

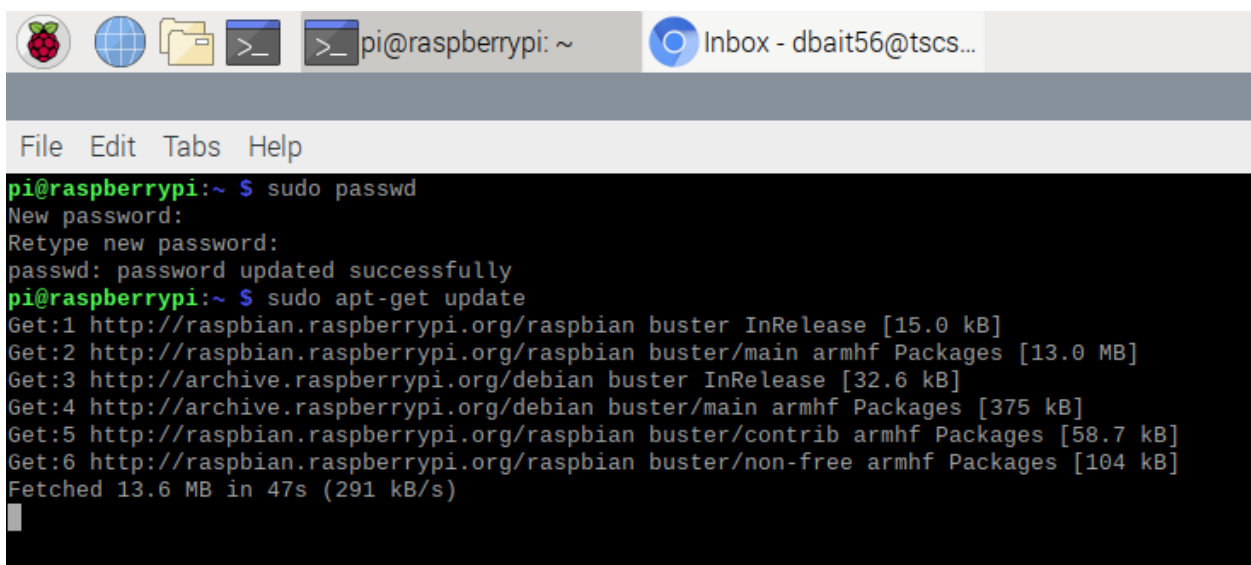
# Weather Station

A Project By: Duncan Baitz

```
File Edit Tabs Help
pi@raspberrypi:~ $ python3 google_spreadsheet.py
Logging sensor measurements to Duncans Weather Station every 30 seconds.
Press Ctrl-C to quit.
Temperature: 23.2 C
Humidity: 51.6 %
Wrote a row to Duncans Weather Station
Temperature: 22.8 C
Humidity: 52.9 %
Wrote a row to Duncans Weather Station
Temperature: 22.8 C
Humidity: 53.0 %
Wrote a row to Duncans Weather Station
Traceback (most recent call last):
  File "google_spreadsheet.py", line 92, in <module>
    temp = dhtDevice.temperature
  File "/home/pi/.local/lib/python3.7/site-packages/adafruit_dht.py", line 259, in temperature
    self.measure()
  File "/home/pi/.local/lib/python3.7/site-packages/adafruit_dht.py", line 243, in measure
    raise RuntimeError("Checksum did not validate. Try again.")
RuntimeError: Checksum did not validate. Try again.
pi@raspberrypi:~ $ █
```

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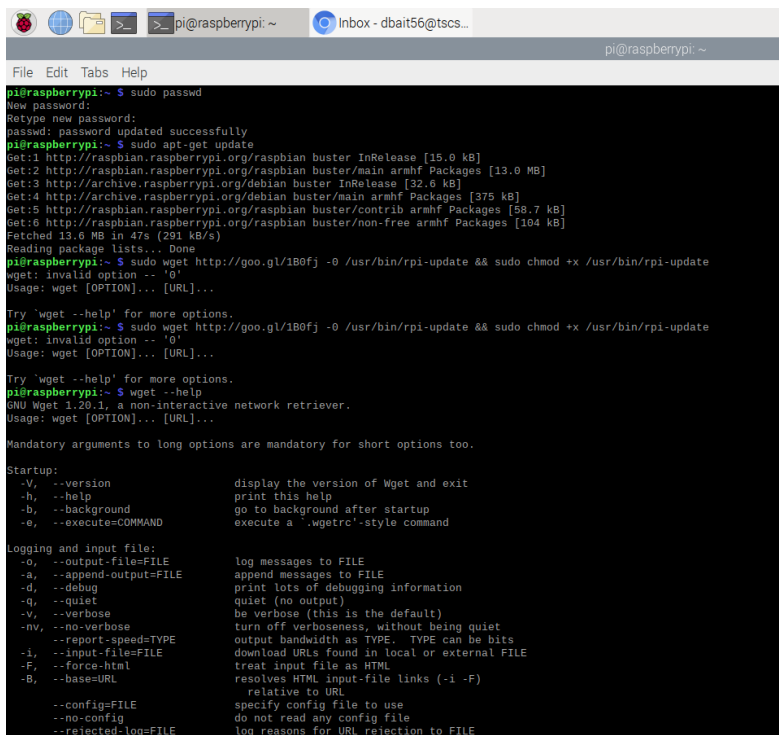
Today I restarted my project for the 5th time hoping it will turn out right this time. The first thing I did was install the operating system I used throughout the project, Raspbian. Raspbian is the most commonly used operating system because it comes as a full desktop kit. Then I had my dad connect to the internet so I could do what I needed to do. Next, I changed my password so it was not Raspberry(the default password). This is done with the command *sudo passwd*.



The screenshot shows a desktop environment with a taskbar at the top containing icons for a Raspberry Pi, a globe, a folder, and two terminal windows. The active terminal window is titled 'pi@raspberrypi: ~' and shows the following commands and output:

```
pi@raspberrypi:~ $ sudo passwd
New password:
Retype new password:
passwd: password updated successfully
pi@raspberrypi:~ $ sudo apt-get update
Get:1 http://raspbian.raspberrypi.org/raspbian buster InRelease [15.0 kB]
Get:2 http://raspbian.raspberrypi.org/raspbian buster/main armhf Packages [13.0 MB]
Get:3 http://archive.raspberrypi.org/debian buster InRelease [32.6 kB]
Get:4 http://archive.raspberrypi.org/debian buster/main armhf Packages [375 kB]
Get:5 http://raspbian.raspberrypi.org/raspbian buster/contrib armhf Packages [58.7 kB]
Get:6 http://raspbian.raspberrypi.org/raspbian buster/non-free armhf Packages [104 kB]
Fetched 13.6 MB in 47s (291 kB/s)
```

Now before I install anything I needed to run `sudo apt-get update`, this updates the operating system to make sure we have the latest version. Next, I checked to make sure I was running the latest version I ran a `sudo wget http://goo.gl/1B0fJ -O /usr/bin/rpi-update && sudo chmod +x /usr/bin/rpi-update` which installs hex. Finally, I run `ifconfig` where my IP address is 192.168.0.5. I typed that into chromium to make sure it was working. That concluded the basic setup.



```
pi@raspberrypi: ~  
File Edit Tabs Help  
pi@raspberrypi:~$ sudo passwd  
New password:  
Retype new password:  
passwd: password updated successfully  
pi@raspberrypi:~$ sudo apt-get update  
Get:1 http://rasbian.raspberrypi.org/rasbian buster InRelease [15.0 kB]  
Get:2 http://rasbian.raspberrypi.org/rasbian buster/main armhf Packages [13.0 MB]  
Get:3 http://archive.raspberrypi.org/debian buster InRelease [32.0 kB]  
Get:4 http://archive.raspberrypi.org/debian buster/main armhf Packages [375 kB]  
Get:5 http://rasbian.raspberrypi.org/rasbian buster/contrib armhf Packages [58.7 kB]  
Get:6 http://rasbian.raspberrypi.org/rasbian buster/non-free armhf Packages [104 kB]  
Fetched 13.6 MB in 47s (291 kB/s)  
Reading package lists... Done  
pi@raspberrypi:~$ sudo wget http://goo.gl/1B0fj -O /usr/bin/rpi-update && sudo chmod +x /usr/bin/rpi-update  
wget: invalid option -- '0'  
Usage: wget [OPTION]... [URL]...  
  
Try 'wget --help' for more options.  
pi@raspberrypi:~$ sudo wget http://goo.gl/1B0fj -O /usr/bin/rpi-update && sudo chmod +x /usr/bin/rpi-update  
wget: invalid option -- '0'  
Usage: wget [OPTION]... [URL]...  
  
Try 'wget --help' for more options.  
pi@raspberrypi:~$ wget --help  
GNU Wget 1.20.1, a non-interactive network retriever.  
Usage: wget [OPTION]... [URL]...  
  
Mandatory arguments to long options are mandatory for short options too.  
  
Startup:  
-V, --version          display the version of Wget and exit  
-h, --help            print this help  
-b, --background      go to background after startup  
-e, --execute=COMMAND execute a '.wgetrc'-style command  
  
Logging and input file:  
-o, --output-file=FILE log messages to FILE  
-a, --append-output=FILE append messages to FILE  
-d, --debug           print lots of debugging information  
-q, --quiet          quiet (no output)  
-v, --verbose        be verbose (this is the default)  
-nv, --no-verbose    turn off verbosity, without being quiet  
-nr, --report-speed=TYPE output bandwidth as TYPE. TYPE can be bits  
-i, --input-file=FILE download URLs found in local or external FILE  
-F, --force-html     treat input file as HTML  
-B, --base-URL       resolves HTML input-file links (-i -F)  
                      relative to URL  
--config=FILE       specify config file to use  
--no-config         do not read any config file  
--rejected-log=FILE log reasons for URL rejection to FILE
```

```
pi@raspberrypi: ~
Apache2 Debian Defa...
File Edit Tabs Help
pi@raspberrypi:~$ sudo apt-get install mariadb-common
Reading package lists... Done
Building dependency tree
Reading state information... Done
mariadb-common is already the newest version (1:10.3.29-0+deb10u1).
mariadb-common set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 504 not upgraded.
pi@raspberrypi:~$ sudo apt-get install mariadb-client
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  mariadb-client
0 upgraded, 1 newly installed, 0 to remove and 504 not upgraded.
Need to get 31.3 kB of archives.
After this operation, 68.6 kB of additional disk space will be used.
Get:1 http://mirror.pit-teraswitch.com/raspbian/raspbian buster/main armhf mariadb-client all 1:10.3.29-0+deb10u1 [31.3 kB]
Fetched 31.3 kB in 1s (29.3 kB/s)
Selecting previously unselected package mariadb-client.
(Reading database ... 154017 files and directories currently installed.)
Preparing to unpack .../mariadb-client_1:10.3.29-0+deb10u1_all.deb ...
Unpacking mariadb-client (1:10.3.29-0+deb10u1) ...
Setting up mariadb-client (1:10.3.29-0+deb10u1) ...
pi@raspberrypi:~$ ifconfig
eth0: flags=4096<UP,BROADCAST,MULTICAST> mtu 1500
    ether dc:a0:32:95:80:ff txqueuelen 1000 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 29 bytes 12622 (12.3 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 29 bytes 12622 (12.3 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.0.5 netmask 255.255.255.0 broadcast 192.168.0.255
    inet6 fe80::58e7:108d:4ca6:6cf4 prefixlen 64 scopeid 0x20<link>
    ether dc:a6:32:95:81:00 txqueuelen 1000 (Ethernet)
    RX packets 35531 bytes 49683910 (47.3 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 22462 bytes 2419938 (2.3 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
pi@raspberrypi:~$
```

Then I needed to install apache. To do that I ran the following commands: `sudo apt install apache2`, `sudo apt install php`, `sudo apt install php-mysql`, `sudo apt install libapache2-mod-php` that will fully install apache.

