Duck Tracker 2.0
Installation Instructions

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6/1/2020

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1. Introduction

The word *server* will be used in this document to indicate the LAMP server (Linux, Apache, MySQL, PHP). The preferred server to be used is the ix-dev server operated by the University of Oregon Computer Science department. https://ix.cs.uoregon.edu/
https://systems.cs.uoregon.edu/wiki/index.php

To get an account on this server please see the links above.

This documentation assumes that you have a working ix-dev server account. If not using ix-dev the following installation instructions will be useful as a general guide for installing on any lamp server.

Though you can set up this system using only one command line you may want to have 2 or 3 command lines open one with the ix server open and one to navigate the local machine.

If not using ix-dev please see:
https://www.digitalocean.com/community/tutorials/how-to-install-linux-apache-mysql-php-lamp-stack-ubuntu-18-04
Or other resource about how to set up your own LAMP server

Additionally the following requires knowledge of the UNIX command line:
If user is not familiar with linux commands, see:

https://appletree.or.kr/quick_reference_cards/Unix-Linux/Linux%20Command%20Line%20Cheat%20Sheet.pdf

General File Structure of Ducktracker2 system:

- duck_tracker_2_final
  - duck_tracker_server
    - duck_track_gate.php
    - duck_tracker.ini
    - server_setup.sh
  - ANDROID_APP_HERE
    - duck_tracker_2

2. Install LAMP Server (on ix-dev)

This section will enable the user to install and configure Duck Tracker 2.0's back end Linux Apache MySQL and PHP (LAMP) server. Steps are labeled 0-7, with step 0 as the prerequisite step.

0.

If user does not have applicable files for Duck Tracker 2.0, they may be found at:

https://github.com/chriswycoff/ducktracker2

File may be cloned into current directory with the following command:

```
git clone https://github.com/chriswycoff/ducktracker2.git
```

1.

On your local machine, open your command line bash interface and navigate to the "duck_tracker_2_final" directory (delivered by group 6). Typing the "ls" command should result in the following:

```
ls
ANDROID_APP_HERE  duck_tracker_server
```

This will indicate that the user is in the correct directory.

2.

On your local machine (not ix), copy files from your local machine to ix-dev servers using "scp" to copy the directory "duck_tracker_server" to the ~/public_html folder of your server using the following command:

```
scp -r duck_tracker_server
<YOURUSERNAME>@ix-dev.cs.uoregon.edu:~/public_html/
```

MAKE SURE to change **<YOURUSERNAME>** to the appropriate username
When prompted, type your server password.

3.
Use SSH to connect to the ix-dev server, using the following command (MAKE SURE to change **<YOURUSERNAME>** to the appropriate username):

```
ssh <YOURUSERNAME>@ix-dev.cs.uoregon.edu
```

When prompted, type your server password.
Your command line should look approximately like this now:

```
<YOURUSERNAME>@ix-dev: ~ 1$
```

4.
Utilize the mysqlctl script to install, start, and check the status of MySQL. If MySQL is already installed and started, steps a and b can be skipped.
(this can be done from the home directory)

a. `mysqlctl install`

When prompted input a password to be used for your mysql server (save this password so you can use it later for viewing data or debugging)

b. `mysqlctl start`
c. `mysqlctl status`

After running the status command, note (or write down) the port number that follows "ix-dev:" You will need it for step 6.

5.
Navigate to the directory you copied from your local machine

```
cd ~/public_html/duck_tracker_server/
```

6.

6.1 Open ‘duck_tracker.ini’ with your preferred text editor (vim, emacs, etc.) and edit the dbuser (line 4) to your desired username (does not have to be duck_user):
For example:

```
dbuser=changeme
```

becomes,

```
dbuser=duck_user
```

6.2 edit the password to your desired password (line 11) (does not have to be duck_password):
For example:

```
password=changeme
```

becomes,

```
password=duck_password
```

6.3 Change the port number to match the port number shown by the mysqlctl status command (step 4).

Edit the password to your desired username (does not have to be 1234):
For example:

```
port=ix-dev:changeme
```

becomes,

```
port=ix-dev:1234
```

Make sure to keep the “ix-dev:” portion

If not using ix-dev you will need to change the port syntax to that of your particular server.

7.

