

Web and Mobile Development assignment – Congo

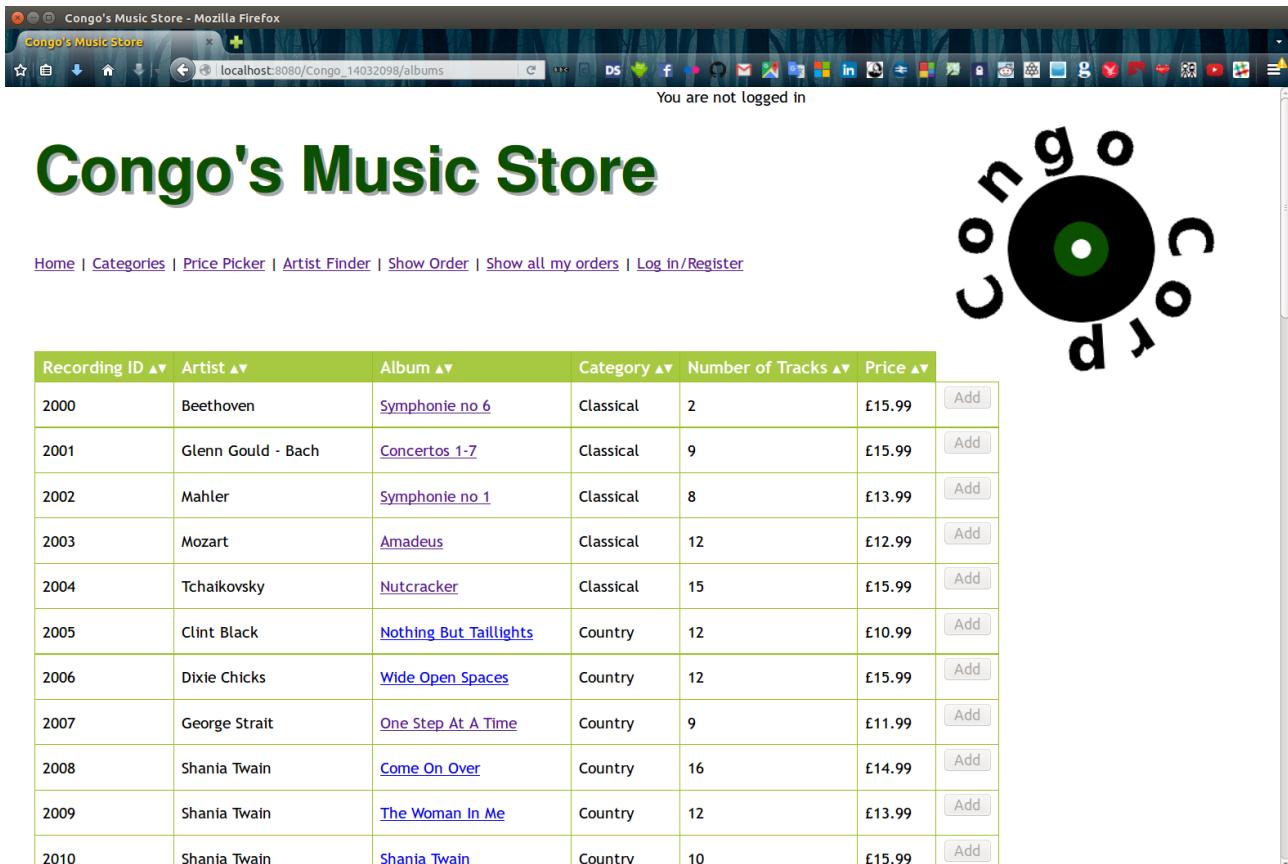
I feel that my submission deserves a score of 80% because although I did not manage to implement the admin features, I did use DAO for the login feature, I have made use of redirects and I have implemented column sorting.



Congo's Music Store



This is the home page. Although basic, it contains the name of the shop, their logo, links to all the main areas of the website and a link to show all the albums in the shop.