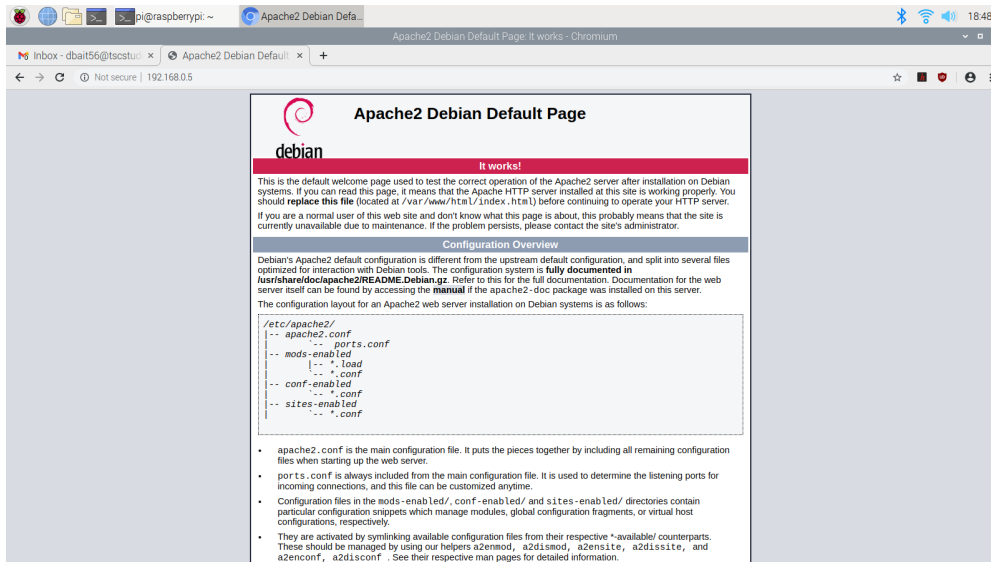
```
pi@raspberrypi: ~
192.168.0.5 - Chromi...
File Edit Tabs Help
inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 0 bytes 0 (0.0 B)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 0 bytes 0 (0.0 B)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

wlan0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.0.5 netmask 255.255.255.0 broadcast 192.168.0.255
    inet6 fe80::58e7:108d:4ca6:6cf4 prefixlen 64 scopeid 0x20<link>
    ether dc:a6:32:95:81:00 txqueuelen 1000 (Ethernet)
    RX packets 18339 bytes 24921370 (23.7 MiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 12161 bytes 1421511 (1.3 MiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

pi@raspberrypi:~$ sudo wget http://goo.gl/1B0fJ -O /usr/bin/rpi-update && sudo chmod +x /usr/bin/rpi-update
URL transformed to HTTPS due to an HSTS policy
--2021-06-22 18:44:48-- https://goo.gl/1B0fJ
Resolving goo.gl (goo.gl)... 64.233.177.113, 64.233.177.139, 64.233.177.102, ...
Connecting to goo.gl (goo.gl)[64.233.177.113]:443... connected.
HTTP request sent, awaiting response... 202 found
Location: http://adulthasearch.ru/?m=303152 [following]
--2021-06-22 18:44:48-- http://adulthasearch.ru/?m=303152
Resolving adulthasearch.ru (adulthasearch.ru)... 23.69.91.230, 23.200.237.230
Connecting to adulthasearch.ru (adulthasearch.ru)[23.69.91.230]:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 337 [text/html]
Saving to: '/usr/bin/rpi-update'

/usr/bin/rpi-update 100%[=====] 337 --.-KB/s in 0s
2021-06-22 18:44:49 (10.5 MB/s) - '/usr/bin/rpi-update' saved [337/337]

pi@raspberrypi:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  apache2-bin apache2-data apache2-utils libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap ssl-cert
Suggested packages:
  apache2-doc apache2-suexec-pristine | apache2-suexec-custom openssl-blacklist
The following NEW packages will be installed:
  apache2 apache2-bin apache2-data apache2-utils libapr1 libaprutil1 libaprutil1-dbd-sqlite3 libaprutil1-ldap ssl-cert
0 upgraded, 9 newly installed, 0 to remove and 504 not upgraded.
Need to get 1,629 kB of archives.
After this operation, 6,229 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Working
```



Next, I installed MariaDB Server and client, to do that you run *sudo apt-get install*

*mariadb-server, sudo apt-get install mariadb-common, and sudo apt-get install mariadb-client.*

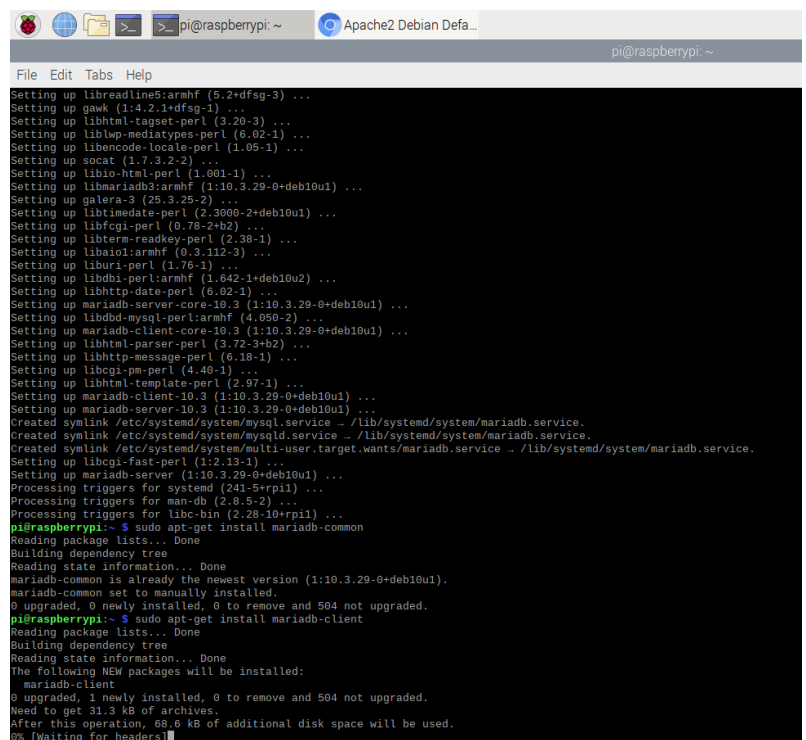
Then I went back to chromium typed in my IP address to make sure apache was up and running.

After you make sure apache is up and running you need to remove the index.html file because it

will cause problems installing wordpress later on. Do that with *rm /var/www/html/index.html,*

type *ls* to make sure it gets removed. The command *ls* shows you all the files in the directory you

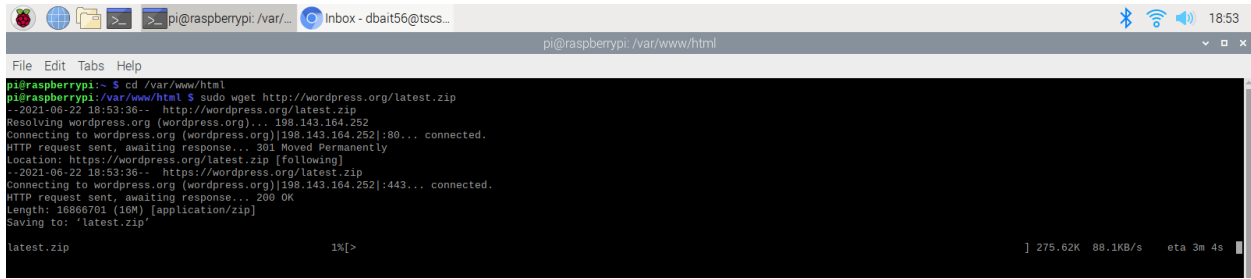
are currently in.



```
pi@raspberrypi:~$ sudo apt-get install libapache2-mod-php
Reading database ... 152987 files and directories currently installed.)
Preparing to unpack .../php7.3-mysql_7.3.27-1-deb10u1_armhf.deb ...
Unpacking libapache2-mod-php7.3 (7.3.27-1-deb10u1) ...
Selecting previously unselected package php-mysql.
Preparing to unpack .../php-mysql_2.0.27-3+deb10u1_all.deb ...
Unpacking php-mysql (2.0.27-3+deb10u1) ...
Setting up php7.3-mysql (7.3.27-1-deb10u1) ...
Creating config file /etc/php/7.3/mods-available/mysqlnd.ini with new version
Creating config file /etc/php/7.3/mods-available/mysqli.ini with new version
Creating config file /etc/php/7.3/mods-available/pdo_mysqli.ini with new version
Setting up php-mysql (2.0.27-3+deb10u1) ...
Processing triggers for libapache2-mod-php7.3 (7.3.27-1-deb10u1) ...
pi@raspberrypi:~$ sudo apt-get install libapache2-mod-php
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  libapache2-mod-php
0 upgraded, 1 newly installed, 0 to remove and 584 not upgraded.
Need to get 6,120 B of archives.
After this operation, 10,448 B of additional disk space will be used.
Get:1 http://mirror.pit.isra.ac.il/ubuntu/raspbian-hardware/main armhf libapache2-mod-php all 2:7.3+69 [6,120 B]
Fetched 6,120 B in 3s (6,278 B/s)
Selecting previously unselected package libapache2-mod-php.
(Reading database ... 152987 files and directories currently installed.)
Preparing to unpack .../libapache2-mod-php_2:7.3+69_all.deb ...
Unpacking libapache2-mod-php (2:7.3+69) ...
Setting up libapache2-mod-php (2:7.3+69) ...
pi@raspberrypi:~$ sudo apt-get install mariadb-server
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  galera-3 glib libltdl libltdl-dev libltdl7 libltdl-bin libltdl-doc libltdl-java libltdl-ocaml libltdl-perl libltdl-python libltdl-ruby libltdl-xml
  libltdl-zig libltdl0 libltdl0-dev libltdl0-doc libltdl0-java libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig libltdl0-bin libltdl0-doc libltdl0-java
  libltdl0-ocaml libltdl0-perl libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig libltdl0-dev libltdl0-doc libltdl0-java libltdl0-python libltdl0-ruby
  libltdl0-xml libltdl0-zig libltdl0-bin libltdl0-doc libltdl0-java libltdl0-ocaml libltdl0-perl libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig
  mariadb-client-10.3 mariadb-client-core-10.3 mariadb-common mariadb-server mariadb-server-10.3 mariadb-server-core-10.3 mysql-common socat
Suggested packages:
  galera-3 libltdl0-doc libltdl0-dev libltdl0-bin libltdl0-doc libltdl0-java libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig libltdl0-bin libltdl0-doc
  libltdl0-java libltdl0-ocaml libltdl0-perl libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig libltdl0-bin libltdl0-doc libltdl0-java libltdl0-ocaml
  libltdl0-perl libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig mariadb-test tina
The following NEW packages will be installed:
  galera-3 glib libltdl libltdl-dev libltdl7 libltdl-bin libltdl-doc libltdl-java libltdl-ocaml libltdl-perl libltdl-python libltdl-ruby libltdl-xml
  libltdl-zig libltdl0 libltdl0-dev libltdl0-doc libltdl0-java libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig libltdl0-bin libltdl0-doc libltdl0-java
  libltdl0-ocaml libltdl0-perl libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig libltdl0-dev libltdl0-doc libltdl0-java libltdl0-python libltdl0-ruby
  libltdl0-xml libltdl0-zig libltdl0-bin libltdl0-doc libltdl0-java libltdl0-ocaml libltdl0-perl libltdl0-python libltdl0-ruby libltdl0-xml libltdl0-zig
  mariadb-client-10.3 mariadb-client-core-10.3 mariadb-common mariadb-server mariadb-server-10.3 mariadb-server-core-10.3 mysql-common socat
0 upgraded, 3 newly installed, 0 to remove and 584 not upgraded.
Need to get 18.11 B of archives.
After this operation, 18.6 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
OK (66sec)
pi@raspberrypi:~$
```

