CORVALLIS REUSE AND REPAIR DIRECTORY

GETTING STARTED GUIDE, INSTALLATION AND EXECUTION FOR THE ANDROID APPLICATION, WEB MANAGEMENT INTERFACE, AND DATABASE

Below is both a quick start guide and a detailed installation guide. The purpose of the quick start guide is to allow viewing of the current working versions of the Android application and web management interface. The detailed guide describes the required steps for proper installation and deployment of all components of the project.

A. View working versions / Quick start guide

Before following the detailed installation and execution guide, you can view working versions of the Android application and web management interface by following these quick instructions. All required files are included in the bzipped tarball entitled crrdGroup1.tar.bz2.

1) Install and view working version of the Android application

First, extract the bzipped tarball (crrdGroup1.tar.bz2) to obtain all of the required project files. There are several ways to install and run the Android application. Perhaps the easiest way to run the Android application is to email the crrdForAndroid.apk file to a physical Android device. On the Android device, tap on the emailed file attachment (crrdForAndroid.apk) and the Android device will automatically install the application.
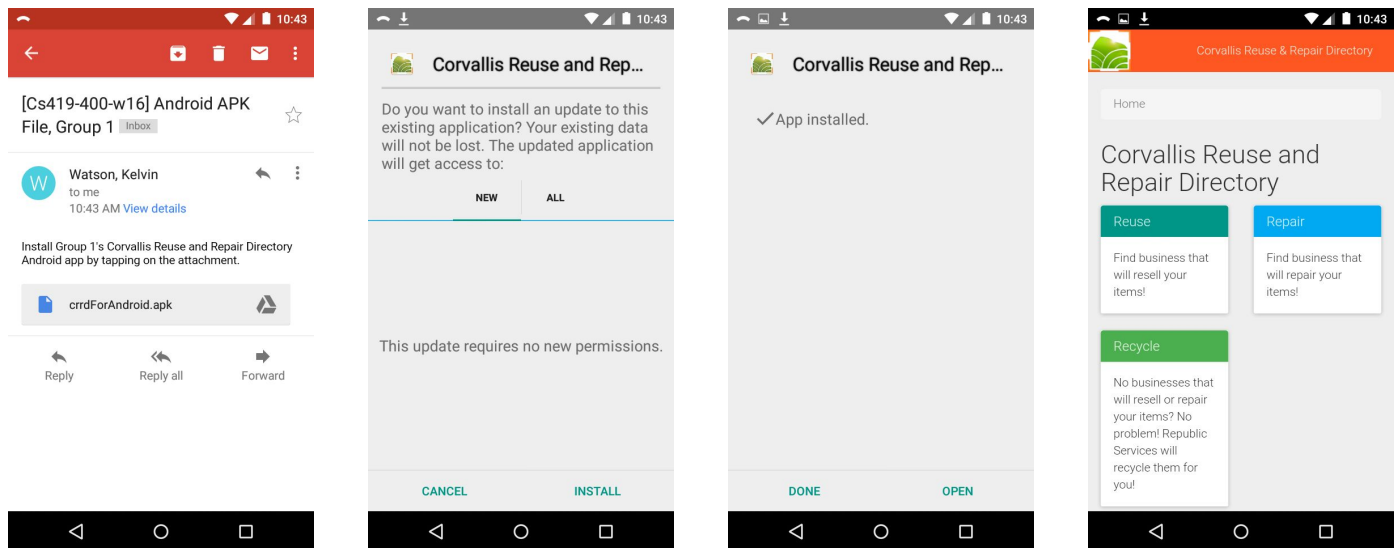

Fig. 1. Steps for installing the Android apk file (crrdForAndroid.apk) onto a physical Android physical device. First, email the crrdForAndroid.apk file. On an Android device, open the email, and tap on the attachment. Tap on "Install". Then, tap on "Open".

Alternatively, you can view the application at http://52.37.19.17/, which is the deployed web version of the Android application, as requested by the client. Because this web version is deployed using the same code as the Android application, it is identical in appearance and functionality to the Android version (Fig. 2).
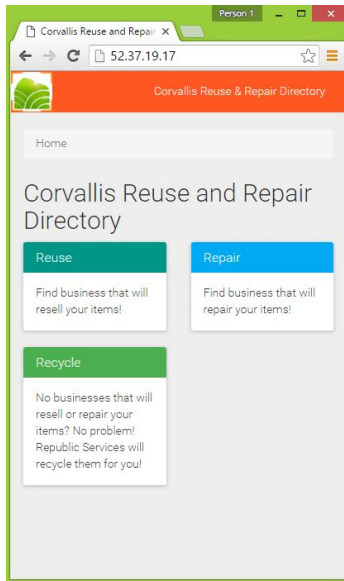
Fig. 2. Web version of the Android application, available at http://52.37.19.17. Source code portability has enabled us to deploy the web version using the same source code as the Android application.

Finally, if you have an Android AVD (virtual device/emulator) running, you also install the crrdForAndroid.apk file by opening the command prompt in Windows (or terminal in Linux), and navigating to the Android sdk platform tools in your computer (e.g. cd C:\Users\YourName\AppData\Local\Android\sdk\platform-tools), copying the production.apk into this folder, then entering 'adb install crrdForAndroid.apk'. You should see a 'Success' message in the command prompt. This installs the application on your emulator. More detailed instructions on installation of the Android AVD is found below in the detailed guide.

2) View working version of the Web Management Interface

A working version of the web management interface is hosted at https://web.engr.oregonstate.edu/~watsokel/crrd/wmi/index.php. It communicates with the MySQL database hosted on the ONID server. Please use the username 'KWatson' and the password 'password' to log in as an administrator.

B. Detailed Android application installation instructions

1) Installing the Android application (crrdForAndroid.apk)

A working android application package (APK) is provided in our bzipped tarball. This APK file, called crrdForAndroid.apk is the package that's used to install the application on a physical device or emulator. The following explains how to install the APK file on both a physical device and the Android AVD (emulator).

a) Installing crrdForAndroid.apk on a physical Android device.

Installing the AndroidAppCRRD.apk file on a physical Android device is the simplest way to install and run the working version of the Android application. To help clarify the steps below, accompanying screen captures are provided in Fig. 1 above:

1. Download the bzipped tarball entitled crrdGroup1.tar.bz2, and navigate to the directory that it was downloaded to.
2. Decompress the crrdGroup1.tar.bzip2 file by entering the following command: `tar -vxjf crrdGroup1.tar.bz2`
3. Find the file called crrdForAndroid.apk, located at crrdGroup1/android/final_apk/crrdForAndroid.apk.
4. Email this file as an attachment to an Android device.
5. In the Android device, open the email and tap on the attached crrdForAndroid.apk. This will automatically install and run the Android application on the device.
6. Run the application by tapping on the installed application entitled Corvallis Reuse and Repair Directory.

b) *Install crrdForAndroid.apk on the Android Emulator (Virtual Device)*

If you would like to install and run the crrdForAndroid.apk file on an Android emulator, you will need to have an Android virtual device (emulator) installed. The following instructions explain how to set up the emulator to run the apk file. [13][14]

System Requirements: To run the Android AVD, your computer must be running either Windows, Mac OS X or Linux (e.g. Ubuntu).

