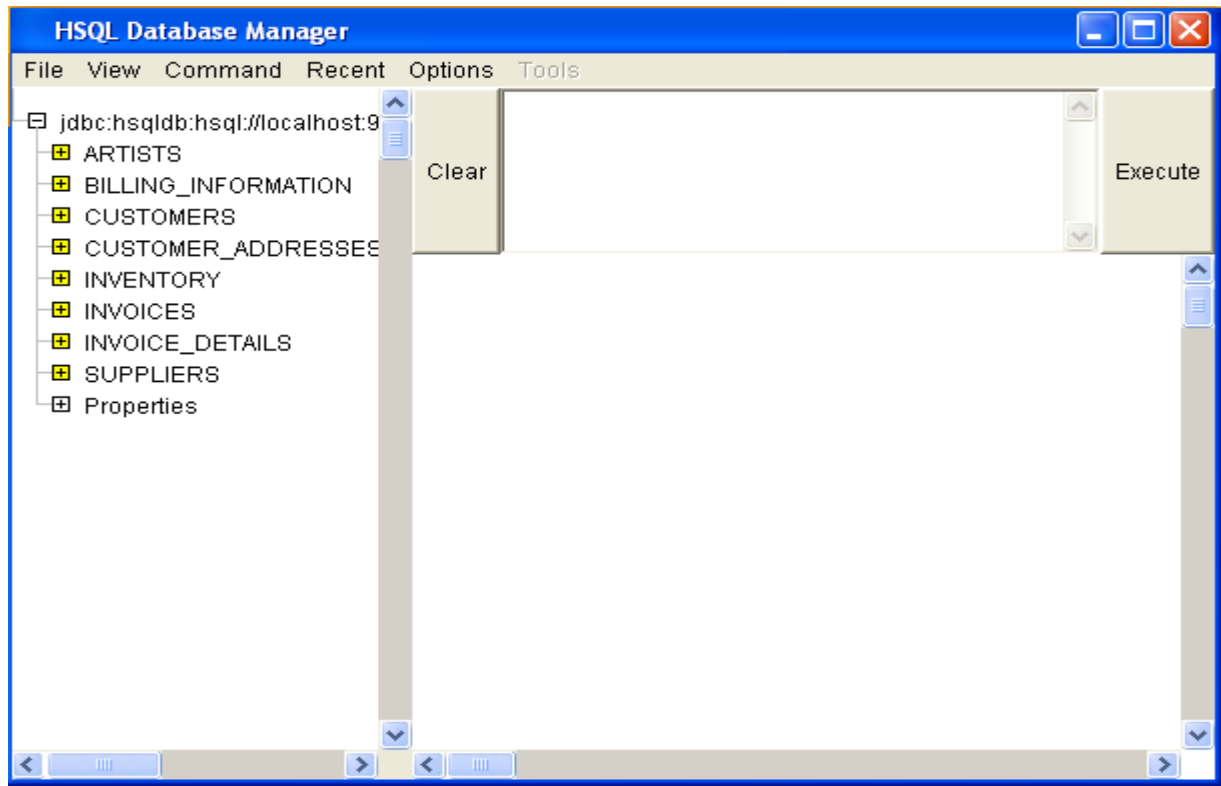   - Password: ← leave blank

9. You will note see the **HSQL Database Manager** screen open to the **GalleryDB** (see below).

10. Enter **Select * from Artists** into the SQL Window and press **Execute** to test the Database connection, you will see a list of Database records (see below).
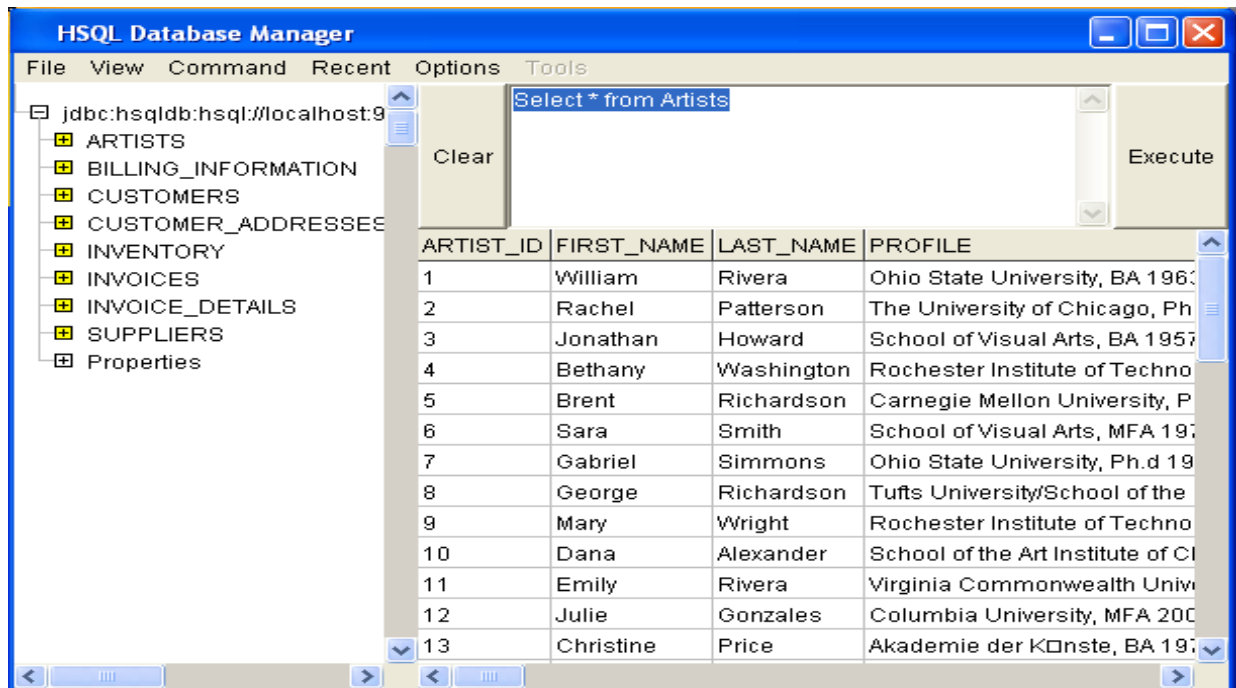
<u>Connect Eclipse to the Database Server:</u>

1. Open the Eclipse **Database Development Perspective** (Window → Open Perspective → Other → Database Development)