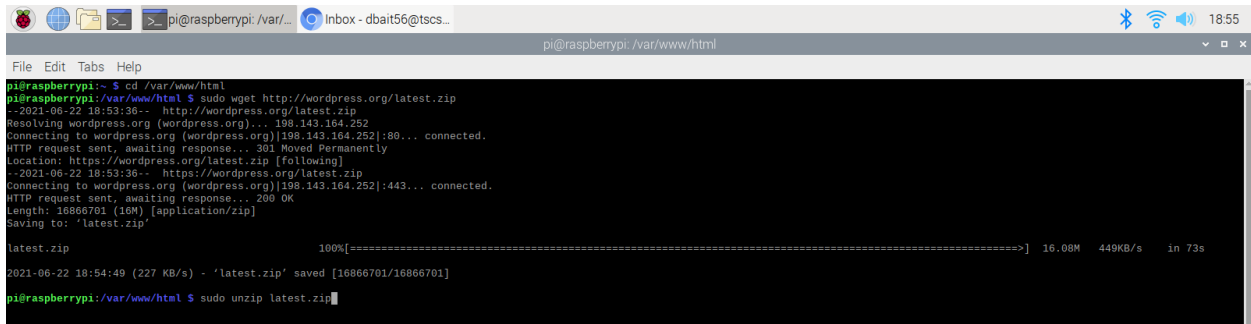
```
pi@raspberrypi:~$ nano service_account.json
service_account.json
pi@raspberrypi:~/config/gspread $ sudo nano service_account.json
pi@raspberrypi:~/config/gspread $ python3 google_spreadsheet.py
python3: can't open file 'google_spreadsheet.py': [Errno 2] No such file or directory
pi@raspberrypi:~/config/gspread $ cd
pi@raspberrypi:~/config/gspread $ python3 google_spreadsheet.py
logging sensor measurements to Duncan's Weather Station every 30 seconds.
Press Ctrl-C to quit.
Unable to login and get spreadsheet. Check OAuth credentials, spreadsheet name, and make sure spreadsheet is shared to the client_email address in the OAuth .json file!
google sheet login failed with error: [Errno 2] No such file or directory: 'service_account.json'
pi@raspberrypi:~$ cd
pi@raspberrypi:~$ ls -al
total 108
drwxr-xr-x 24 pi pi 4096 Jul 2 13:18 .
drwxr-xr-x 3 root root 4096 Jul 9 2019 ..
-rw-r--r-- 1 root root 381 Jun 22 18:43 100f3
drwxr-xr-x 11 root root 4096 Jul 1 11:13 Adafruit_Python_DHT
-rw-r--r-- 1 pi pi 9420 Jul 2 12:52 .bash_history
-rw-r--r-- 1 pi pi 229 Jul 9 2019 .bash_logout
-rw-r--r-- 1 pi pi 3523 Jul 9 2019 .bashrc
drwxr-xr-x 10 pi pi 4096 Jul 1 15:05 .cache
drwxr-xr-x 14 pi pi 4096 Jul 2 11:17 .config
drwxr-xr-x 2 pi pi 4096 Jul 2 11:19 Desktop
-rw-r--r-- 1 pi pi 1142 Jul 2 13:03 dht_logging.py
-rw-r--r-- 1 root root 1142 Jul 1 15:59 dht_simpletest.py
drwxr-xr-x 2 pi pi 4096 Jun 23 14:09 .dillo
drwxr-xr-x 2 pi pi 4096 Jul 9 2019 Documents
drwxr-xr-x 2 pi pi 4096 Jul 2 10:00 Downloads
-rw-r--r-- 1 root root 1143 Jul 1 11:21 edit
drwxr-xr-x 3 pi pi 4096 Jun 23 14:09 .fltk
drwxr-xr-x 3 pi pi 4096 Jul 9 2019 .gnupg
-rw-r--r-- 1 root root 5260 Jul 2 13:01 google_spreadsheet.py
-rw-r--r-- 1 pi pi 76 Jul 1 17:24 .leaslist
drwxr-xr-x 2 pi pi 4096 Jul 1 16:07 .local
drwxr-xr-x 2 pi pi 4096 Jul 9 2019 .Magpi
drwxr-xr-x 1 pi pi 4096 Jun 23 11:20 .mincraft
drwxr-xr-x 2 pi pi 4096 Jul 9 2019 Music
-rw-r--r-- 1 pi pi 1620 Jul 2 09:45 .mysql_history
drwxr-xr-x 2 pi pi 4096 Jul 9 2019 Pictures
drwxr-xr-x 3 pi pi 4096 Jun 22 18:34 .pki
-rw-r--r-- 1 pi pi 89 Jul 9 2019 .profile
drwxr-xr-x 1 pi pi 4096 Jul 1 16:08 .project-name
drwxr-xr-x 2 pi pi 4096 Jul 9 2019 Public
-rw-r--r-- 1 root root 112 Jul 2 11:29 python_permission
drwxr-xr-x 4 root root 4096 Jul 1 10:53 Raspberry_Weather
drwxr-xr-x 2 pi pi 4096 Jul 2 13:18 .Screenshots For Pi
drwxr-xr-x 2 pi pi 4096 Jul 9 2019 Templates
drwxr-xr-x 4 pi pi 4096 Jul 2 11:16 .thumbnails
drwxr-xr-x 2 pi pi 4096 Jul 9 2019 Videos
-rw-r--r-- 1 pi pi 56 Jun 23 17:36 .xauthority
```

Now we need to install wordpress. The first thing we need to do is go to the directory it will be downloaded in. Do that with the command `cd /var/www/html`. Next, I installed wordpress with the command `sudo wget http://wordpress.org/latest.zip`, this installs wordpress but to make it usable we have to unzip the latest.zip. I do this with `sudo unzip latest.zip`.



```
pi@raspberrypi:~/var/www/html
pi@raspberrypi:~/var/www/html $ sudo wget http://wordpress.org/latest.zip
--2021-06-22 18:53:36-- http://wordpress.org/latest.zip
Resolving wordpress.org (wordpress.org)... 198.143.164.252
Connecting to wordpress.org (wordpress.org)|198.143.164.252|:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://wordpress.org/latest.zip [following]
--2021-06-22 18:53:36-- https://wordpress.org/latest.zip
Connecting to wordpress.org (wordpress.org)|198.143.164.252|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 16866701 (16M) [application/zip]
Saving to: 'latest.zip'

latest.zip                               1%[>]                ] 275.62K  88.1KB/s   eta 3m 4s
```



```
pi@raspberrypi:~/var/www/html
pi@raspberrypi:~/var/www/html $ sudo wget http://wordpress.org/latest.zip
--2021-06-22 18:53:36-- http://wordpress.org/latest.zip
Resolving wordpress.org (wordpress.org)... 198.143.164.252
Connecting to wordpress.org (wordpress.org)|198.143.164.252|:80... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://wordpress.org/latest.zip [following]
--2021-06-22 18:53:36-- https://wordpress.org/latest.zip
Connecting to wordpress.org (wordpress.org)|198.143.164.252|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 16866701 (16M) [application/zip]
Saving to: 'latest.zip'

latest.zip                               100%[=====]         ] 16.00M  449KB/s   in 73s
2021-06-22 18:54:49 (227 KB/s) - 'latest.zip' saved [16866701/16866701]

pi@raspberrypi:~/var/www/html $ sudo unzip latest.zip
```

### 6-23-21

Now I needed to move what file wordpress was in. I did that with `sudo mv wordpress/*`. then you can remove the now empty folder with `sudo rm -rf wordpress`. Next, you need to install the plugins. You can do this with `sudo chown -R www-data:www-data /var/www`, This should install all the proper plugins needed for wordpress. Since these are permalinks we need to use mod-rewrite to get proper permissions. I did that with `a2enmod rewrite`. Now to edit the main site settings. This can be done with `sudo nano /etc/apache2/apache2.conf`. You need to change only the first two overrides. But you need to make sure it's ONLY the first two that you change. If you change any of the other overrides it will cause issues and you will just have to change it back later on. To finish this step you need to restart apache. Do that with `sudo /etc/init.d/apache2 restart`. You are almost ready to see your wordpress site!

```
pi@raspberrypi: /var/... Requirements Not Me...
File Edit Tabs Help
GNU nano 3.2
# This is the main Apache server configuration file. It contains the
# configuration directives that give the server its instructions.
# See http://httpd.apache.org/docs/2.4/ for detailed information about
# the directives and /usr/share/doc/apache2/README.Debian about Debian specific
# hints.
#
# Summary of how the Apache 2 configuration works in Debian:
# The Apache 2 web server configuration in Debian is quite different to
# upstream's suggested way to configure the web server. This is because Debian's
# default Apache2 installation attempts to make adding and removing modules,
# virtual hosts, and extra configuration directives as flexible as possible, in
# order to make automating the changes and administering the server as easy as
# possible.
#
# It is split into several files forming the configuration hierarchy outlined
# below, all located in the /etc/apache2/ directory:
#
#     /etc/apache2/
#     |-- apache2.conf
#         |-- ports.conf
#     |-- mods-enabled
#         |-- *.load
#         |-- *.conf
#     |-- conf-enabled
#         |-- *.conf
#     |-- sites-enabled
#         |-- *.conf
#
# * apache2.conf is the main configuration file (this file). It puts the pieces
# together by including all remaining configuration files when starting up the
# web server.
#
# * ports.conf is always included from the main configuration file. It is
# supposed to determine listening ports for incoming connections which can be
# customized anytime.
#
# * Configuration files in the mods-enabled/, conf-enabled/ and sites-enabled/
# directories contain particular configuration snippets which manage modules,
# global configuration fragments, or virtual host configurations,
# respectively.
#
# They are activated by symlinking available configuration files from their
# respective *-available/ counterparts. These should be managed by using our
^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify
^X Exit          ^R Read File    ^\ Replace      ^U Uncut Text  ^T To Spell
```





pi@raspberrypi: /var/...



Requirements Not Me...