1. Download and install the Android Stand-alone SDK tools:
   http://developer.android.com/sdk/installing/index.html?pkg=tools
2. Unpack the downloaded SDK tool file and note the location where the SDK tools are unpacked:
   a. On Windows: double click the .exe (for Windows)
   b. On Mac OSX: decompress the .zip
   c. On Linux: Unpack the .tgz
3. Launch the AVD Manager by navigating into the folder where your SDK tools were unpacked. There are two ways to launch the AVD Manager:
   a. In the command line, enter `android avd`
   b. Double click the AVD Manager file.
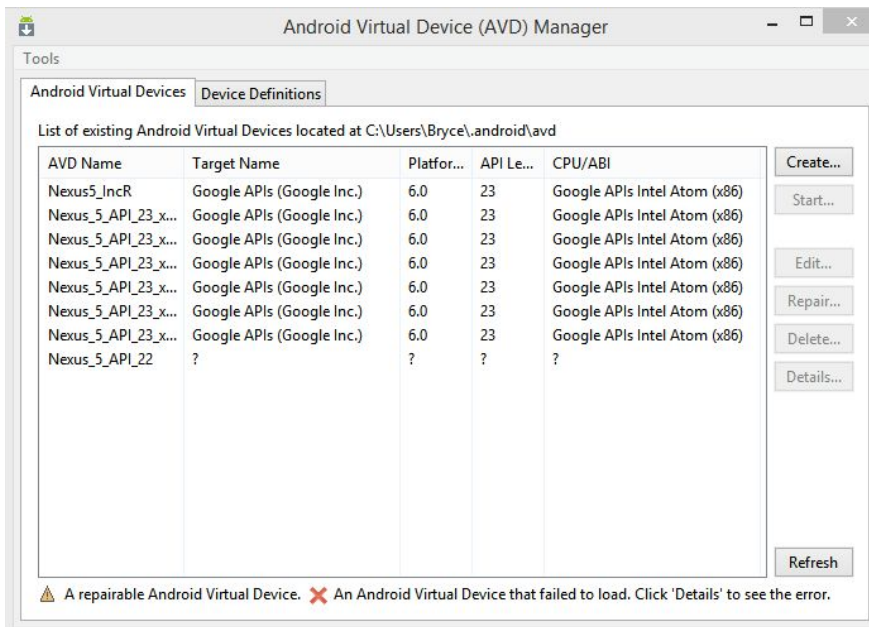
Fig. 3. The Android AVD Manager, where Android virtual devices can be created.

4. Create a virtual device (e.g. Nexus 5) by clicking on "Create". For this application, you can choose Target Android API level 22 or 23, and use the settings shown in Fig. 4. Click on "OK" to create the emulator.
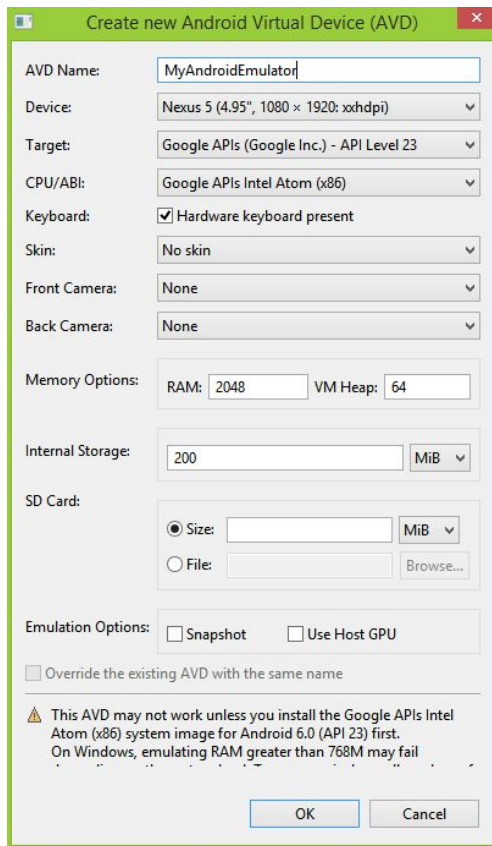
Fig. 4. When creating a new virtual device to run the crrdForAndroid.apk file, you can also select"Google APIs (Google Inc.) - API Level 22" as the Target.

5. Select the newly created emulator and click on "Start".

Now that we have the Android AVD set up and running, we can install the crrdForAndroid.apk file and run the application. Keep the Android AVD running as you follow these next instructions:

1. Download the bzipped tarball entitled crrdGroup1.tar.bz2, and navigate to the directory that it was downloaded to.
2. Decompress the crrdGroup1.tar.bzip2 file by entering the following command: `tar -vxjf crrdGroup1.tar.bz2`
3. Find the file called crrdForAndroid.apk (located at crrdGroup1/android/final_apk) and move it to the directory where you installed the Android SDK tools. For example, this might be similar to the following directory in a Windows machine: `C:\Users\KWatson\AppData\Local\Android\sdk`
4. With the Android AVD still running, open the command prompt in Windows (or Terminal in Linux or Mac OSX) and change into the directory where you installed your SDK tools. Within the SDK tools folder, change directory into the platform-tools folder. An example of this instruction would be the following command: `cd C:\Users\KWatson\AppData\Local\Android\sdk\platform-tools`
5. Then, enter: adb install crrdForAndroid.apk. You should see a similar result to the one in Fig. 5.

```
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\KWatson>cd C:\Users\KWatson\AppData\Local\Android\sdk\platform-tools

C:\Users\KWatson\AppData\Local\Android\sdk\platform-tools>adb install crrdForAndroid.apk
1981 KB/s (1727834 bytes in 0.851s)
      pkg: /data/local/tmp/crrdForAndroid.apk
Success
```

Fig. 5. Installing the apk file on the Android AVD (emulator).

6. You have now installed the application. You will find it in your apps list (Fig. 6)..
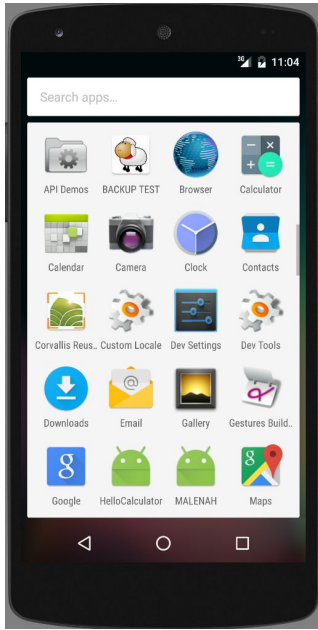

Fig. 6. Notice that the Corvallis Reuse and Repair Directory Android app (middle left) has been installed on the Android emulator.