2. In the **Data Source Explorer** View, Right Click the **Database Connections** folder and select **New**
3. Select a **HSQLDB** Connection Profile Type, name the Connection **GalleryDB** click Next
4. At the top of the **New Connection Profile** screen, you will see an empty drop-down labeled **Drivers** next to that drop-down is a icon that looks like a target that displays **New Driver Definition** when you hover the mouse over it. Click this **New Driver Definition** icon
5. Click to select the **HSQLDB JDBC Driver**, you will see an error message saying Eclipse can not find the **hsqldb.jar** file, you need to fix this.
6. Click the **JAR List** tab
7. Select the **hsqldb.jar** listed and click **Edit JAR/Zip...**
8. Browse to the Database folder and select the **hsqldb-2.2.9.jar** jar file, click **Open** then **OK**
9. You will be back at the **New Connection Profile** screen, enter the following items (see below):
   - Database: **GalleryDB**
   - Database Location: **hsql://localhost:9001/gallerydb**
   - User: **SA**
   - Password: ← leave blank
   - URL: **jdbc:hsqldb:hsql://localhost:9001/gallerydb** ← you cannot type in this field
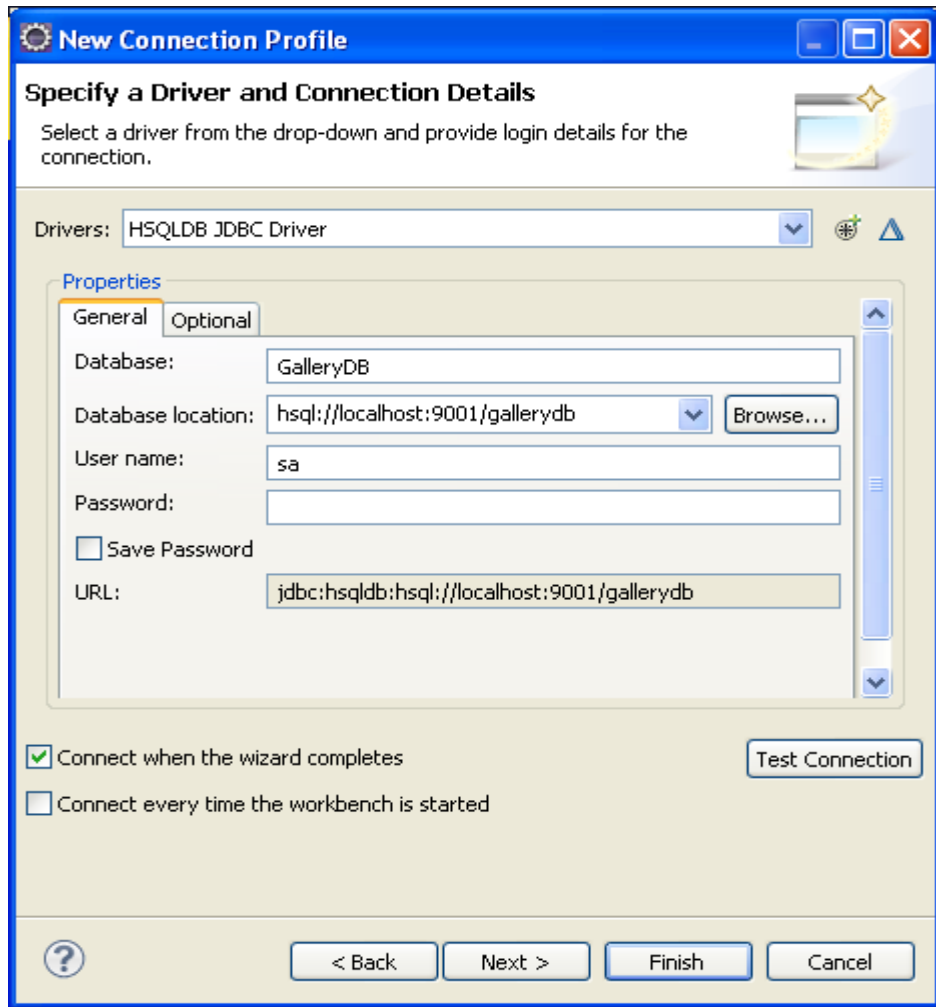
10. Click