File Edit Tabs Help

GNU nano 3.2

```
# error, crit, alert, emerg.
# It is also possible to configure the log level for particular modules, e.g.
# "LogLevel info ssl:warn"
#
LogLevel warn

# Include module configuration:
IncludeOptional mods-enabled/*.load
IncludeOptional mods-enabled/*.conf

# Include list of ports to listen on
Include ports.conf

# Sets the default security model of the Apache2 HTTPD server. It does
# not allow access to the root filesystem outside of /usr/share and /var/www.
# The former is used by web applications packaged in Debian,
# the latter may be used for local directories served by the web server. If
# your system is serving content from a sub-directory in /srv you must allow
# access here, or in any related virtual host.
<Directory />
    Options FollowSymLinks
    AllowOverride None
    Require all denied
</Directory>

<Directory /usr/share>
    AllowOverride None
    Require all granted
</Directory>

<Directory /var/www/>
    Options Indexes FollowSymLinks
    AllowOverride None
    Require all granted
</Directory>

#<Directory /srv/>
#     Options Indexes FollowSymLinks
#     AllowOverride None
#     Require all granted
#</Directory>
```

^G Get Help  
^X Exit

^O Write Out  
^R Read File

^W Where Is  
^\_ Replace

^K Cut Text  
^U Uncut Text

^J Justify  
^T To Spell

```
pi@raspberrypi: /var/... Requirements Not Me...
File Edit Tabs Help
GNU nano 3.2 /
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# Include module configuration:
IncludeOptional mods-enabled/*.load
IncludeOptional mods-enabled/*.conf

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# your system is serving content from a sub-directory in /srv you must allow
# access here, or in any related virtual host.
<Directory />
    Options FollowSymLinks
    AllowOverride All
    Require all denied
</Directory>

<Directory /usr/share>
    AllowOverride All
    Require all granted
</Directory>

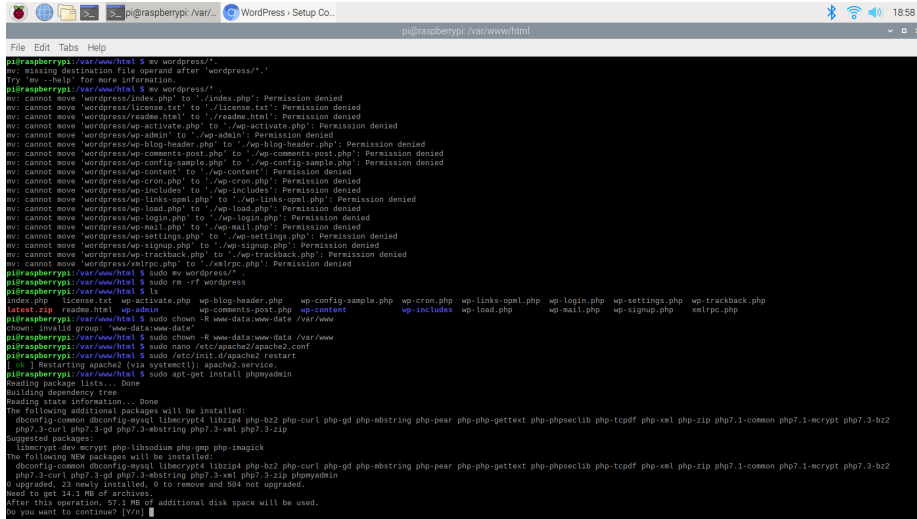
<Directory /var/www/>
    Options Indexes FollowSymLinks
    AllowOverride None
    Require all granted
</Directory>

#<Directory /srv/>
#     Options Indexes FollowSymLinks
#     AllowOverride None
#     Require all granted
#</Directory>

^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify
^X Exit          ^R Read File    ^\ Replace      ^U Uncut Text   ^T To Spell
```

If you plan to do lots of work on your weather station, you need to do the following but not skip this entire paragraph. The wordpress database takes a lot of work to make a more