C. Detailed installation instructions for web management interface (including secure login) and database

The following are detailed instructions on how to install the web management interface to the client's GoDaddy hosting account. To see a working version of the web management interface, please visit: https://web.engr.oregonstate.edu/~watsokel/crrd/wmi/index.php and login using the username "KWatson" and the password "password".

1) Deploying the web management interface

a) Retrieve necessary files

1. Download the bzipped tarball entitled crrdGroup1.tar.bz2, and navigate to the directory that it was downloaded to.
2. Decompress the crrdGroup1.tar.bzip2 file by entering the following command: `tar -vxjf crrdGroup1.tar.bz2`
3. Within the resulting crrdGroup1 folder, navigate to web_management_interface folder. Here, you will find two folders: wmi and session_saver. The wmi folder contains all of the front and back end code files required for deploying the web management interface to the server of choice. The session_saver folder is required for storing login sessions. Both of these folders are required for deploying the web management interface. In this case, the client's server is hosted by GoDaddy, so the following instructions pertain to deploying the web management interface on this particular type of account.

Alternatively, you can also obtain the required files by cloning the GitHub repository at https://github.com/watsokel/CRRD.git and retrieving the files inside the web_management_interface folder.

b) Modify authenticateUser.php and storeUser.php

Uncomment line 7 on both authenticateUser.php and storeUser.php to enable backwards compatibility for the PHP password hash API. This is necessary since the GoDaddy host has PHP 5.3 and 5.4 installed, and the PHP password hash API was implemented

from PHP 5.5 onwards. Uncommenting line 7 in both authenticateUser.php and storeUser.php will effectively allow the web management interface to function as intended without any compatibility issues [16]

c) Upload files to GoDaddy Hosting Server

Next, we will need to enable SSH in the GoDaddy hosting account, in order to upload the files to the GoDaddy server.
1. Log into the GoDaddy account.
2. Click on Web Hosting, then Manage, then Settings and select SSH.
3. Enter the phone number on the account and click Enable. A GoDaddy operations team staff member will contact you with the required PIN.
4. Once you receive the PIN, enter it and click on Verify.
5. Using an FTP program such as FileZilla or WinSCP, enter the hostname (or IP address) of the account, port 22, username and password to log into the server using SSH. [15] If sFTP is not possible (GoDaddy may only support sFTP for their WordPress websites), you can also upload your files via FTP using port 21. [17]
6. Transfer all of the files in the web_management_interface folder (including both the wmi and session_saver folders) onto the GoDaddy server.
7. All of the necessary files have now been transferred to the GoDaddy server. Depending on the folder where you've transferred your files, you should be able to access the web management interface by navigating to it on your browser. For example, if your domain name is your-domain-name.com and you've uploaded the web management interface files to a folder called admin, you would navigate to www.your-domain-name.com/admin or www.your-domain-name.com/admin/index.php

The web management interface web files have been transferred to the GoDaddy hosting server, but the installation of the web management interface is not yet complete. This is because the database must be populated with the required data, and files must be configured in order to connect to the MySQL database on the GoDaddy host. Because these configuration changes are related to set up of the database, we will explain these steps in the following section.

d) Configure database

The following includes detailed instructions on how to import the required data into the MySQL database on the GoDaddy server.
1. Log into the GoDaddy account.
2. Click on Web Hosting, then Manage, then MySQL (under Databases), then Actions, then Details. Make a note of your database user name, database password and database name. If you do not know your database password, you will need to change it.
3. Click on phpMyAdmin and login using the username and password from step 2 above, and click "Go".
4. Click on Import and select the file called data.sql from the extracted bzipped tarball, located in the path crrdGroup1/database. data.sql contains all of the required business, item category and item data for the database.
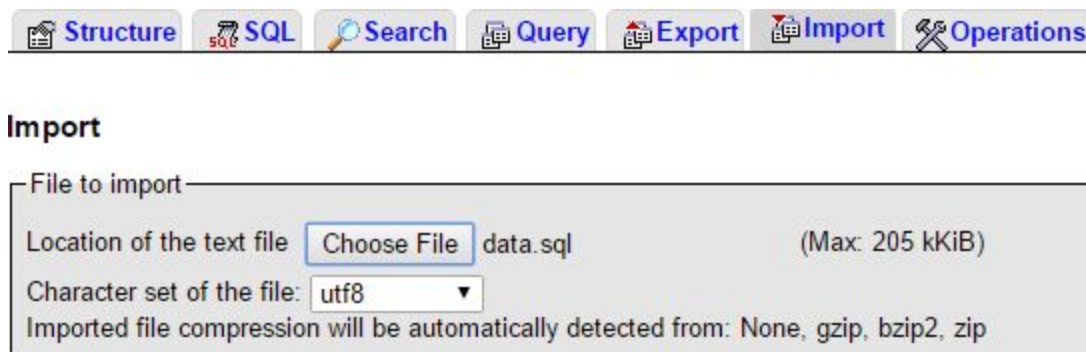

Fig. 7. Import the data.sql file, which can be found in the unpacked bzipped tarball in the db folder. (crrdGroup1/db)

a) Configure PHP files to connect to database

1. Using the database username and password obtained under "Configure database" above, modify the dbp.php file, which can be found in the directory where you uploaded the web management interface, as illustrated in Fig. 8. This

is to ensure that the PHP files of the web management interface can connect and communicate with the database on the GoDaddy server.[17]

```
1   <?php
2   $hostname = 'hostname'; //replace with GoDaddy host name
3   $dbuser = 'username'; //replace with GoDaddy database username
4   $dbpass = 'password'; //replace with GoDaddy database password
5   $dbname = 'databaseName'; //replace with GoDaddy database name
6   ?>
```

Fig. 8. Replace the variables in the dbp.php with the GoDaddy database information. dbp.php can be found in the folder on the GoDaddy server where you uploaded all of the web management interface files.