The screenshot shows a Firefox browser window displaying the 'Congo's Music Store' website. The title bar says 'Congo's Music Store - Mozilla Firefox'. The address bar shows 'localhost:8080/Congo_14032098/albums'. A message 'You are not logged in' is displayed at the top right. The main content is a large green logo with the word 'Congo's' around a central record. Below it is a table with 10 rows of album data:

Recording ID ▾	Artist ▾	Album ▾	Category ▾	Number of Tracks ▾	Price ▾	
2000	Beethoven	Symphonie no 6	Classical	2	£15.99	<input type="button" value="Add"/>
2001	Glenn Gould - Bach	Concertos 1-7	Classical	9	£15.99	<input type="button" value="Add"/>
2002	Mahler	Symphonie no 1	Classical	8	£13.99	<input type="button" value="Add"/>
2003	Mozart	Amadeus	Classical	12	£12.99	<input type="button" value="Add"/>
2004	Tchaikovsky	Nutcracker	Classical	15	£15.99	<input type="button" value="Add"/>
2005	Clint Black	Nothing But Taillights	Country	12	£10.99	<input type="button" value="Add"/>
2006	Dixie Chicks	Wide Open Spaces	Country	12	£15.99	<input type="button" value="Add"/>
2007	George Strait	One Step At A Time	Country	9	£11.99	<input type="button" value="Add"/>
2008	Shania Twain	Come On Over	Country	16	£14.99	<input type="button" value="Add"/>
2009	Shania Twain	The Woman In Me	Country	12	£13.99	<input type="button" value="Add"/>
2010	Shania Twain	Shania Twain	Country	10	£15.99	<input type="button" value="Add"/>

This is the page you see when you click on the link called "See a list of all our albums". The columns showing 'Recording ID', 'Artist', 'Album', 'Category', 'Number of Tracks' and 'Price' can be re-ordered by clicking on the header. The Add button which adds the album to the order is currently disabled and grey because the user is not logged in. The user is informed that they are not logged in through a message at the top of the screen.

The code which disables the 'Add' button is shown below.

```
// Only activate the Add to Order button if the album is in stock and the user is logged in
if (rs1.getInt("stock_count") > 0 && session.getAttribute("custid") != null) {
    out.println("<td><form action=\"add_to_order\" method=\"get\">" +
               "<input type=\"hidden\" name=\"r_id\" value=\"" + rs1.getInt("recording_id") + "\">" +
               "<input type=\"submit\" value=\"Add\" >" + "</form></td>");
} else {
    out.println("<td><form><input type=\"submit\" value=\"Add\" disabled>" + "</form></td>");
}
```

The code which makes the columns sortable was taken from a free and open source javascript library which can be found here:

<http://www.kryogenix.org/code/browser/sorttable/>

A class was then added to the tables to make them use this code. One further feature is that the album titles are clickable. This takes the user to a page giving track listings.



Congo's Music Store

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Hip-Hop



This is the page the user sees when they click on the Categories link. There is a drop-down list where they can choose from six different categories and a submit button which takes them to the page that displays the albums from that category. The code that creates the drop-down list is shown below. It is contained within a form and the target for the form is 'albumLister', a Java Servlet. The name of the list is category which is used by the albumLister page to find out which option has been selected.

```
<form action="albumLister">
    <select name="category">
        <option value="Classical">Classical</option>
        <option value="Country">Country</option>
        <option value="Hip-Hop">Hip-Hop</option>
        <option value="Jazz">Jazz</option>
        <option value="Pop">Pop</option>
        <option value="Rock">Rock</option>
    </select>
    <input type="submit" value="Submit">
</form>
```



Congo's Music Store

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These are the albums in the Hip-Hop category:

Artist ▾▼	Album ▾▼	Number of Tracks ▾▼	Price ▾▼	
Beastie Boys	Licensed To Ill	13	£11.99	Add
De La Soul	3 Feet High n Rising	24	£10.99	Add
L.L. Cool J	Radio	10	£10.99	Add
Lauren Hill	The Miseducation	14	£13.99	Add
Nas	Illmatic	10	£11.99	Add
Nas	It Was Written	13	£10.99	Add
Rakim	18th Letter	12	£10.99	Add
Run DMC	Run DMC	9	£9.99	Add
Tribe Called Quest	Low End Theory	14	£9.99	Add
Will Smith	Big Willie Style	16	£15.99	Add



Here is the result from the Hip-Hop category.

This is the Price Picker page. Again there is a drop-down list where the user can choose from different price ranges and the website will display albums whose prices fall within those ranges. This page works in much the same way as the category page.