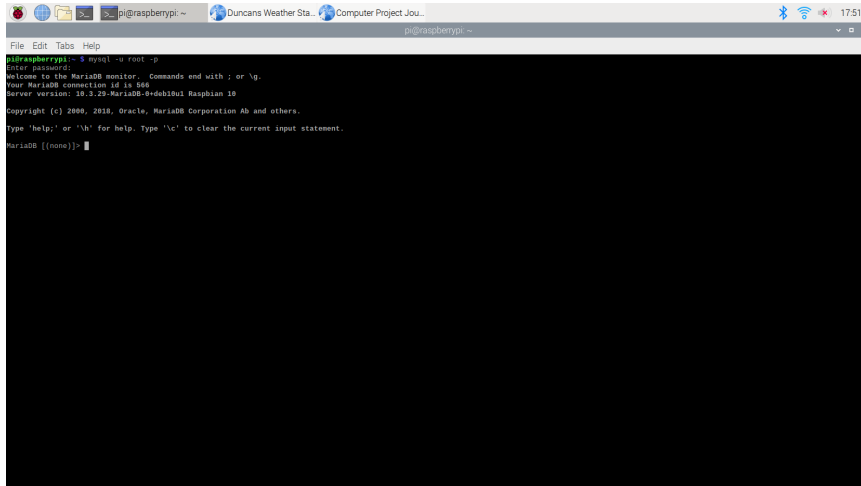
advanced website where you post quite often or if you are making multiple websites. If you are not doing this the following command will seem overkill but if you are going to be spending a lot of time on the database this will seem normal. So to keep mysql from overloading, you will need to install phpmyadmin, this will give you more organization than an overloaded mysql is. To install phpmyadmin, you will need to run `sudo apt-get install phpmyadmin`.



```
pi@raspberrypi: /var/www/html $ mv wordpress/*
mv: missing destination file operand after 'wordpress/'
Try 'mv --help' for more information.
pi@raspberrypi: /var/www/html $ mv wordpress/*
mv: cannot move 'wordpress/index.php' to './index.php': Permission denied
mv: cannot move 'wordpress/license.txt' to './license.txt': Permission denied
mv: cannot move 'wordpress/readme.html' to './readme.html': Permission denied
mv: cannot move 'wordpress/wp-activate.php' to './wp-activate.php': Permission denied
mv: cannot move 'wordpress/wp-admin' to './wp-admin': Permission denied
mv: cannot move 'wordpress/wp-blog-header.php' to './wp-blog-header.php': Permission denied
mv: cannot move 'wordpress/wp-comments-post.php' to './wp-comments-post.php': Permission denied
mv: cannot move 'wordpress/wp-config-sample.php' to './wp-config-sample.php': Permission denied
mv: cannot move 'wordpress/wp-content' to './wp-content': Permission denied
mv: cannot move 'wordpress/wp-cron.php' to './wp-cron.php': Permission denied
mv: cannot move 'wordpress/wp-includes' to './wp-includes': Permission denied
mv: cannot move 'wordpress/wp-links-opml.php' to './wp-links-opml.php': Permission denied
mv: cannot move 'wordpress/wp-load.php' to './wp-load.php': Permission denied
mv: cannot move 'wordpress/wp-login.php' to './wp-login.php': Permission denied
mv: cannot move 'wordpress/wp-mail.php' to './wp-mail.php': Permission denied
mv: cannot move 'wordpress/wp-settings.php' to './wp-settings.php': Permission denied
mv: cannot move 'wordpress/wp-signup.php' to './wp-signup.php': Permission denied
mv: cannot move 'wordpress/wp-trackback.php' to './wp-trackback.php': Permission denied
mv: cannot move 'wordpress/xmlrpc.php' to './xmlrpc.php': Permission denied
pi@raspberrypi: /var/www/html $ sudo mv wordpress/*
pi@raspberrypi: /var/www/html $ sudo mv wordpress/*
pi@raspberrypi: /var/www/html $ ls
index.php  license.txt  wp-activate.php  wp-blog-header.php  wp-config-sample.php  wp-cron.php  wp-links-opml.php  wp-load.php  wp-login.php  wp-mail.php  wp-settings.php  wp-trackback.php
latest.zip  readme.html  wp-admin  wp-comments-post.php  wp-content  wp-includes  wp-load.php  wp-mail.php  wp-signup.php  xmlrpc.php
pi@raspberrypi: /var/www/html $ sudo chown -R www-data:www-data /var/www
chown: invalid group: 'www-data:www-data'
pi@raspberrypi: /var/www/html $ sudo chown -R www-data:www-data /var/www
pi@raspberrypi: /var/www/html $ sudo nano /etc/apache2/apache2.conf
pi@raspberrypi: /var/www/html $ sudo systemctl restart apache2.service
pi@raspberrypi: /var/www/html $ sudo apt-get install phpmyadmin
Building package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libconfig-common libconfig-mysql libberylp4 libzip4 php-bz2 php-curl php-gd php-mbstring php-pear php-php-gettext php-phpeclib php-tcpdf php-xsl php-zip php7.1-common php7.1-mcrypt php7.3-bz2
  php7.3-curl php7.3-gd php7.3-mbstring php7.3-xsl php7.3-zip
Suggested packages:
  libberylp4-dev mcrypt php-libltdl php-mpg php-imagick
The following NEW packages will be installed:
  libconfig-common libconfig-mysql libberylp4 libzip4 php-bz2 php-curl php-gd php-mbstring php-pear php-php-gettext php-phpeclib php-tcpdf php-xsl php-zip php7.1-common php7.1-mcrypt php7.3-bz2
  php7.3-curl php7.3-gd php7.3-mbstring php7.3-xsl php7.3-zip phpmyadmin
0 upgraded, 23 newly installed, 0 to remove and 504 not upgraded.
Need to get 16.1 MB of archives.
After this operation, 57.1 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

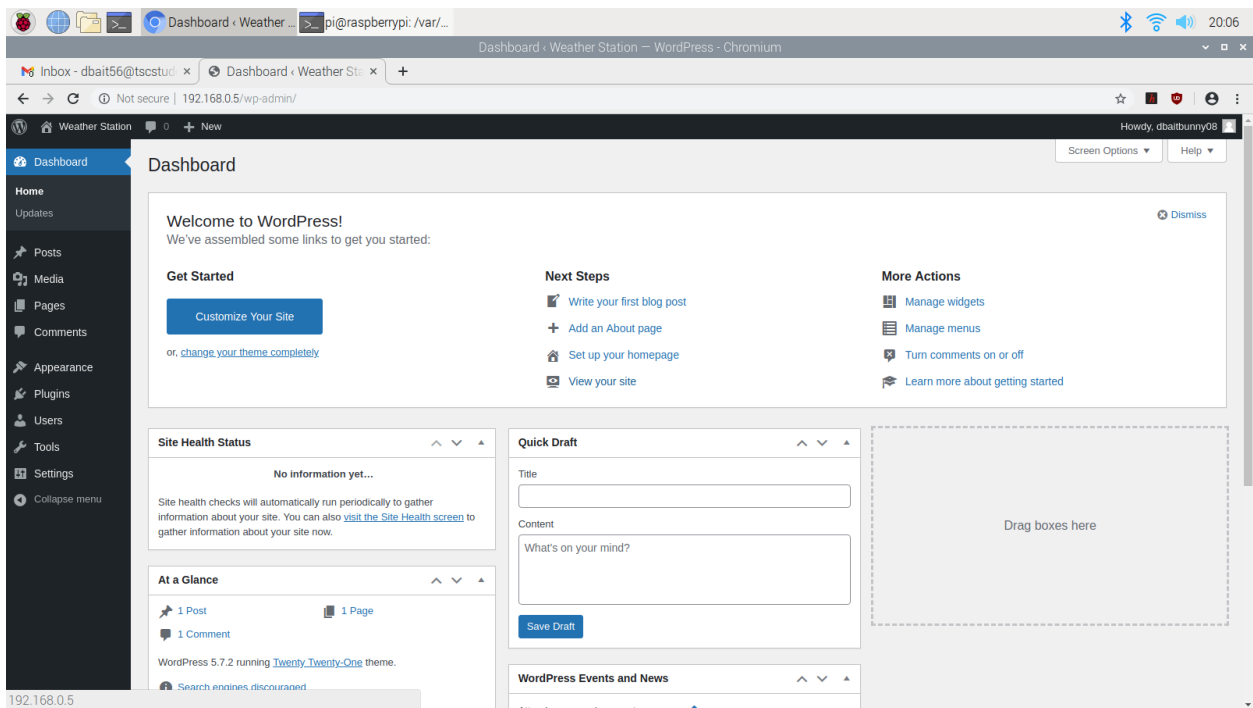
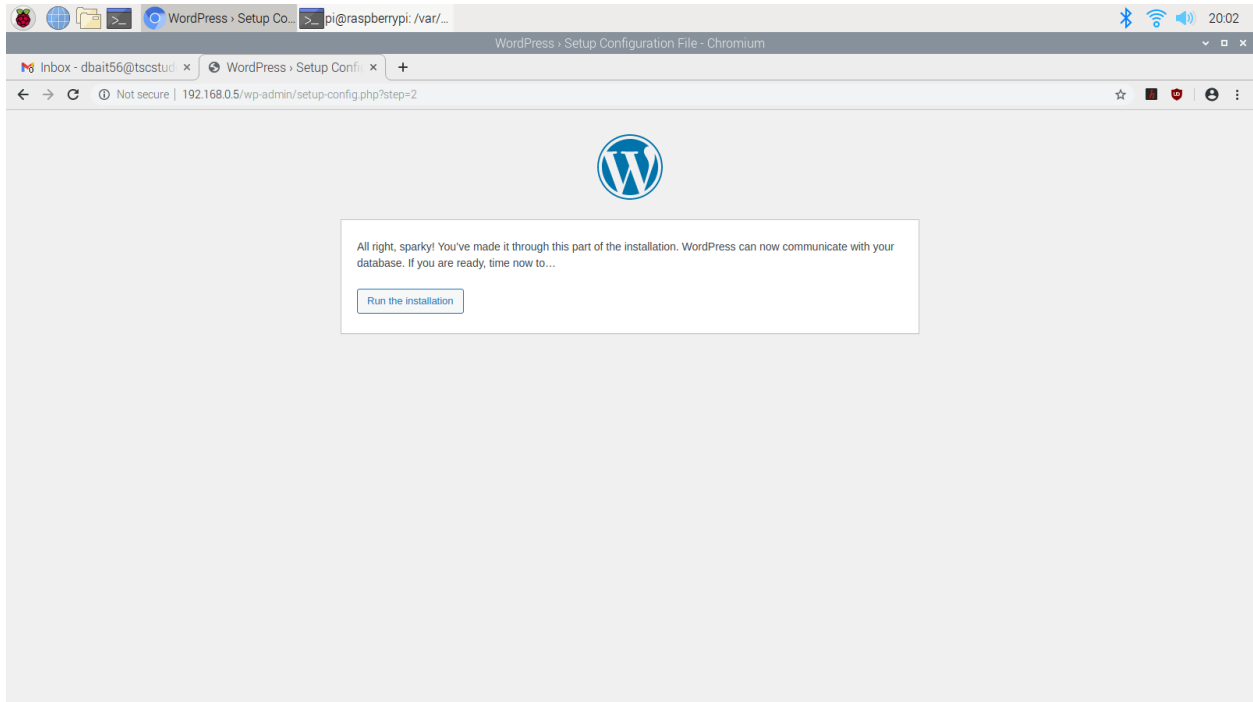
```
pi@raspberrypi: ~
Apache2 Debian Defa...
pi@raspberrypi: ~
File Edit Tabs Help
Setting up php7.3-cli (7.3.27-1-deb10u1) ...
update-alternatives: using /usr/bin/php7.3 to provide /usr/bin/php (php) in auto mode
update-alternatives: using /usr/bin/phar7.3 to provide /usr/bin/phar (phar) in auto mode
update-alternatives: using /usr/bin/phar.phar7.3 to provide /usr/bin/phar.phar (phar.phar) in auto mode
Creating config file /etc/php/7.3/cli/php.ini with new version
Setting up libapache2-mod-php7.3 (7.3.27-1-deb10u1) ...
Creating config file /etc/php/7.3/apache2/php.ini with new version
Module mpm_event disabled.
Enabling module mpm_prefork.
apache2_switch_mpm Switch to prefork
apache2_invoke: Enable module php7.3
Setting up php7.3 (7.3.27-1-deb10u1) ...
Setting up php (2:7.3+69) ...
Processing triggers for man-db (2.8.5-2) ...
pi@raspberrypi:~$ sudo apt install php-mysql
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  php7.3-mysql
The following NEW packages will be installed:
  php-mysql php7.3-mysql
0 upgraded, 2 newly installed, 0 to remove and 504 not upgraded.
Need to get 103 kB of archives.
After this operation, 368 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://mirrors.gigenet.com/raspbian/raspbian buster/main armhf php7.3-mysql armhf 7.3.27-1-deb10u1 [96.6 kB]
Get:2 http://mirror.pit.teraswitch.com/raspbian/raspbian buster/main armhf php-mysql all 2:7.3+69 [5,992 B]
Fetched 103 kB in 2s (66.8 kB/s)
Selecting previously unselected package php7.3-mysql.
(Reading database ... 152971 files and directories currently installed.)
Preparing to unpack .../php7.3-mysql_7.3.27-1-deb10u1_armhf.deb ...
Unpacking php7.3-mysql (7.3.27-1-deb10u1) ...
Selecting previously unselected package php-mysql.
Preparing to unpack .../php-mysql_2k3a7.3+69_all.deb ...
Unpacking php-mysql (2:7.3+69) ...
Setting up php7.3-mysql (7.3.27-1-deb10u1) ...
Creating config file /etc/php/7.3/mods-available/mysqlnd.ini with new version
Creating config file /etc/php/7.3/mods-available/mysql_i.ini with new version
Creating config file /etc/php/7.3/mods-available/pdo_mysql.ini with new version
Setting up php-mysql (2:7.3+69) ...
Processing triggers for libapache2-mod-php7.3 (7.3.27-1-deb10u1) ...
pi@raspberrypi:~$
```

Now you have to sign into mysql monitor, this is where all your wordpress database information will be stored. To do that you will need to use the command `sudo mysql -u root -p` the first time you sign in it will automatically sign you in, but afterward, you will be asked for the password you set. You will need to remember that every command in the mysql monitor will need to end with a semicolon or /g for it to be executed. This is important because if you don't you will have to exit mysql monitor with `^c` to exit.



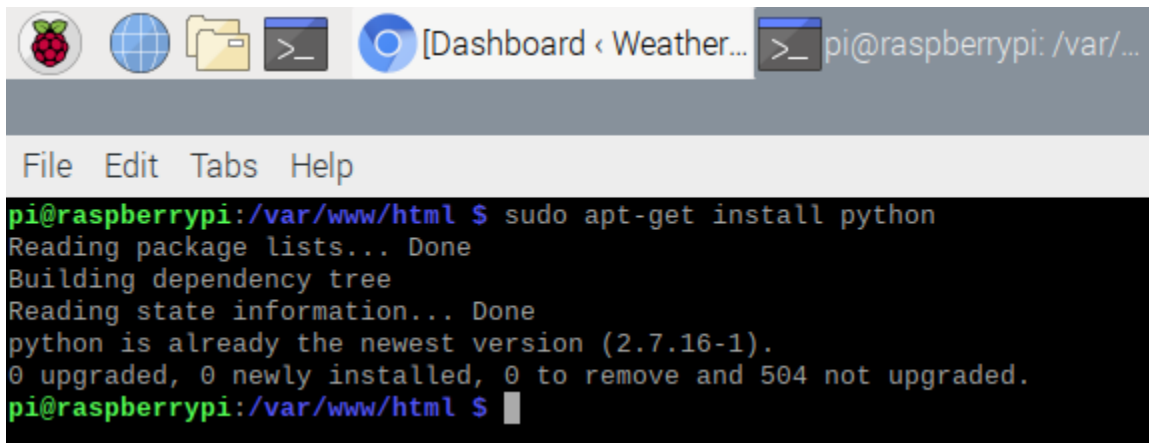
```
pi@raspberrypi: ~
Duncans Weather Sta... Computer Project Jou...
17:51
File Edit Tabs Help
pi@raspberrypi: ~
mysql> root
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \q.
Your MariaDB connection id is 954.
Server version: 10.3.29-MariaDB-1:robin11 Raspbian 19
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>
```

In the command window, you will need to create the database with *CREATE DATABASE WordPressDB*; this will install the database that all your sites will be made from. Next, we need to permit the database. You can do this with *grant all on WordPressDB.\* to root@localhost identified by'(your password)'*; you are all finished in the mysql monitor to exit you type *exit*;. Now go to chromium and type the IP address in the browser. You will need to select the language. Then it will ask you for your database name, your username, password, and the host. Mine was WordPressDB, root, \*\*\*\*\*, and localhost.

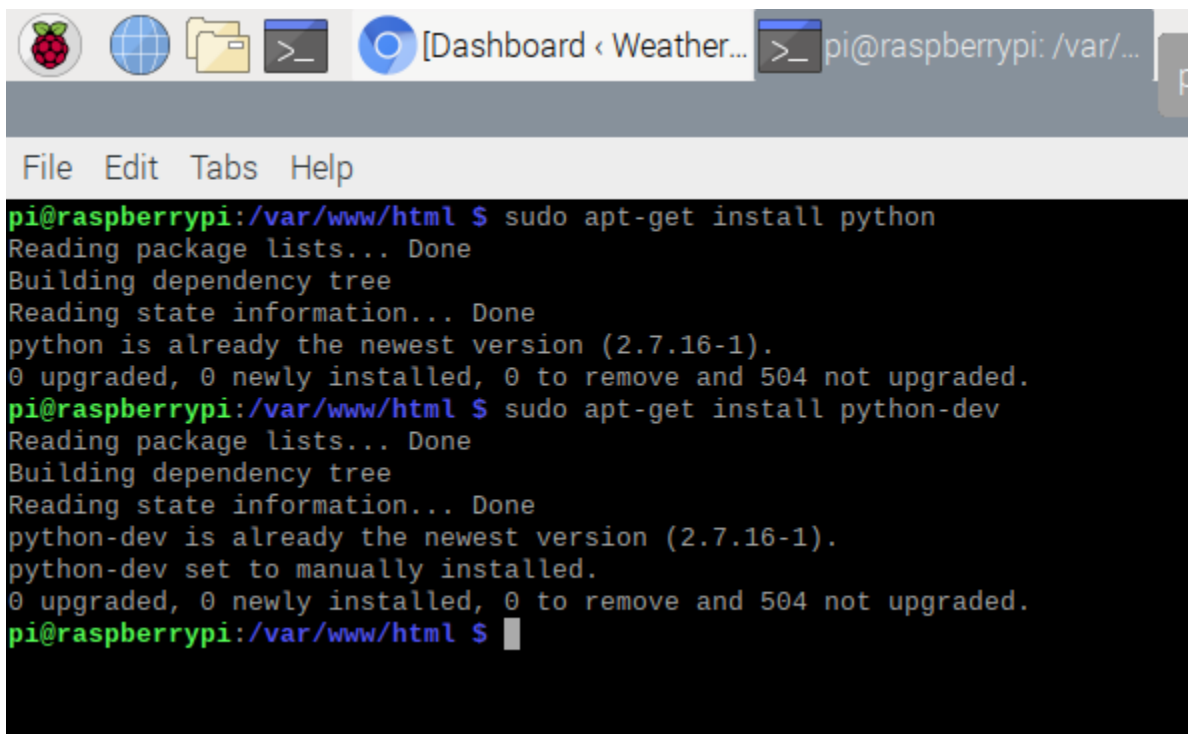


Now I had to install python, this is what the code for the sensor will use. To do that you will need to run multiple commands *sudo apt-get install python*, *sudo apt-get install python-dev*, *sudo apt-get install libmariadb-dev*, *sudo apt-get install build-essentials*, *sudo apt-get install*

*python-oss*. Now you need to also install `easy_install`. Before I could do that I had to install python setup tools. Do that with `sudo apt-get install python-setuptools`. Now you can get `easy_install`. To do that you can use the command `sudo easy_install -U distribute`. This will update `easy_install`. Now you have to install the part that saves it to the wordpress database. The command you need to run to do this is `sudo easy_install MySQL-python`. That last command is essential, if you don't install it you will not be getting any readings.