D. *Instructions on how to use the Android application*

Use of the Android application involves a series of taps through the item categories (for reusable items) and items to search for businesses that accept the user's item. Fig. 9. shows an example of navigation from the home screen to the business profile. The repair sequence is similar to the reuse sequence.
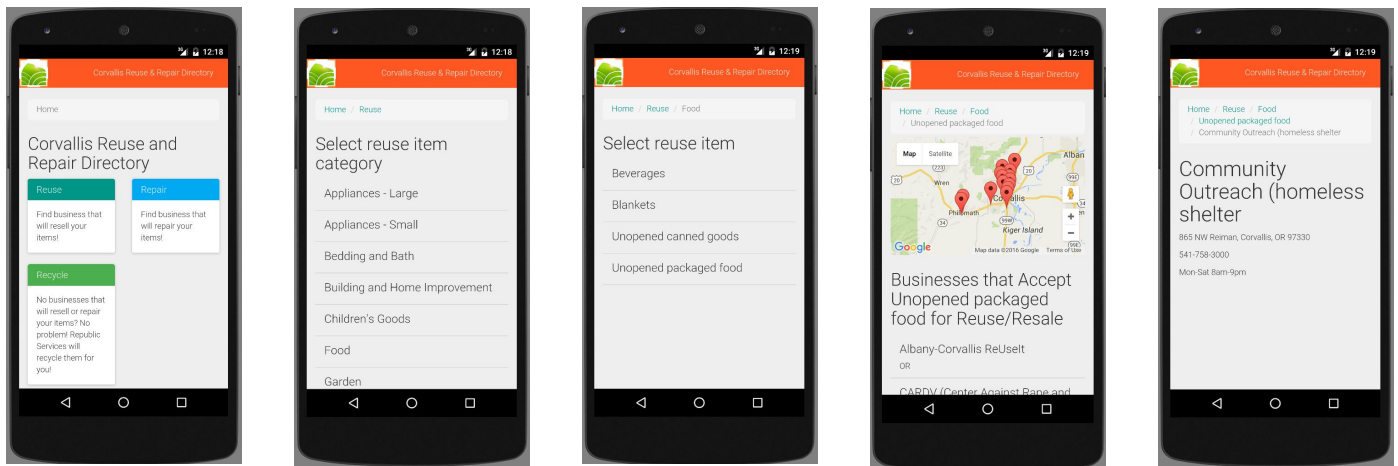
Fig. 9. Reuse sequence of screens on the Android application.

If the user cannot find a business that accepts his/her item for reuse or repair, another option is to recycle the item. By clicking on the recycle panel on the home screen, the user can access PDF files describing items accepted by Republic Services.
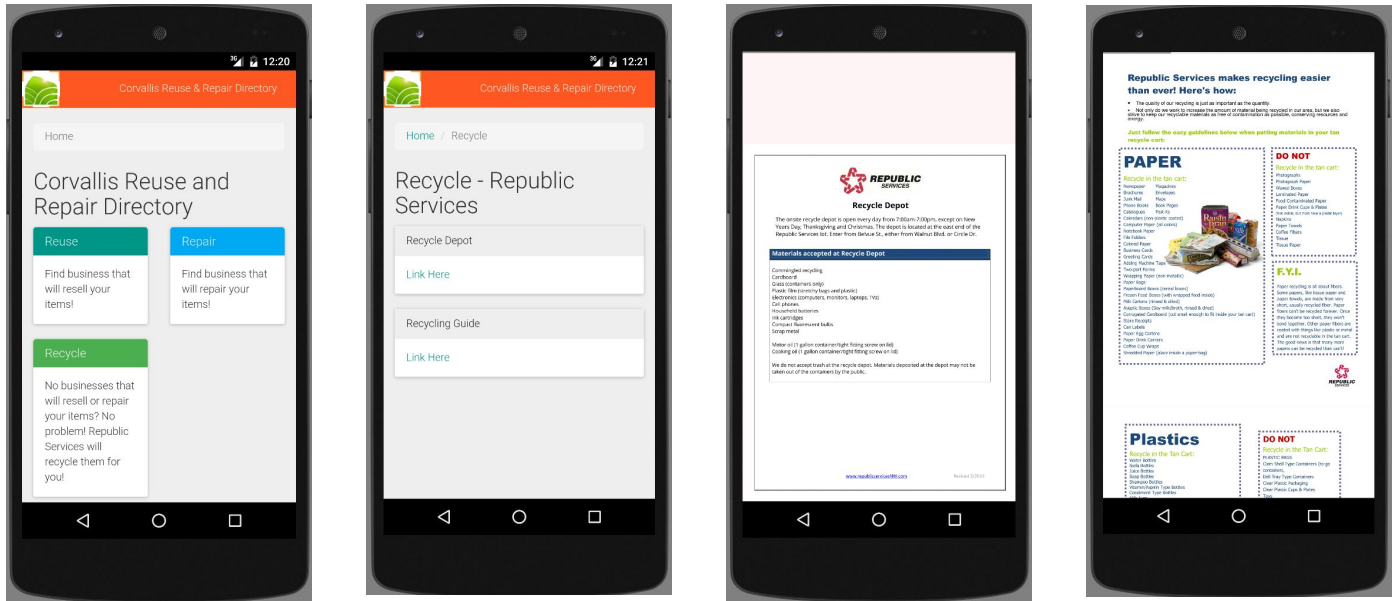
Fig. 10. Recycle sequence of screens. The user can view the PDF files for Republic Services by selecting Recycle from the home screen, and tapping on the links provided.

E. Instructions on how to use the web management interface

These instructions will make use of a typical use case to demonstrate how to use the web management interface and its reuse functionalities. Because the repair functionalities are analogous to the reuse functionalities, but less complex due to the lack of item category for repair items, we will focus on the reuse functionalities. We will also show how to add and edit users.

a) Log in to the web management interface

1. Navigate to the web management interface. A working version is available at https://web.engr.oregonstate.edu/~watsokel/crrd/wmi/index.php. (Fig. 11).
2. Log in using the username "KWatson" and the password "password" (case sensitive). After logging in, you will be redirected to main.php. After successfully logging in the Administrator Portal shown in Fig. 12 will load.