Congo's Music Store

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£10 - £11





Congo's Music Store

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Log In

Register

If the user tries to click on the 'Show Order' link or 'Show all my orders' when they are not logged in, they are redirected to the login page. The code that enables this is shown below.

```
if (session.getAttribute("custid") == null) {
    // If the user somehow got to this page without being logged in, redirect them
    request.getRequestDispatcher("login.html").forward(request, response);
} else {
    // Otherwise welcome them by name
    out.print("Welcome " + session.getAttribute("fname") + " " + session.getAttribute("lname"));
}
```

The next two screens show what happens when the user either logs in or registers. When the user has logged in, they are welcomed by name at the top of the page.



Congo's Music Store

[Home](#) | [Categories](#) | [Price Picker](#) | [Artist Finder](#) | [Show Order](#) | [Show all my orders](#) | [Log in/Register](#)

You are successfully registered



localhost:8080/Congo_14032098/login.html



Congo's Music Store

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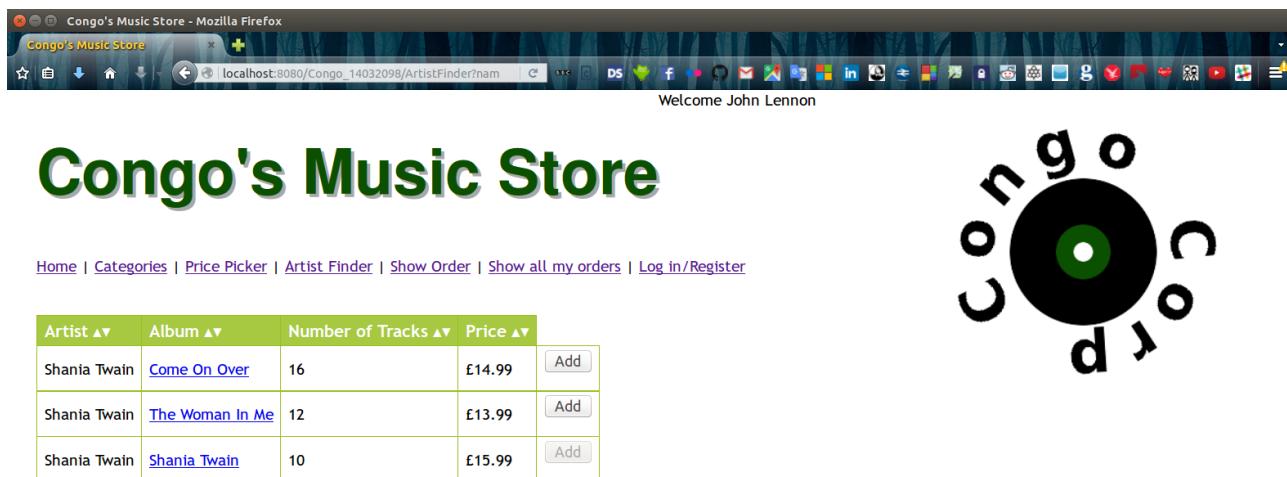


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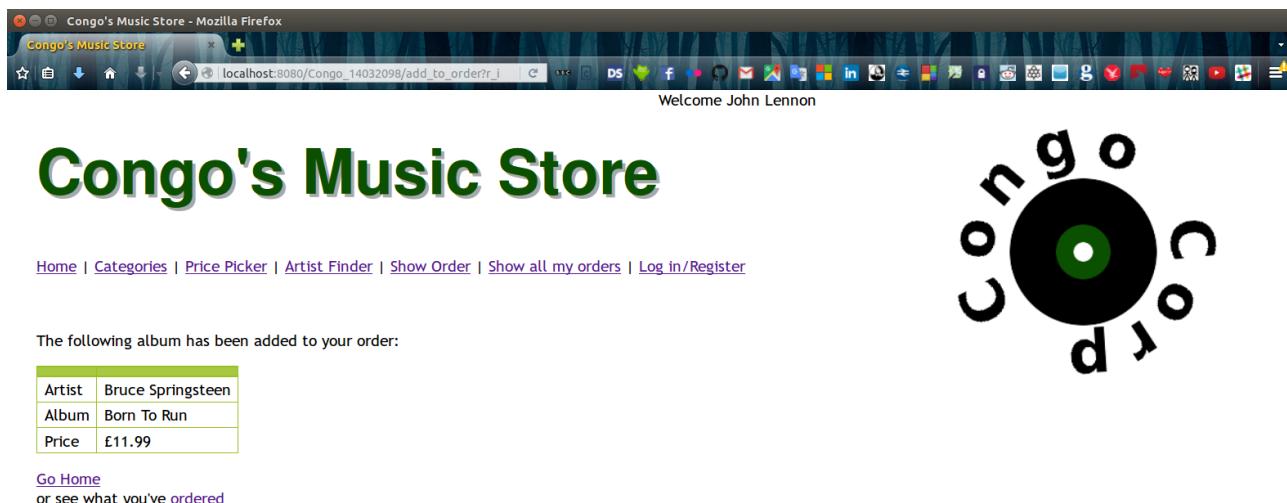
This is the screen the user sees when they click on the Artist Finder link.