```
pi@raspberrypi:/var/www/html $ sudo apt-get install python
Reading package lists... Done
Building dependency tree
Reading state information... Done
python is already the newest version (2.7.16-1).
0 upgraded, 0 newly installed, 0 to remove and 504 not upgraded.
pi@raspberrypi:/var/www/html $
```



```
pi@raspberrypi:/var/www/html $ sudo apt-get install python
Reading package lists... Done
Building dependency tree
Reading state information... Done
python is already the newest version (2.7.16-1).
0 upgraded, 0 newly installed, 0 to remove and 504 not upgraded.
pi@raspberrypi:/var/www/html $ sudo apt-get install python-dev
Reading package lists... Done
Building dependency tree
Reading state information... Done
python-dev is already the newest version (2.7.16-1).
python-dev set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 504 not upgraded.
pi@raspberrypi:/var/www/html $
```

```
pi@raspberrypi: /var/...
Dashboard < Weather ...
File Edit Tabs Help

Selecting previously unselected package libtasn1-6-dev:armhf.
Preparing to unpack .../08-libtasn1-6-dev_4.13-3_armhf.deb ...
Unpacking libtasn1-6-dev:armhf (4.13-3) ...
Selecting previously unselected package nettle-dev:armhf.
Preparing to unpack .../09-nettle-dev_3.4.1-1+deb10u1_armhf.deb ...
Unpacking nettle-dev:armhf (3.4.1-1+deb10u1) ...
Selecting previously unselected package libgnutls28-dev:armhf.
Preparing to unpack .../10-libgnutls28-dev_3.6.7-4+deb10u7_armhf.deb ...
Unpacking libgnutls28-dev:armhf (3.6.7-4+deb10u7) ...
Selecting previously unselected package libmariadb-dev.
Preparing to unpack .../11-libmariadb-dev_1:10.3.29-0+deb10u1_armhf.deb ...
Unpacking libmariadb-dev (1:10.3.29-0+deb10u1) ...
Selecting previously unselected package libtasn1-doc.
Preparing to unpack .../12-libtasn1-doc_4.13-3_all.deb ...
Unpacking libtasn1-doc (4.13-3) ...
Setting up libgnutls-openssl27:armhf (3.6.7-4+deb10u7) ...
Setting up libtasn1-doc (4.13-3) ...
Setting up libunbound8:armhf (1.9.0-2+deb10u2) ...
Setting up libgmpxx4ldbl:armhf (2:6.1.2+dfsg-4) ...
Setting up libgnutlsxx28:armhf (3.6.7-4+deb10u7) ...
Setting up libidn2-dev:armhf (2.0.5-1+deb10u1) ...
Setting up libtasn1-6-dev:armhf (4.13-3) ...
Setting up libp11-kit-dev:armhf (0.23.15-2+deb10u1) ...
Setting up libgnutls-dane0:armhf (3.6.7-4+deb10u7) ...
Setting up libgmp-dev:armhf (2:6.1.2+dfsg-4) ...
Setting up nettle-dev:armhf (3.4.1-1+deb10u1) ...
Setting up libgnutls28-dev:armhf (3.6.7-4+deb10u7) ...
Setting up libmariadb-dev (1:10.3.29-0+deb10u1) ...
Processing triggers for libc-bin (2.28-10+rpi1) ...
Processing triggers for man-db (2.8.5-2) ...
Processing triggers for install-info (6.5.0.dfsg.1-4+b1) ...
pi@raspberrypi:/var/www/html $ sudo apt-get install build-essentials
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package build-essentials
pi@raspberrypi:/var/www/html $ sudo apt-get install build-essential
Reading package lists... Done
Building dependency tree
Reading state information... Done
build-essential is already the newest version (12.6).
0 upgraded, 0 newly installed, 0 to remove and 499 not upgraded.
pi@raspberrypi:/var/www/html $ sudo apt-get install python-openssl
Reading package lists... Done
Building dependency tree
Reading state information... Done
python-openssl is already the newest version (19.0.0-1).
python-openssl set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 499 not upgraded.
pi@raspberrypi:/var/www/html $
```



```
pi@raspberrypi: /usr/local/lib/python2.7/dist-packages
pi@raspberrypi: /usr/local/lib/python2.7/dist-packages $ sudo easy_install -U distribute
WARNING: The easy_install command is deprecated and will be removed in a future version.
Searching for distribute
Reading https://pypi.org/simple/distribute/
Downloading https://files.pythonhosted.org/packages/5f/ad/1fde06877a8d75dc986e0ff7de2d452f639916ae148f08f97bf97e570a/distribute-0.7.3.zip#sha256=3dc7a8b0959dcf72f0ead2fa2144a24ee0f07dce816ec35456734576198c5e
Best match: distribute 0.7.3
Processing distribute-0.7.3.zip
Writing /tmp/easy_install-sr9X6B/distribute-0.7.3/setup.cfg
Running distribute-0.7.3/setup.py -q bdist_egg --dist-dir /tmp/easy_install-sr9X6B/distribute-0.7.3/egg-dist-tmp-KogVJD
warning: install_lib: 'build/lib.linux-armv7l-2.7' does not exist -- no Python modules to install
Moving distribute-0.7.3-py2.7.egg to /usr/local/lib/python2.7/dist-packages
Adding distribute 0.7.3 to easy-install.pth file
Installed /usr/local/lib/python2.7/dist-packages/distribute-0.7.3-py2.7.egg
Finished processing dependencies for distribute
pi@raspberrypi: /usr/local/lib/python2.7/dist-packages $ sudo easy_install MySQL-python
WARNING: The easy_install command is deprecated and will be removed in a future version.
Searching for MySQL-python
Reading https://pypi.org/simple/MySQL-python/
Downloading https://files.pythonhosted.org/packages/a5/e9/51b544da85a36a8debe7a7091f0684802fc515a3a26252828c73453cad/MySQL-python-1.2.5.zip#sha256=811040647e5d686f84db415ef6d97e0250080b112b909047fa29901d0c74
Best match: MySQL-python 1.2.5
Processing MySQL-python-1.2.5.zip
Writing /tmp/easy_install-o2R8BL/MySQL-python-1.2.5/setup.cfg
Running MySQL-python-1.2.5/setup.py -q bdist_egg --dist-dir /tmp/easy_install-o2R8BL/MySQL-python-1.2.5/egg-dist-tmp-fdmxnu
sh: 1: mysql_config: not found
Traceback (most recent call last):
  File "/usr/local/bin/easy_install", line 10, in <module>
    sys.exit(main())
  File "/usr/local/lib/python2.7/dist-packages/setuputils/command/easy_install.py", line 2321, in main
    *kw
  File "/usr/local/lib/python2.7/dist-packages/setuputils/_init_...", line 162, in setup
    return distutils.core.setup(**attrs)
  File "/usr/lib/python2.7/distutils/core.py", line 151, in setup
    dist.run_commands()
  File "/usr/lib/python2.7/distutils/dist.py", line 953, in run_commands
    self.run_command(cmd)
  File "/usr/lib/python2.7/distutils/dist.py", line 972, in run_command
    cmd_obj.run()
  File "/usr/local/lib/python2.7/dist-packages/setuputils/command/easy_install.py", line 424, in run
    self.easy_install(spec, not self.no_deps)
  File "/usr/local/lib/python2.7/dist-packages/setuputils/command/easy_install.py", line 605, in easy_install
    return self.install_item(spec, dist.location, tmpdir, deps)
  File "/usr/local/lib/python2.7/dist-packages/setuputils/command/easy_install.py", line 711, in install_item
    dists = self.install_eggs(spec, download, tmpdir)
  File "/usr/local/lib/python2.7/dist-packages/setuputils/command/easy_install.py", line 896, in install_eggs
```

```
pi@raspberrypi: ~/Ad...
pi@raspberrypi: ~/Adafruit_Python_DHT
remote: Enumerating objects: 588, done.
remote: Total 588 (delta 0), reused 0 (delta 0), pack-reused 588
Receiving objects: 100% (588/588), 517.94 KiB | 304.00 KiB/s, done.
Resolving deltas: 100% (239/239), done.
pi@raspberrypi: ~ $ sudo git clone https://github.com/adafruit/Adafruit_Python_DHT.git
Cloning into 'Adafruit_Python_DHT'...
fatal: unable to access 'https://github.com/adafruit/Adafruit_Python_DHT.git': Failed to connect to github port 443: Connection refused
pi@raspberrypi: ~ $ sudo git clone https://github.com/adafruit/Adafruit_Python_DHT.git
Cloning into 'Adafruit_Python_DHT'...
remote: Enumerating objects: 325, done.
remote: Total 325 (delta 0), reused 0 (delta 0), pack-reused 325
Receiving objects: 100% (325/325), 89.35 KiB | 578.00 KiB/s, done.
Resolving deltas: 100% (176/176), done.
pi@raspberrypi: ~ $ cd Adafruit_Python_DHT
pi@raspberrypi: ~/Adafruit_Python_DHT $ sudo python setup.py install
running install
running bdist_egg
running egg_info
creating Adafruit_DHT.egg-info
writing Adafruit_DHT.egg-info/PKG-INFO
writing top-level names to Adafruit_DHT.egg-info/top_level.txt
writing dependency links to Adafruit_DHT.egg-info/dependency_links.txt
writing manifest file 'Adafruit_DHT.egg-info/SOURCES.txt'
reading manifest file 'Adafruit_DHT.egg-info/SOURCES.txt'
reading manifest template 'MANIFEST.in'
writing manifest file 'Adafruit_DHT.egg-info/SOURCES.txt'
installing library code to build/bdist.linux-armv7l/egg
running install_lib
running build_py
creating build
creating build/lib.linux-armv7l-2.7
creating build/lib.linux-armv7l-2.7/Adafruit_DHT
copying Adafruit_DHT/platform_detect.py -> build/lib.linux-armv7l-2.7/Adafruit_DHT
copying Adafruit_DHT/Raspberry_Pi.py -> build/lib.linux-armv7l-2.7/Adafruit_DHT
copying Adafruit_DHT/Adafruit_Sensor.py -> build/lib.linux-armv7l-2.7/Adafruit_DHT
copying Adafruit_DHT/_init_.py -> build/lib.linux-armv7l-2.7/Adafruit_DHT
copying Adafruit_DHT/Test.py -> build/lib.linux-armv7l-2.7/Adafruit_DHT
copying Adafruit_DHT/common.py -> build/lib.linux-armv7l-2.7/Adafruit_DHT
running build_ext
building 'Adafruit_DHT.Raspberry_Pi_2_Driver' extension
creating build/temp.linux-armv7l-2.7
creating build/temp.linux-armv7l-2.7/source
creating build/temp.linux-armv7l-2.7/source/Raspberry_Pi_2
/usr/bin/gnuashlib gcc -pthread -DDEBUG -g -fwrapup -O2 -Wall -Wstrict-prototypes -fno-strict-aliasing -Hdate-time_0_FORTIFY_SOURCE=2 -g -fdebug-prefix-map=/build/python2.7-9N3zpw/python2.7-2.7.18 -E -fstack-protector-strong -Wformat -Werror=format-security -fPIC -I/usr/include/python2.7 -c source/Raspberry_Pi_2_Driver.c -o build/temp.linux-armv7l-2.7/source/Raspberry_Pi_2_Driver.o -std=gnu99
/usr/bin/gnuashlib gcc -pthread -DDEBUG -g -fwrapup -O2 -Wall -Wstrict-prototypes -fno-strict-aliasing -Hdate-time_0_FORTIFY_SOURCE=2 -g -fdebug-prefix-map=/build/python2.7-9N3zpw/python2.7-2.7.18 -E -fstack-protector-strong -Wformat -Werror=format-security -fPIC -I/usr/include/python2.7 -c source/common_dht_read.c -o build/temp.linux-armv7l-2.7/source/common_dht_read.o -std=gnu99
```

Now I needed to log back into my wordpress database to make sure everything was still working and the password that I had written down that it gave me was not working. So I tried everything I could think of. I was going to try and reset the password with an emergency reset but I was scared that it would ruin something so I didn't. I decided that I needed to take a break and do some research on another way to reset the password.

# Research!

7-1-21

I finally figured out how to change my password. To do that I had to go into the mysql monitor and sign in to the wordpress database. Then it will show us the users and their passwords. To sign in to the mysql monitor you use the command `sudo mysql -u root -p`. Now it asked me for the password. Then I had to access the database through mysql, I did that with `use WordPressDB;`.

File Edit Tabs Help