Fig. 11. Log in screen. A working version is at https://web.engr.oregonstate.edu/~watsokel/crrd/wmi/index.php
Log in using "KWatson" and "password".
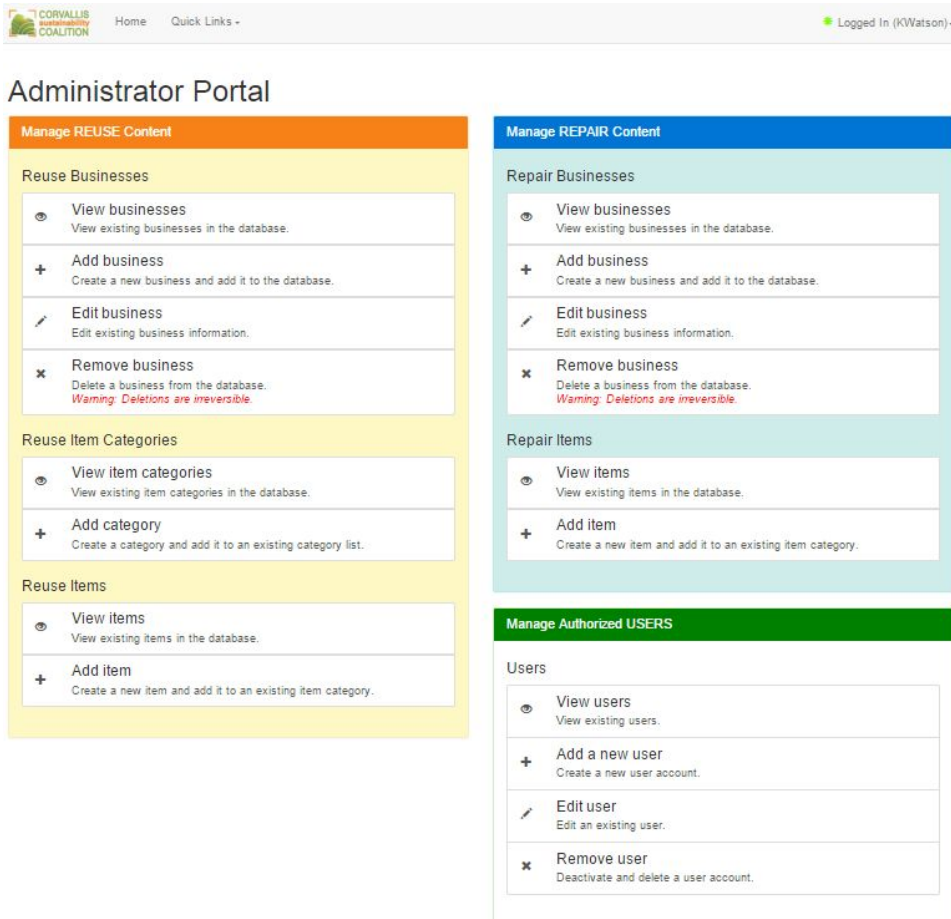
Fig. 12. After logging in, the user is presented with several options for managing the Corvallis Reuse and Repair Directory data.

b) View, add, edit and delete businesses

1. From main.php, select "View businesses" or "Edit businesses". You can also use the Quick Links menu on the title bar (REUSE → Businesses). (Fig. 13).
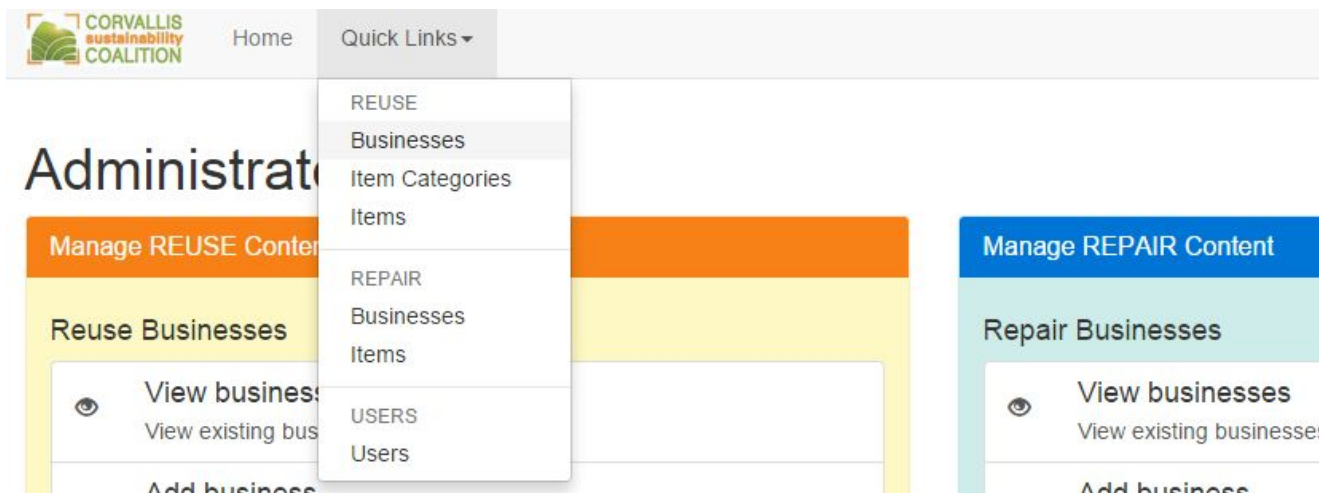
Fig. 13. Selecting reuse businesses from the Quick Links menu.

2. In the View/Edit Reuse Businesses page, you will see a table containing all of the reuse businesses in the database. Clicking the links in the "Items Accepted" columns allows you to view items associated with each business.

3. To demonstrate the edit functionality, we will modify a business, then revert it back to its original state. Click on the orange edit button beside Book Bin.
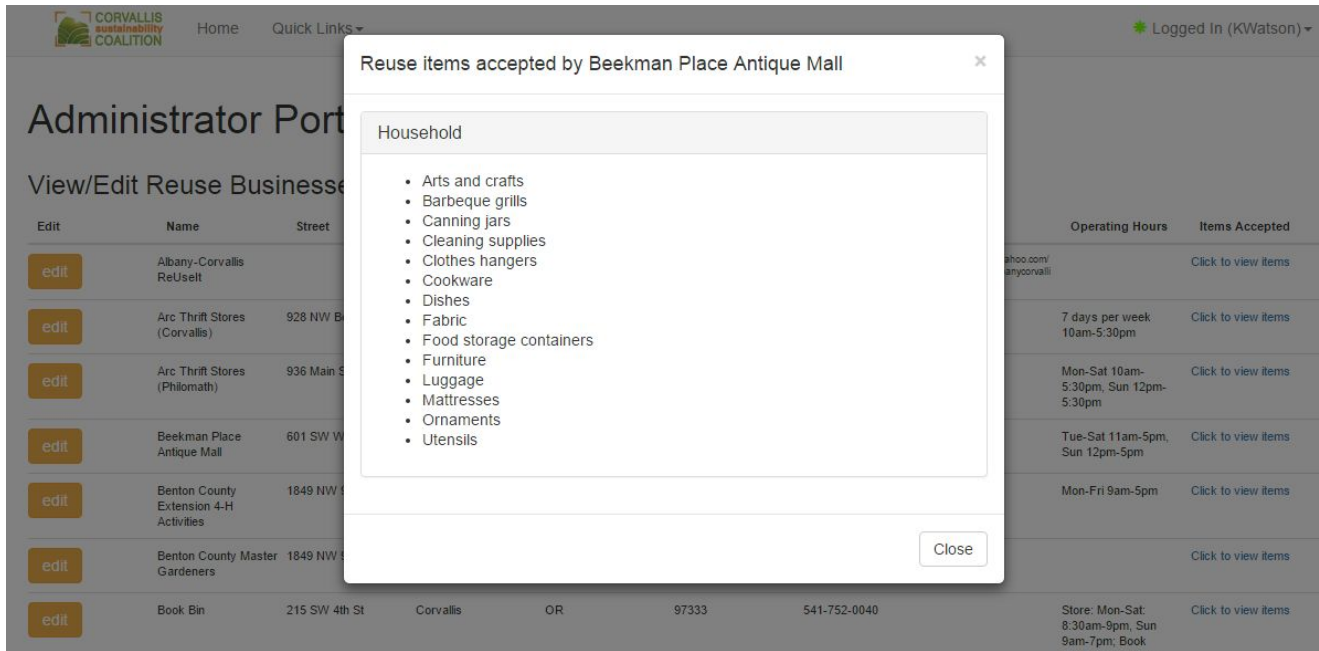
Fig. 14. Viewing items for a reuse business.