The screenshot shows a Mozilla Firefox browser window with the title "Congo's Music Store". The address bar displays "localhost:8080/Congo_14032098/ArtistFinder?name=Shania%20Twain". A welcome message "Welcome John Lennon" is visible at the top right. Below the header, the main content area features a large green header "Congo's Music Store". Underneath, there is a navigation menu with links: Home | Categories | Price Picker | Artist Finder | Show Order | Show all my orders | Log in/Register. The main content area contains a table showing search results for Shania Twain:

Artist ▾▼	Album ▾▼	Number of Tracks ▾▼	Price ▾▼	
Shania Twain	Come On Over	16	£14.99	<input type="button" value="Add"/>
Shania Twain	The Woman In Me	12	£13.99	<input type="button" value="Add"/>
Shania Twain	Shania Twain	10	£15.99	<input type="button" value="Add"/>

This is the result of searching for Shania Twain. Because the user is now logged in, the add to order buttons are enabled, although one is still disabled because the stock count for this item is zero.



The screenshot shows a Firefox browser window with the title "Congo's Music Store". The address bar displays "localhost:8080/Congo_14032098/add_to_order?r_i". The page content includes a "Welcome John Lennon" message, a large green header "Congo's Music Store", a navigation menu with links like Home, Categories, Price Picker, Artist Finder, Show Order, Show all my orders, and Log in/Register, and a table showing a single item added to the order: Bruce Springsteen's "Born To Run" at £11.99. A logo consisting of a black vinyl record with a green center and the word "Congo's" written around it is visible on the right.

The following album has been added to your order:

Artist	Bruce Springsteen
Album	Born To Run
Price	£11.99

[Go Home](#)
or see what you've [ordered](#)

When the user clicks on the Add to order button, they are shown this screen which informs them of the details of their selection. They can then visit their shopping cart or continue browsing.



Congo's Music Store

[Home](#) | [Categories](#) | [Price Picker](#) | [Artist Finder](#) | [Show Order](#) | [Show all my orders](#) | [Log in/Register](#)

Current Order

Artist ▾▼	Album ▾▼	Album Price ▾▼	Quantity ▾▼	Totals ▾▼	
Bruce Springsteen	Born To Run	£11.99	<input type="button" value="1"/> <input type="button" value="Update"/>	£11.99	<input type="button" value="Delete"/>
Nine Inch Nails	Pretty Hate Machine	£14.99	<input type="button" value="1"/> <input type="button" value="Update"/>	£14.99	<input type="button" value="Delete"/>
Total				£26.98	

[Go Home](#) or [Checkout](#)



Here is the view of the shopping cart page. It contains a list of all the items currently in their cart, an option to change the quantity of an individual item or they can remove all copies of a single album.

The screenshot shows a Mozilla Firefox browser window with the title "Congo's Music Store". The URL bar displays "localhost:8080/Congo_14032098/UpdateOrder?qu...". A welcome message "Welcome John Lennon" is visible in the top right corner. The main content area features a large green header "Congo's Music Store". Below it, a navigation menu includes links to Home, Categories, Price Picker, Artist Finder, Show Order, Show all my orders, and Log in/Register. A message states "Your order now contains 3 copies of the following album:". A table provides details: Artist (Bruce Springsteen), Album (Born To Run), and Price (£11.99). At the bottom, there are links to "Go Home" and "see what you've ordered".