Test Connection to verify the connection works (Note the **HSQLDB Server** must be running)

11. Click **Finished** to close the new Connection Wizard
12. You will now see the **GalleryDB** connection listed under the **Database Connections** folder in the **Data Source Explorer** view
13. Expand the **GalleryDB** connection, the **GalleryDB** Database icon, the **Catalogs** folder, the **Public** catalog, the **Schemas** folder, the **Public** schema, and the **Tables** folder, and you will see all the tables for the database
14. Right click the **Artists** table and select **Data → Sample Contents**, and you will see the data from the Artists table in the **SQL Results** view
15. Right click the **GalleryDB** Connection in the **Data Source Explorer**, and select **Open SQL Scrapbook**
16. Use the drop-downs to set the Connection Type to: **HSQLDB_1.8**, the Name to: **GalleryDB** and the Database to: **PUBLIC**
17. In the **SQL Scrapbook** view, enter **Select * from Artists** then right click and select **Execute All**, you will see the results in the **SQL Results** view, on the **Result1** tab (see below)
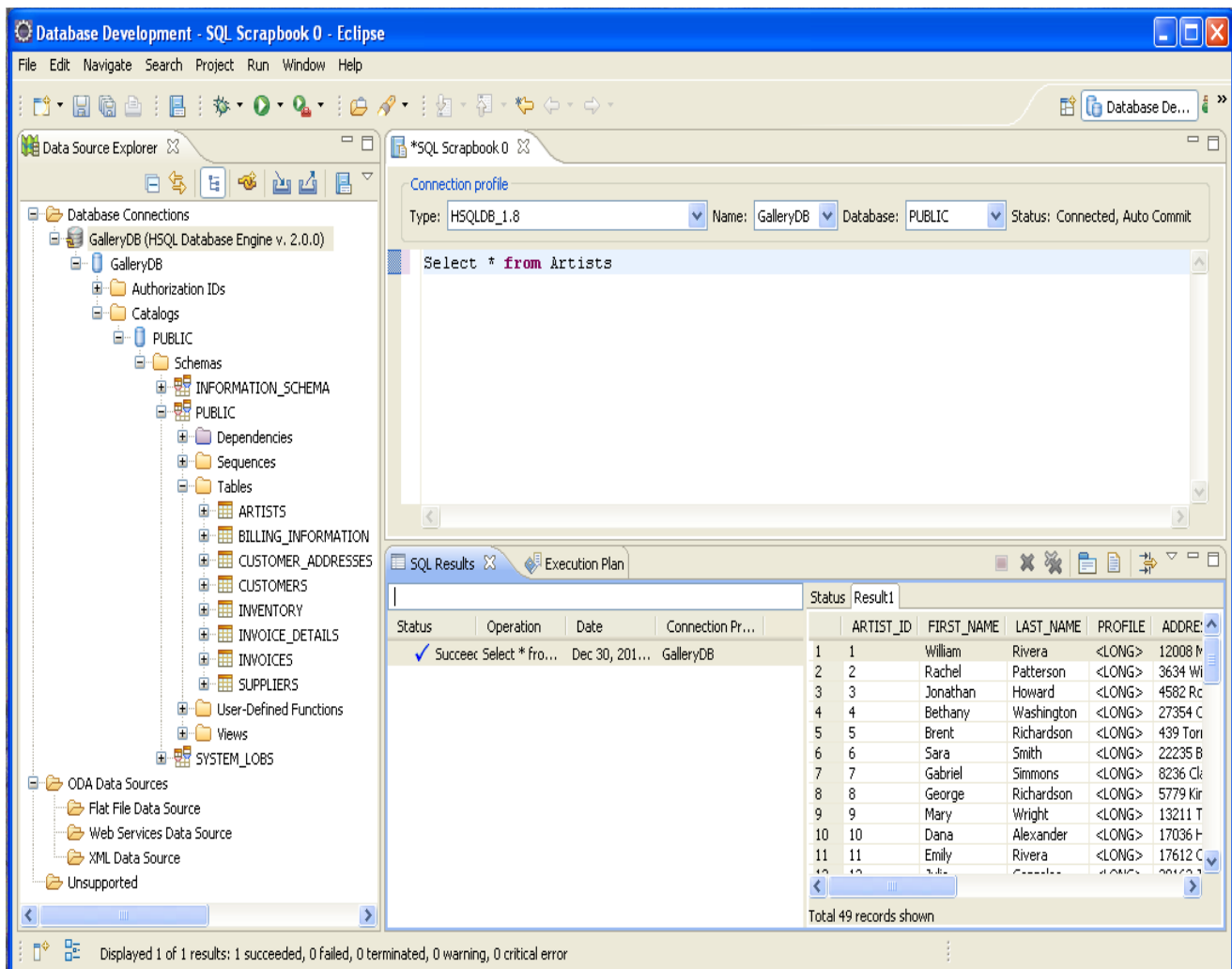
Please note; the SQL Scrapbook will not show results from queries that return binary data, such as **Select * from Inventory**.

Starting the HSQLDB Server from within Eclipse:

1. To start the **HSQLDB Server** from within Eclipse, you will need to configure an **External Tool**
2. From the **Run** menu select **External Tools** → **External Tools Configurations …**
3. Select **Program** from the left list of options, then click the **New Launch Configuration** from the icons at the top of the left side (it looks like a New Page icon)
4. Enter the following items (see below):
    - Name: **GalleryDB**
    - Location: **C:\Program Files\Java\jdk1.6.0_{your version}\bin\java.exe** ← use the Browse File System button to find the **java.exe** program
    - Working Directory: **C:\Workspace\Jars** ← use the Browse File System button to find folder you have the **GalleryDB.jar** file in
    - Arguments: **-jar GalleryDB.jar**
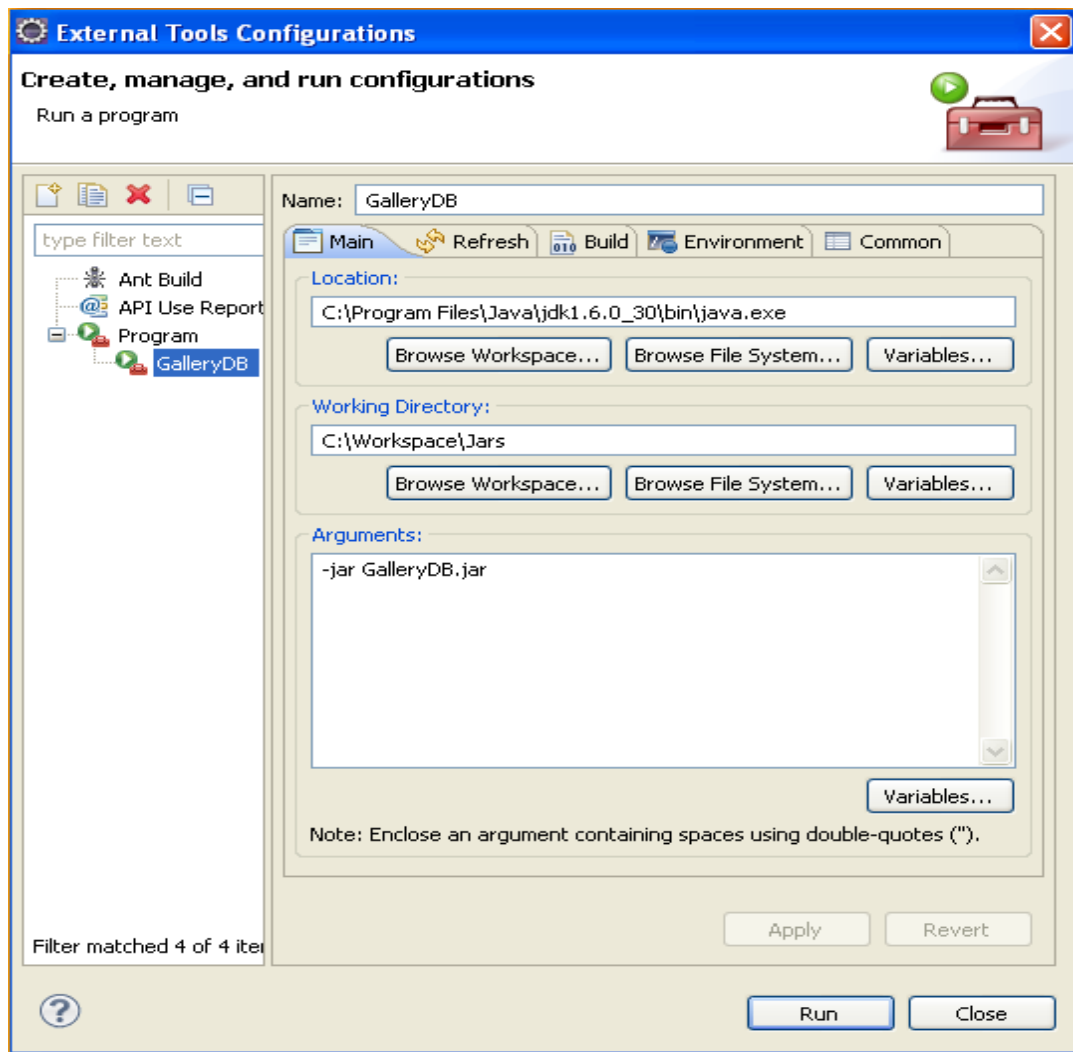
5. Click **Apply**, Click **Run** (note the **HDSLDB Serve**r should <u>not</u> be already running)
6. You will see a **Console** view open, with the words: **starting server... see log for details**, and you will see the **HSQLDB icon** appear in the System tray
7. Clicking the **Terminate** button (Red Square) in the **Console** view will shutdown the **HSQLDB Server**

<u>**(Optional) - Delete the Database:**</u>
1. These steps are optional, and should only be executed if you wish to "**restore**" the GalleryDB to the original data.
2. Make sure the **HSQLDB Server** is stopped before you attempt to delete the Database
3. The **GalleryDB** Database is located in **C:\Documents and Settings\{Your UserID}\.hsqldemo**
4. Delete this folder to delete the Database
5. Next time the Database is opened, it will be recreated from the script file within the GalleryDB.jar, the script file is: **org/hsqldb/systray/databases/gallerydb/SampleDB.script**

<u>**Note:**</u>
If the Database does not start when you execute:
      Right Click **GalleryDB.jar** and choose **Open With → Java SE Binary**

Check your Java version:
1. Open a Command Prompt (Start Button → Run → Enter "cmd")
2. In the Command Prompt enter "**java -version**"
3. Note the results, if the version is not 1.6.x (or later) you may need to start the Database with a specific command such as:

"C:\Program Files\Java\jdk1.6.0_30\bin\java"
                                 -jar C:\JavaImmersion\Workspace\Jars\Database\GalleryDB.jar

Please note: this is written on a single line, and you will need to correct the path to your Java installation. A Windows batch file may make restarting the Database easier.