Installation Guide (Database and Frontend)

1. Install VirtualBox and setup a new VM
2. Install centOS 7 using an ISO, during installation add a new user (aside from root) and give it server options. CentOS can be installed with a GUI if desired and if the user's hardware can handle that
3. Set up the VM's network as NAT and add the following port forwarding options
   a. (MYSQL) TCP protocol with 127.0.0.1 host IP, 3306 host port, and 3306 guest port
   b. (MYSQLU) UDP protocol with 127.0.0.1 host IP, 3306 host port, and 3306 guest port
   c. (HTTP) TCP protocol with 127.0.0.1 host IP, 8080 host port, and 80 guest port
   d. (SSH) TCP protocol with 127.0.0.1 host IP, 2222 host port, and 22 guest port
4. Prepare the database by installing and securing phpMyAdmin with Apache on the centOS 7 server you just created on the virtual machine
   - These two links should help you through the process:
     - https://www.digitalocean.com/community/tutorials/how-to-install-linux-apache-mysql-php-lamp-stack-on-centos-7
     - https://www.digitalocean.com/community/tutorials/how-to-install-and-secure-phpmyadmin-with-apache-on-a-centos-7-server
5. Setup the testbed database and testbed database user (this will be added to the db_credentials as a readonly user):

```
MariaDB [(none)]> create database if not exists testbed;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> create user 'username'@'localhost' identified
by 'yourpassword';
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> grant all on testbed.* to
'username'@'localhost';
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> create user testbed_ro@'localhost' identified
by testbedpassword;
Query OK, 0 rows affected (0.00 sec)

MariaDB [(none)]> grant select on testbed.* to
testbed_ro@'localhost';

MariaDB [(none)]> flush privileges;
Query OK, 0 rows affected (0.00 sec)
```

       a. This allows for the username to get full access to the database and the testbed_ro (which will be put into "db_credentials.php" to have read access when both are locally hosted)

6. Next clone the repo and put the app folder in the var/www/html folder
7. In the app/api folder add a file named db_credentials/php and fill out as seen below

```php
<?php
$host = 'localhost'; // Everything will be done locally
$user = 'testbed_ro'; // You made this in prior step
$pw   = 'testbedpassword'; // You made this in prior step
$db   = 'testbed'; // You made this in prior step
?>
```

8. Setup the database tables and data
       a. Go to your phpMyAdmin page and create a database called 'testbed'
       b. Copy the files from the database folder in our github repository into a local folder called 'db'
       c. In db:
           i. Install Virtualenv and pymysql
           ii. Activate your Virtualenv
           iii. Run 'make all'
           iv. Open settings.py and set the password to the one you use to access your phpMyAdmin page
           v. Run create_db.py
           vi. Run populate_db_freq.py and populate_db_temp.py
       d. Now your testbed database should have tables filled with data