4. For illustration purposes, let's add an "s" to the business name, changing the name from "Book Bin" to "Book Bins" (Fig. 15).

Fig. 15. Editing a reuse business. We add an "s" to the name "Book Bin", and check "Dishwashers", noting that "Book Bin" only takes "Books" and "CD's". We will revert these changes after the demonstration.

5. Check the checkbox beside "Dishwashers" (Fig. 15).
6. Click on the Submit button. You should then see a notification indicating that the changes were made successfully (Fig. 16).
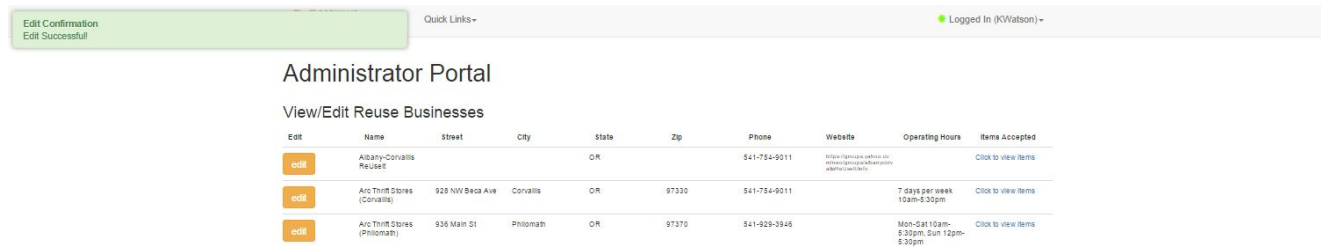
Fig. 16. Notification confirming that edits were successfully submitted.

7. Click on the "Click to view items" link in the "Book Bins" business' row to check that the changes were in fact made (Fig. 17).
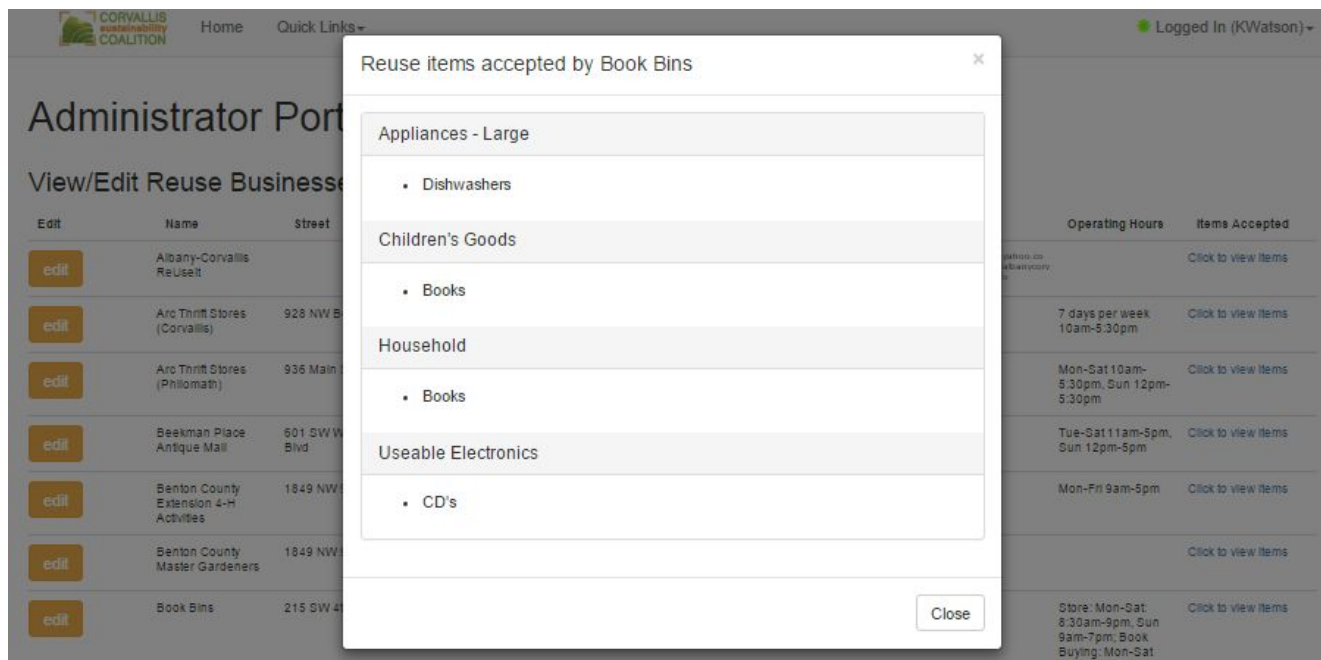
Fig. 17. Check that the edits were made by clicking on "Click to view items" in the "Book Bins" row.

8. Now, edit "Book Bins" again, changing the name back to "Book Bin" and unchecking "Dishwashers".
9. We will now try to add a new business. Scroll to the "Add Business" form beneath the reuse business' table.
10. Complete the form with arbitrary values, and select several items. We will be removing this business later. (Fig. 18).

Fig. 18. Add a test business. Complete the form with arbitrary values. We will be removing this business later.

11. Click "Submit" to add the new business.
12. Check to see that the details were correctly recorded (Fig. 19).
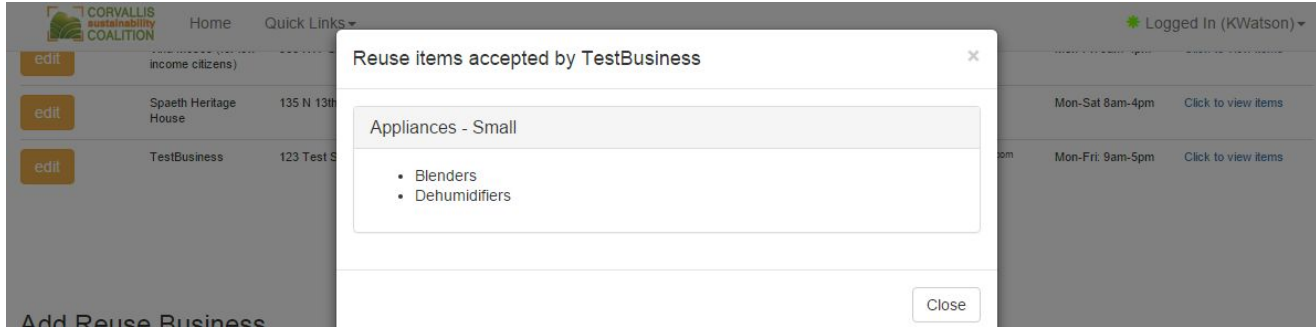
Fig. 19. Check that the details of the test business were correctly recorded.