Set up the database by running the provided installation script, using the following command:

```
./server_setup.sh
```

If the script was successful, then the following will be displayed:

```
+--------------------+
```

```
| Database           |
+--------------------+
| information_schema |
| duck_data          |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
+---------------------+
| Tables_in_duck_data |
+---------------------+
| duck_table          |
+---------------------+
```

To check if the table was set up correctly you may type the following command:

```
mysql -p -e "use duck_data; describe duck_table;"
```

```
+------------+-------------+------+-----+---------+--------+
| Field      |Type         | Null | Key | Default | Extra  |
+------------+-------------+------+-----+---------+--------+
| ID         | varchar(255) | YES  |     | NULL    |        |
| time       | varchar(255) | YES  |     | NULL    |        |
| latitude   | varchar(255) | YES  |     | NULL    |        |
| longitude  | varchar(255) | YES  |     | NULL    |        |
| tal        | varchar(255) | YES  |     | NULL    |        |
| date       | varchar(255) | YES  |     | NULL    |        |
+------------+-------------+------+-----+---------+--------+
```

The server is now ready to receive data; if some has been transmitted you can display it with

```
mysql -p -e "use duck_data; select * from duck_table;"
```

3. Edit Android Files

This section will enable the user to configure the android application for communication with the LAMP server to send http post requests. Steps are labeled 0-7, with step 0 as the prerequisite step.

0.
Users must have Android Studio installed on their local machine in order to complete the following steps.

Applicable software can be found at:
https://developer.android.com/studio

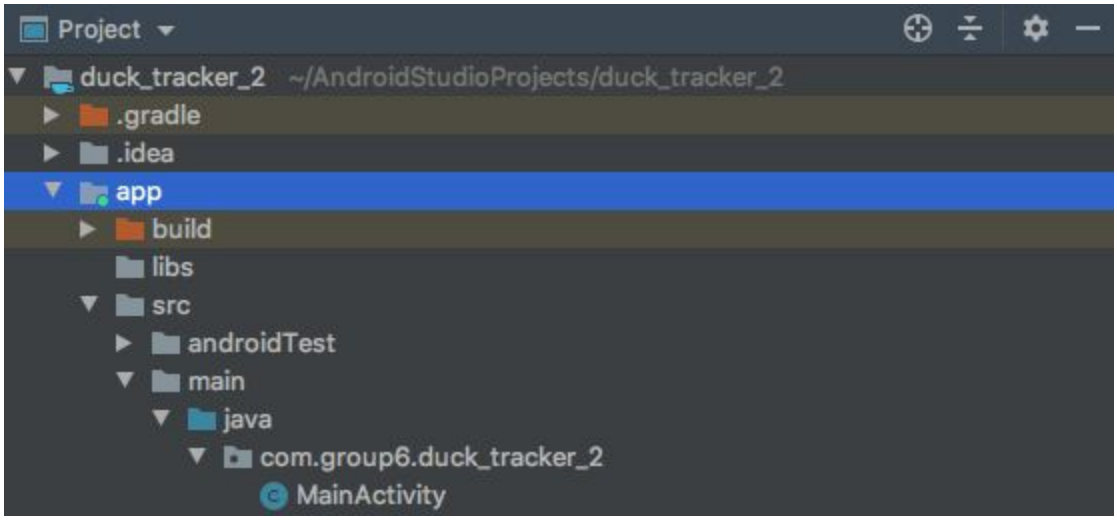
1.
Open Android Studio and select the option "Open an existing Android Studio project".

Navigate to `duck_tracker_2_final/ANDROID_APP_HERE/`
and select `'duck_tracker_2'`. The opening of this directory may take several minutes.

2.
Once duck_tracker_2 is auto configured by Android Studio,
Plug your Android device into your computer via USB.

3.
Open the 'Project' navigator directory in the left navigation menu.

Navigate to duck_tracker_2 > app > src > main > java > com.group6.duck_tracker_2 > MainActivity



Make the following essential modification at approximately line 75:
Change:

```
String url =
"https://ix.cs.uoregon.edu/~<YOURUSERNAMEHERE>/duck_tracker_serv
er/duck_track_gate.php";
```

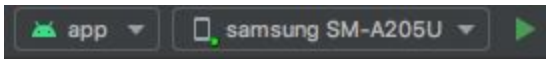
To

```
String url =
"https://ix.cs.uoregon.edu/~<YOURUSERNAME>/duck_tracker_server/d
uck_track_gate.php";
```

These changes may need to typed (instead of copy pasted) to avoid any hidden character errors

4.
Confirm your phone is recognized by Android Studio by seeing it identified in the top middle status bar

For example:



Then press the green arrow to the right of it (as seen above), to compile and install the project onto the connected mobile device.

The app then will be installed on your phone and open automatically upon successful install of the server. This process may take several minutes.

To test to see that data has been receive on the server (ix-dev or user defined server) command line type:

```
mysql -p -e "use duck_data; select * from duck_table;"
```

5.
To test the functionality of quicker update period see line (approximately line 90)

6.
To debug any connectivity problem please change line (approximately line 45) from:

```
DEBUG = false
```

To

```
DEBUG = true
```

This change will print messages to the screen of the phone to indicate the nature of the connectivity issues / status'.

7.

To Access the data go to:
"https://ix.cs.uoregon.edu/~<YOURUSERNAME>/duck_tracker_server/duck_track_gate.php"

Via a web browser (Chrome, Brave, Safari, etc.)

The 'file.txt' that gets downloaded contains the information from the database