The quantity of Born To Run has been increased to 3 and this is the interim page that informs the user of their actions. The code that performed that update is shown below.

```
// Get the copy of our order from the session
albumArray = (ArrayList<String>)session.getAttribute("myorder");

// First remove all copies of the selected album from the order
albumArray.removeAll(Collections.singleton(r_id));

// Then add the selected album back to the order for the required amount
for (int i = 0; i < quantity; i++) {
    albumArray.add(r_id);
}

// update the session with the latest info from albumArray
session.setAttribute("myorder", albumArray);
```



Congo's Music Store

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Current Order

Artist ▾▼	Album ▾▼	Album Price ▾▼	Quantity ▾▼	Totals ▾▼	
Bruce Springsteen	Born To Run	£11.99	<input type="button" value="3"/> <input type="button" value="Update"/>	£35.97	<input type="button" value="Delete"/>
Nine Inch Nails	Pretty Hate Machine	£14.99	<input type="button" value="1"/> <input type="button" value="Update"/>	£14.99	<input type="button" value="Delete"/>
Total				£50.96	

[Go Home](#) or [Checkout](#)



Now the shopping cart contains three copies of the Born To Run album and the totals have been updated accordingly. Next all copies of that same album will be removed from the order with a single click of the delete button. The code which enables this is similar to the update code above



Congo's Music Store

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Checkout

Artist	Album	Album Price	Quantity	Totals
Nine Inch Nails	Pretty Hate Machine	£14.99	1	£14.99
Total				£14.99

[Go Home](#)



Once the user has returned to the shopping cart page and clicked 'checkout', they are presented with this screen. All options to change the order have been removed and there is a final 'Submit Order' button which will submit details of the order to the database and clear the session details of the order.

Two tables are used to store details of the order so that each order can have multiple album titles. Submitting the order is a little bit complicated because the order ID is automatically generated in the first table but the same value needs to be inserted into the second table to ensure referential integrity. This is done using `RETURN_GENERATED_KEYS`

```

// Create statement for inserting the order into the database
String insertSQL1 = "insert into congo_orders (custid, order_date) values (?,?)";
int orderid = 0;
try {
    // Set values in the insert statement and ask for the auto-generated orderid key to be returned
    java.sql.PreparedStatement pst2 = conn.prepareStatement(insertSQL1, PreparedStatement.RETURN_GENERATED_KEYS);
    pst2.setInt(1, custid);
    pst2.setDate(2, getCurrentDate());
    pst2.execute();

    try (ResultSet generatedKeys = pst2.getGeneratedKeys()) {
        if (generatedKeys.next()) {
            orderid = generatedKeys.getInt(1);
        }
        else {
            throw new SQLException("Creating order failed, no ID obtained.");
        }
    }
}

} catch (SQLException e) {
    e.printStackTrace();
}

for ( int i = 0; i < orderArray.size(); i++){
try {
    // Insert into the second table, each album bought with references to the orderid from the first table
    int r_id      = orderArray.get(i)[0];
    int quantity  = orderArray.get(i)[1];
    String insertSQL2 = "insert into congo_order_details values (" + orderid + ", " + r_id + ", " + quantity + ")";
    System.out.println("DEBUG: Query: " + insertSQL2);
    java.sql.Statement stmt = conn.createStatement();
    stmt.executeUpdate(insertSQL2);
} catch (SQLException e) {
    // TODO Auto-generated catch block
    e.printStackTrace();
}
}

```

orderid	custid	order_date
4	1	2015-12-17
5	1	2015-12-17
6	1	2015-12-18
7	2	2015-12-15
8	3	2015-12-10
9	4	2015-12-08
10	5	2015-12-04
11	2	2015-11-29
12	3	2015-11-25
13	4	2015-11-23
14	5	2015-11-20
15	2	2015-11-17
16	3	2015-11-15
17	4	2015-11-13
18	5	2015-11-11
19	2	2015-11-10
20	3	2015-11-08
21	4	2015-11-05
22	5	2015-11-03
23	2	2015-12-19

orderid	recording_id	order_quantity
4	2032	1
4	2049	1
5	2000	3
5	2003	1
6	2037	1
6	2038	1
6	2039	1
7	2021	1
7	2034	1
7	2048	2
8	2022	1
8	2032	1
9	2000	1
10	2001	2
10	2037	1
11	2040	1
12	2045	2
12	2046	1
13	2049	1
14	2041	1
15	2033	2
15	2034	1
16	2024	1
16	2025	1
16	2039	1
17	2034	1
18	2035	4
18	2042	4
18	2046	4
18	2048	4
19	2038	1
19	2041	1
20	2042	1
21	2043	2
21	2044	1
22	2023	1
23	2043	1