13. Now, let's remove this test business. Click on "Home" in the title bar to return to main.php.
14. Select "Remove business" under "Manage REUSE Content".
15. Find the test business and click on the delete button to the left of the test business name.
16. You should see a pop-up message indicating to confirm deletion (Fig. 20). Please make sure that you have selected the test business, then click delete.
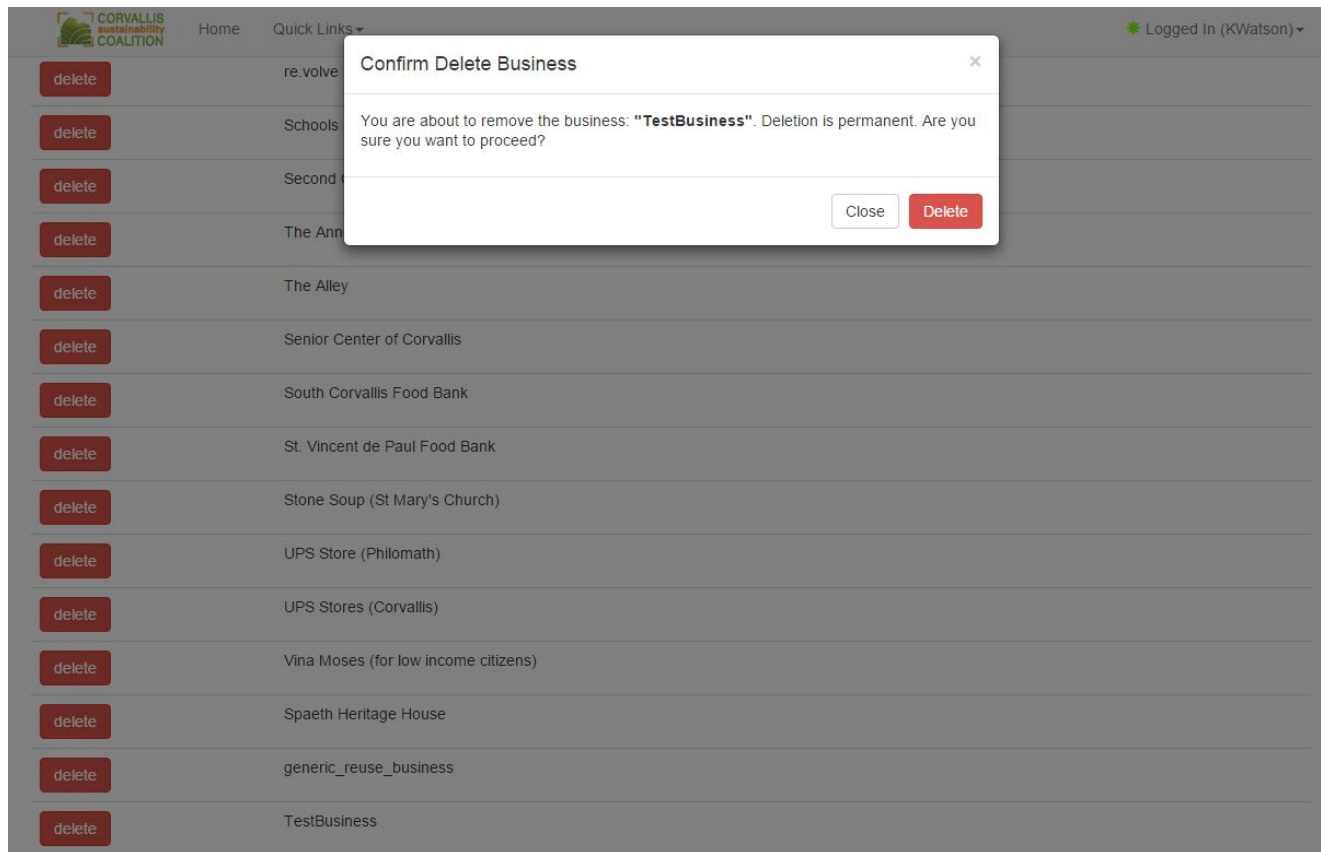
Fig. 20. Confirmation of business deletion.

17. You should see a confirmation indicating that the deletion operation completed successfully (Fig. 21).

Fig. 21. Notification that deletion was successful.

c) View and add item category

Unlike the steps above, the steps involving addition of an item category should only be performed if there is a true need to add an item category. Once item categories have been added, they cannot be deleted without logging into the MySQL database. This is a security feature to prevent accidental deletion of item categories and resulting catastrophic effects to the database. For illustration purposes, we will add a test category to demonstrate functionality, but we will subsequently remove it manually from the database.

1. From main.php, select "View item categories.". You can also use the "Quick Links" in the title bar (REUSE → Item Categories). You should see a list of categories with a "view" button beside each category (Fig. 22).

Fig. 22. Category table. Clicking on the green "view" buttons allow you to view items within a given category.

2. Click on a "view button to view the items within each category (Fig. 23).

Fig. 23. View items within a category.

3. Let's add a test category. Scroll down to the "Add Reuse Category" form and add a new category (Fig. 24).

Fig. 24. Adding a test category.

4. After submitting, you should see a success message, as well as the new category added to the table (Fig. 25).

view

TestReuseCategory

Fig. 25. A success message indicating that the category was successfully added.

d) *View and add item*

Similar to item categories, once an item has been added, it cannot be deleted without logging into the MySQL database. This is a security feature to prevent accidental deletion of items and resulting catastrophic effects to the database. For illustration purposes, we will add a test item to the test category in order to demonstrate functionality, but we will subsequently remove the test item manually from the database.

1. From main.php, under the "Manage REUSE content" section, select "View items". You should see a table containing the reuse items, along with their corresponding categories (Fig. 26).

Fig. 26. Both the item name and category columns are alphabetically sortable.

2. For illustration purposes only, we will add a test reuse item to the test reuse category we added above (Fig. 27).

Fig. 27. Add a test item to the test category.