```
pi@raspberrypi:~ $ mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 22
Server version: 10.3.29-MariaDB-0+deb10u1 Raspbian 10

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> use WordpressDB;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
MariaDB [WordpressDB]> show tables;
+-----+
| Tables_in_WordpressDB |
+-----+
| wp_commentmeta        |
| wp_comments           |
| wp_links              |
| wp_options            |
| wp_postmeta           |
| wp_posts              |
| wp_term_relationships |
| wp_term_taxonomy     |
| wp_termmeta           |
| wp_terms              |
| wp_usermeta           |
| wp_users              |
+-----+
12 rows in set (0.001 sec)

MariaDB [WordpressDB]> SELECT ID, user_login, user_pass FROM wp_users
-> Ctrl-C -- exit!
Aborted
pi@raspberrypi:~ $ mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 23
Server version: 10.3.29-MariaDB-0+deb10u1 Raspbian 10

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> SELECT ID, user_login, user_pass FROM wp_users;
ERROR 1046 (3D000): No database selected
MariaDB [(none)]> use WordpressDB;
```

```
pi@raspberrypi: ~
File Edit Tabs Help
-> SELECT ID, user_login, user_pass FROM wp_users;Ctrl-C -- exit!
Aborted
pi@raspberrypi:~ $ mysql -u root -p
Enter password:
ERROR 1045 (28000): Access denied for user 'root'@'localhost' (using password: YES)
pi@raspberrypi:~ $ mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 32
Server version: 10.3.29-MariaDB-0+deb10u1 Raspbian 10

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> use WordpressDB;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

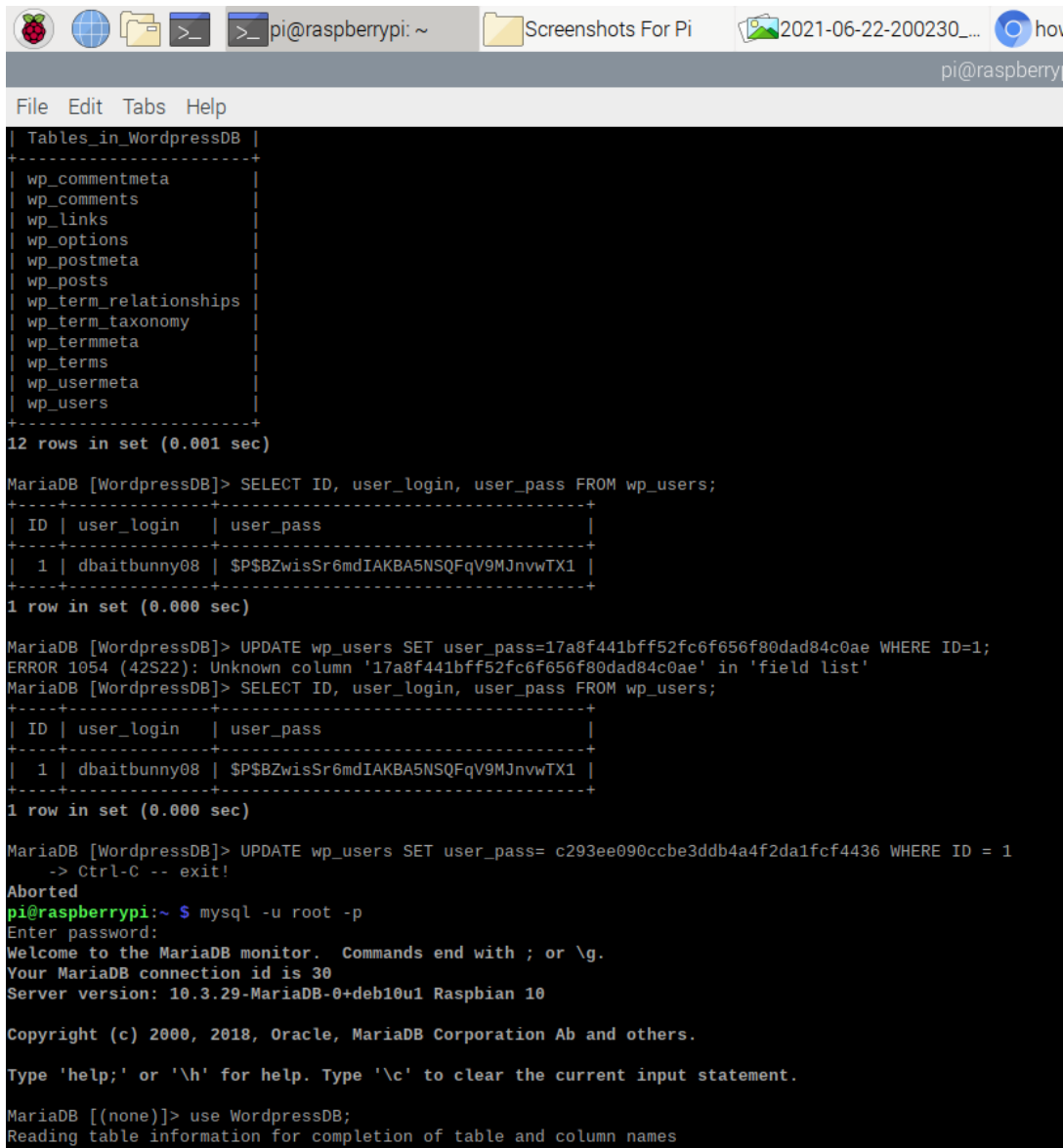
Database changed
MariaDB [WordpressDB]> show tables;
+-----+
| Tables_in_WordpressDB |
+-----+
| wp_commentmeta         |
| wp_comments            |
| wp_links               |
| wp_options             |
| wp_postmeta            |
| wp_posts               |
| wp_term_relationships  |
| wp_term_taxonomy       |
| wp_termmeta            |
| wp_terms               |
| wp_usermeta            |
| wp_users               |
+-----+
12 rows in set (0.001 sec)

MariaDB [WordpressDB]> UPDATE wp_users SET user_pass = 12ffc8a2e43645614f22188604f691b6 WHERE ID = 1;
ERROR 1054 (42S22): Unknown column '12ffc8a2e43645614f22188604f691b6' in 'field list'
MariaDB [WordpressDB]> exit;
Bye
pi@raspberrypi:~ $ mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 33
Server version: 10.3.29-MariaDB-0+deb10u1 Raspbian 10

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
```

Just like the other time I was in the mysql monitor EVERY command MUST end with a semicolon otherwise, it won't be executed. Then, I had to see which folder the users were under, to do that I used the command *show tables*;. This shows me all the folders that the wordpress database uses. I was looking for the folder labeled **wp\_users**. This folder holds all the users and their passwords. To see the contents in the file use the command *SELECT ID, user\_login, user\_pass FROM wp\_users*;. Please note that even though there are commas this is one command. Now you should see a table that has two columns. In the first column should be a user and their user ID. The second column should be the user's password. Then I tried the password

that it had given me to see if that would work, but for some reason, that password wasn't working either. So I used the last resort and decided to change the password. To do that I had to use a command that used an MD5 hash to create a long and complicated password that can be used in short words. For example, if I wanted my password iloveweather then my MD5 hash would be 10b099b4c6e6bab79c418f817d3974ea. So I would type in my password and the hash would convert it to log you in. To change my password I had to use the command *UPDATE wp\_users SET user\_pass=MD5('your password') WHERE ID=1;*



```
pi@raspberrypi: ~
Screenshots For Pi
2021-06-22-200230...
pi@raspberrypi

File Edit Tabs Help

| Tables_in_WordpressDB |
+-----+
| wp_commentmeta
| wp_comments
| wp_links
| wp_options
| wp_postmeta
| wp_posts
| wp_term_relationships
| wp_term_taxonomy
| wp_termmeta
| wp_terms
| wp_usermeta
| wp_users
+-----+
12 rows in set (0.001 sec)

MariaDB [WordpressDB]> SELECT ID, user_login, user_pass FROM wp_users;
+-----+
| ID | user_login | user_pass |
+-----+
| 1 | dbaitbunny08 | $P$BZwisSr6mdIAKBA5NSQFqV9MJnvwTX1 |
+-----+
1 row in set (0.000 sec)

MariaDB [WordpressDB]> UPDATE wp_users SET user_pass=17a8f441bff52fc6f656f80dad84c0ae WHERE ID=1;
ERROR 1054 (42S22): Unknown column '17a8f441bff52fc6f656f80dad84c0ae' in 'field list'
MariaDB [WordpressDB]> SELECT ID, user_login, user_pass FROM wp_users;
+-----+
| ID | user_login | user_pass |
+-----+
| 1 | dbaitbunny08 | $P$BZwisSr6mdIAKBA5NSQFqV9MJnvwTX1 |
+-----+
1 row in set (0.000 sec)

MariaDB [WordpressDB]> UPDATE wp_users SET user_pass= c293ee090ccbe3ddb4a4f2da1fcf4436 WHERE ID = 1
-> Ctrl-C -- exit!
Aborted
pi@raspberrypi:~ $ mysql -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 30
Server version: 10.3.29-MariaDB-0+deb10u1 Raspbian 10