Congo's Music Store

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Previous Orders

Artist ▲▼	Album ▲▼	Album Price ▲▼	Quantity ▲▼	Total ▲▼	Date Ordered ▲▼
Bruce Springsteen	Born In The U.S.A.	12.99	1	12.99	2015-11-10
Jimmy Hendrix	Are U Experienced	15.99	1	15.99	2015-11-10
Michael Jackson	Thriller	15.99	1	15.99	2015-11-17
Men At Work	Business As Usual	9.99	2	19.98	2015-11-17
Grateful Dead	Built To Last	10.99	1	10.99	2015-11-29
The Hollies	Greatest Hits	13.99	2	27.98	2015-12-15
Tribe Called Quest	Low End Theory	9.99	1	9.99	2015-12-15
Michael Jackson	Thriller	15.99	1	15.99	2015-12-15
Nine Inch Nails	Pretty Hate Machine	14.99	1	14.99	2015-12-19



At any time the user might want to see a list of previous orders, which they can do by clicking the 'Show all my orders' link, which shows them the following screen. It is automatically sorted by date although as with other tables, the user can sort it by any column they wish. To retrieve the information from the database and display it in this way, three tables had to be joined together.

```
// Create select statement to get all the customer's orders
String selectSQL1 = "select * from congo_orders o, congo_order_details d, music_recordings r " +
"where o.custid = " + custid + " and o.orderid = d.orderid and d.recording_id = r.recording_id order by o.order_date";
```

This final screen shows how the album tracks are listed.



Congo's Music Store

[Home](#) | [Categories](#) | [Price Picker](#) | [Artist Finder](#) | [Show Order](#) | [Show all my orders](#) | [Log in/Register](#)

These are the tracks from Some Girls by Rolling Stones

Track Number	Track	Duration
1	Miss You	3m 20sec
2	When The Whip Comes Down	3m 00sec
3	Just My Imagination	3m 21sec
4	Some Girls	4m 04sec
5	Lies	3m 52sec
6	Far Away Eyes	4m 26sec
7	Respectable	3m 22sec
8	Before They Make Me Run	3m 08sec
9	Beast Of Burden	3m 25sec
10	Shattered	3m 31sec



Finally a screenshot of the customers table as it appears in MySQL

```
mysql> select * from congo_customers;
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| custid | fname | lname | phn | address1 | address2 | city | postcode | phone | email | password | admin |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
| 1 | Mark | Bellingham | 98a Claremont Road | Moss Side | Manchester | M14 4RD | 0161 478 4312 | mark_@tuta.io | thestudent | 1 | |
| 2 | John | Lennon | 1 Penny Lane | NULL | Liverpool | L1 23TB | 0151 123 4567 | john@thebeatles.com | thesingier | NULL |
| 3 | Paul | McCartney | 2 Penny Lane | stem.png | NULL | Liverpool | L1 34TB | 0151 234 5678 | paul@thebeatles.com | thebassplayer | NULL |
| 4 | George | Harrison | 3 Penny Lane | NULL | Liverpool | L1 56TB | 0151 345 6789 | george@thebeatles.com | theguitarist | NULL |
| 5 | Ringo | Starr | 4 Penny Lane | NULL | Liverpool | L1 78TB | 0151 456 7890 | ringo@thebeatles.com | thedrummer | NULL |
| 6 | Stuart | Sutcliffe | 5 Penny Lane | NULL | Liverpool | L1 89TB | 0151 098 7654 | stuart@thebeatles.com | thefifthbeatle | NULL |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

Source code and work history for this project can be found at

<https://github.com/markbellingham/congo/>

Which is currently set to private because of the information about connecting to MMU servers but I would be happy to add a collaborator and it will be made public in due course.