3. After adding the item, you should see a confirmation message, and the new item added to the table (Fig. 28).
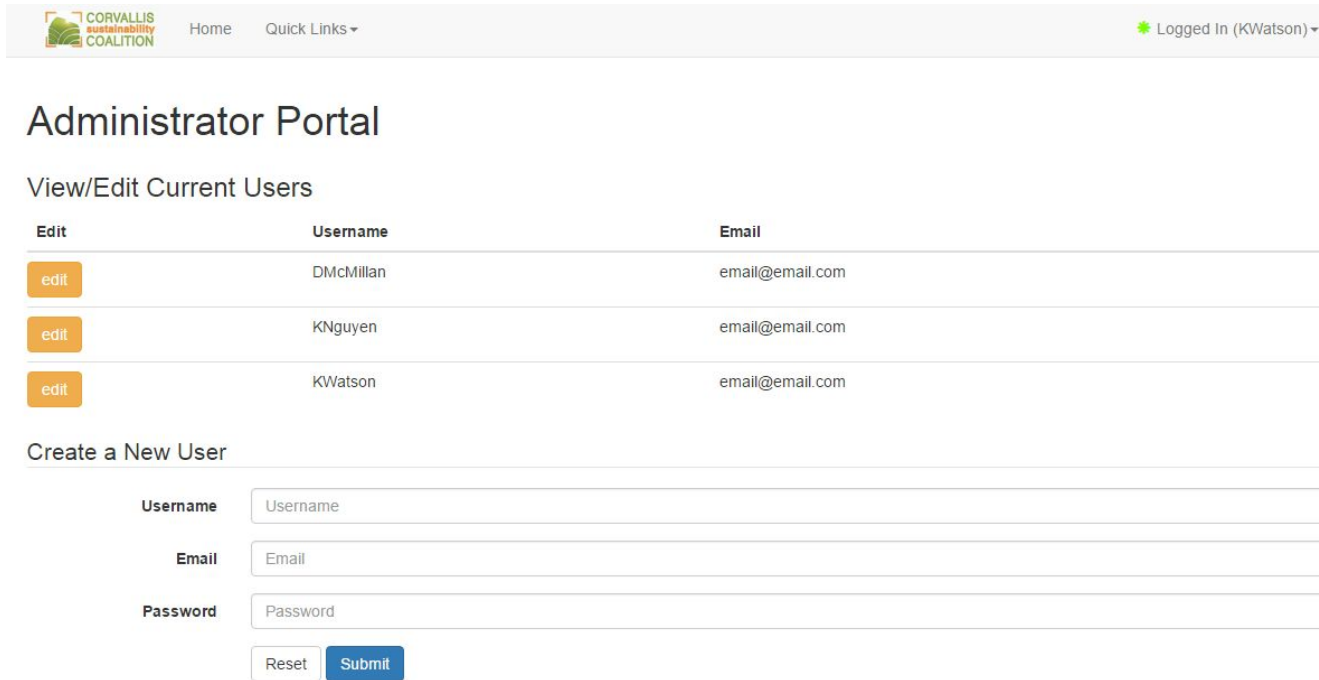
Fig. 29. Confirmation of successfully addition of reuse item.

e) *View and add user*

1. From main.php, click on "View users" under "Manage USERS", or use the "Quick Links" (USERS → users). You should see a table containing all current administrators (Fig. 29).
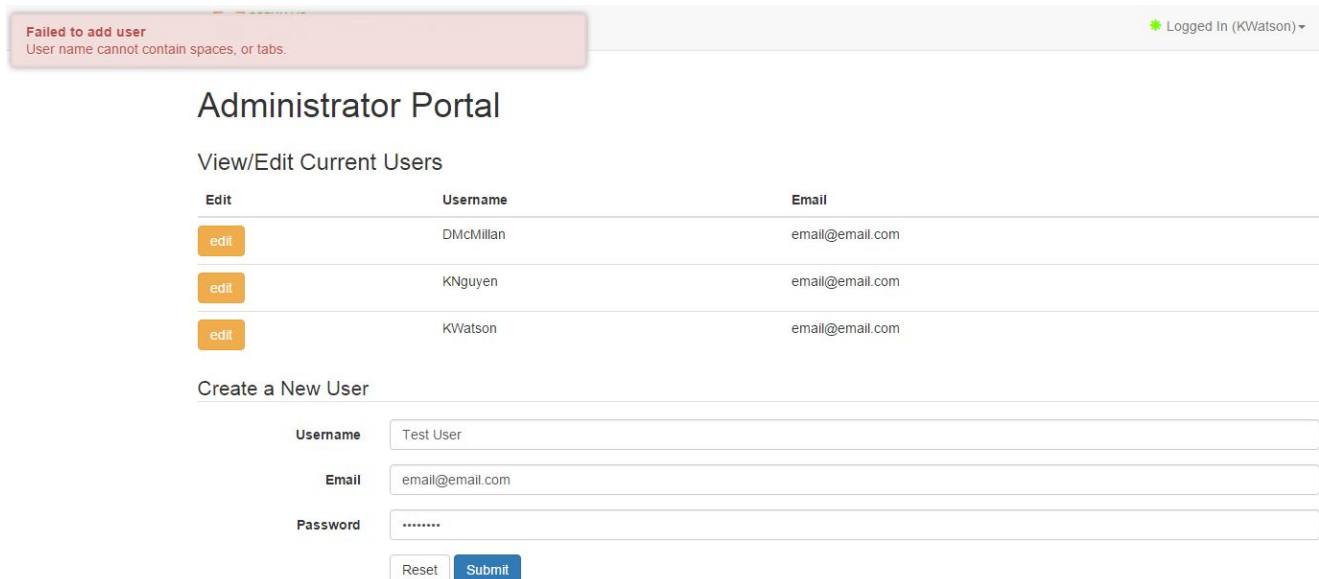2. Since we are logged in as an administrator (and not a super user), we cannot see the super user's credentials (Fig. 57).

Fig. 29. A table containing all of the current administrators. Only the super user can see his/her own credentials. All other administrators can see all other administrators, except for the super user.

3. Let's add a user. Complete the new user form. Any fields with whitespace will be rejected (Fig. 30).

Fig. 30. If any of the form fields contain white spaces, the user will not be added.

4. We will now edit the test user. Click on the orange button next to the TestUser's credentials.

Fig. 31. Once the user has been successfully added, a confirmation message appears and the new user appears in the table.

5. The "Edit Existing User" form should automatically populate with the current credentials (Fig. 32). Enter a new password, make a note of the new password, and click on "Confirm Edit".

Fig. 32. The "Edit Existing User" form automatically populates with the selected user's credentials.

6. When the credentials have been edited and submitted (and does not contain whitespaces), a confirmation message appears, and the user's credentials are modified in the database (Fig. 33).

Fig. 33. Edit confirmation message.