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

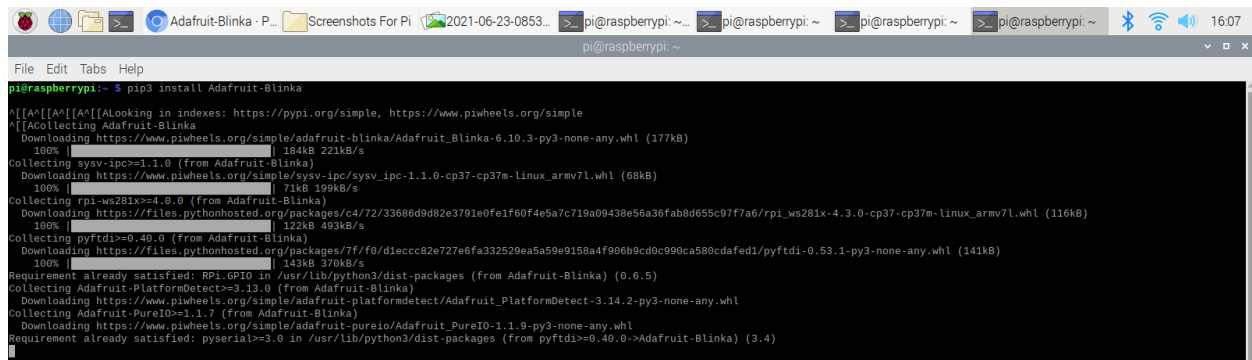
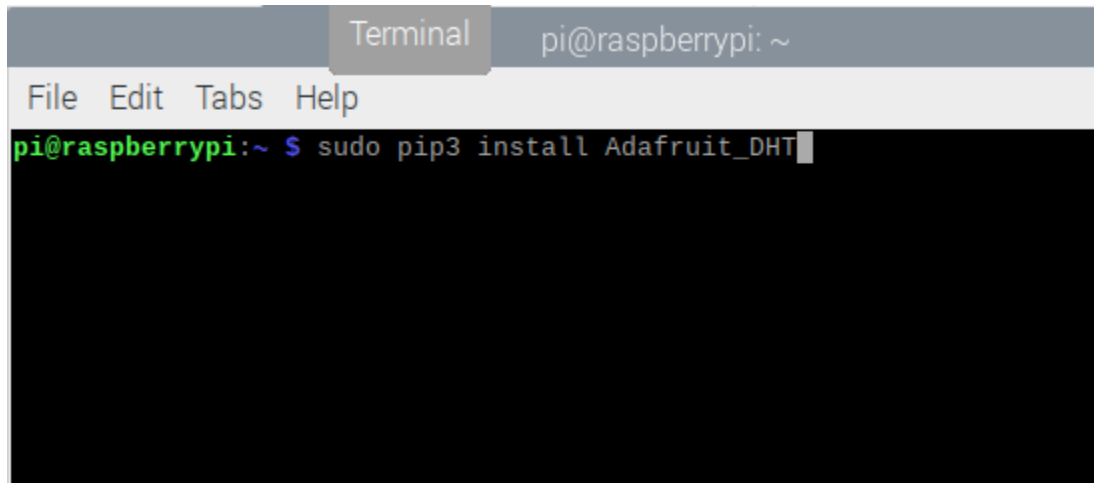
MariaDB [(none)]> use WordpressDB;
Reading table information for completion of table and column names
```

Now I was having trouble with downloading the library that the data should be stored in. After doing some more research, the library no longer exists and was replaced with a google drive-based code. I was so upset at this. Everything that I had been working on and failing at was not needed. Now I was not going to let this stop me. I read through the tutorial I found that would work with my sensor and got to work. Turns out this tutorial links your sensor to google sheets where it automatically logs to google sheets where you don't have to do a thing. That was kind of nice but I was still upset.

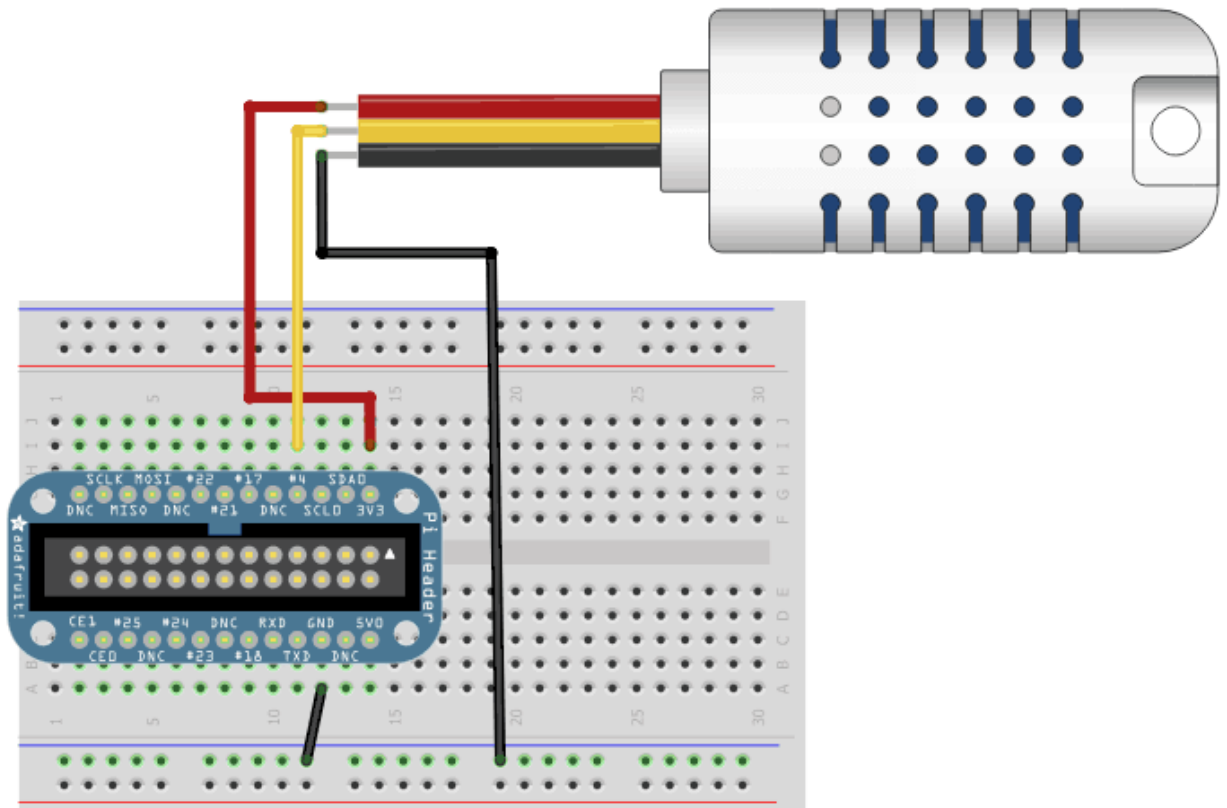
# Research!

Now back to coding. The first thing I had to do was code the sensor. To do this I had to install a new python system that works with google docs. So I went with Circuit Python Libraries. To install this you run the command `sudo pip3 adafruit-circuitpython-dht` and `sudo apt-get install libgpiod2`. Now I had to test the library. So I used the command `sudo nano`

`dht_simpletest.py` which opens a text file. Then I copied and pasted the script for the simple test because it is 37 lines of complicated text and explaining.

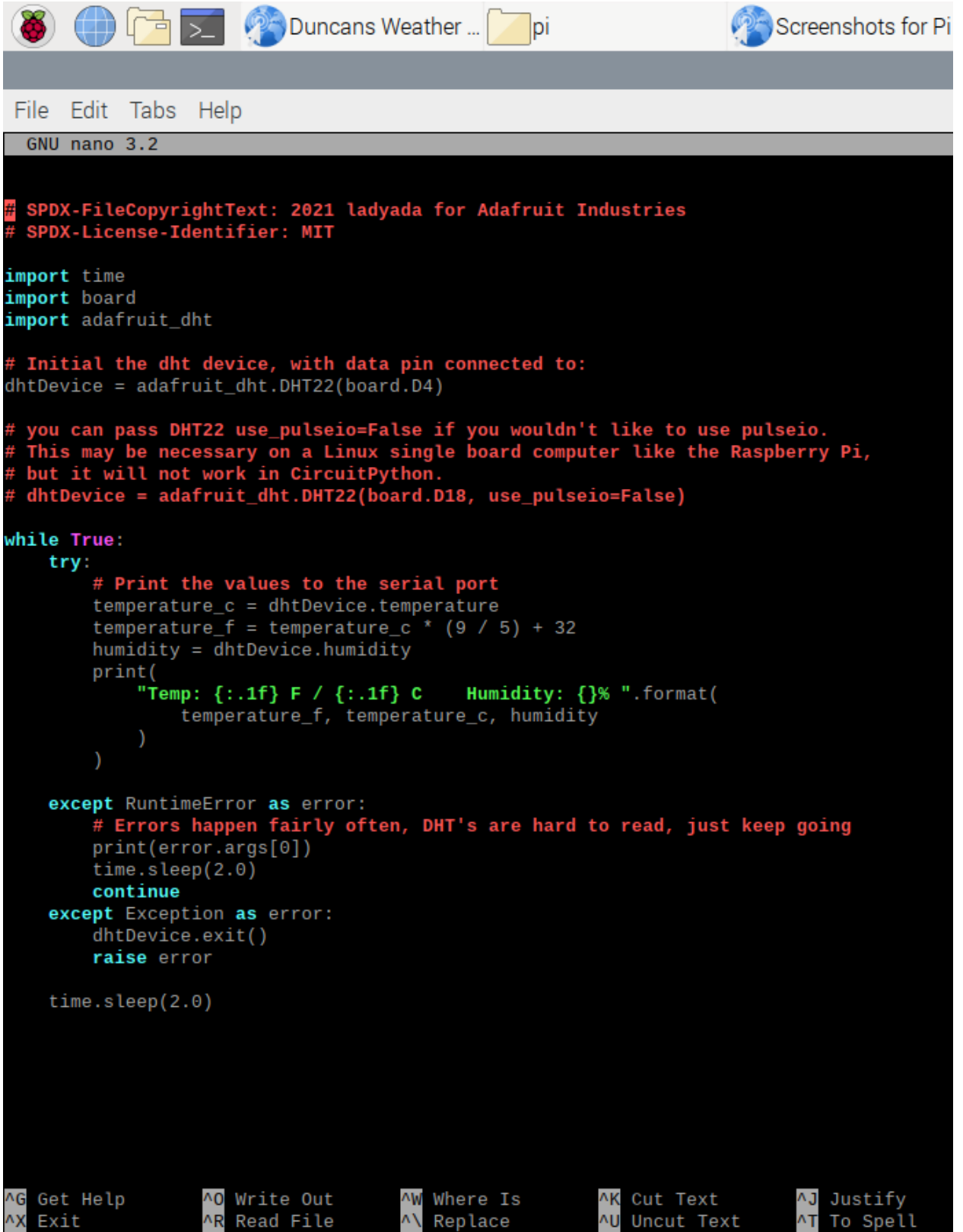


Now to wire the sensor. To do this you will need pigtailed, a DHT22/AM2032 sensor, a breadboard, and a pi jumper cable. Now I had to be careful because when attaching the jumper cable if I bent any of the pins on the pi it would make it ten times harder to put on. So once it was plugged into the pi I plugged it into the breadboard. The breadboard should have at least a 30 hole long by 10 holes wide with a ditch in the middle and a positive and negative row down each side. I decided to get a 60 hole long breadboard so my wiring could be in the middle. So with the jumper in the middle I put the yellow wire to pin #4 I put the red wire to pin 3U3 and I put the black wire to negative with a pigtail from negative to ground pin.



Now I can test my sensor. To do that I can use the command `python3 dht_simpletest.py`. This should immediately start giving me data but it won't log it. To log it you will need to start with an empty spreadsheet and delete all but one row. You can also delete all but the first three columns. Label Column A Date/Time, label Column B Temperature C, and label Column C Humidity %. Now I have to go to google cloud and give my pi permission to edit the spreadsheet as a service bot. To do that I had to enable the API permissions.





```
File Edit Tabs Help
GNU nano 3.2
## SPDX-FileCopyrightText: 2021 ladyada for Adafruit Industries
# SPDX-License-Identifier: MIT

import time
import board
import adafruit_dht

# Initial the dht device, with data pin connected to:
dhtDevice = adafruit_dht.DHT22(board.D4)

# you can pass DHT22 use_pulseio=False if you wouldn't like to use pulseio.
# This may be necessary on a Linux single board computer like the Raspberry Pi,
# but it will not work in CircuitPython.
# dhtDevice = adafruit_dht.DHT22(board.D18, use_pulseio=False)

while True:
    try:
        # Print the values to the serial port
        temperature_c = dhtDevice.temperature
        temperature_f = temperature_c * (9 / 5) + 32
        humidity = dhtDevice.humidity
        print(
            "Temp: {:.1f} F / {:.1f} C   Humidity: {}% ".format(
                temperature_f, temperature_c, humidity
            )
        )

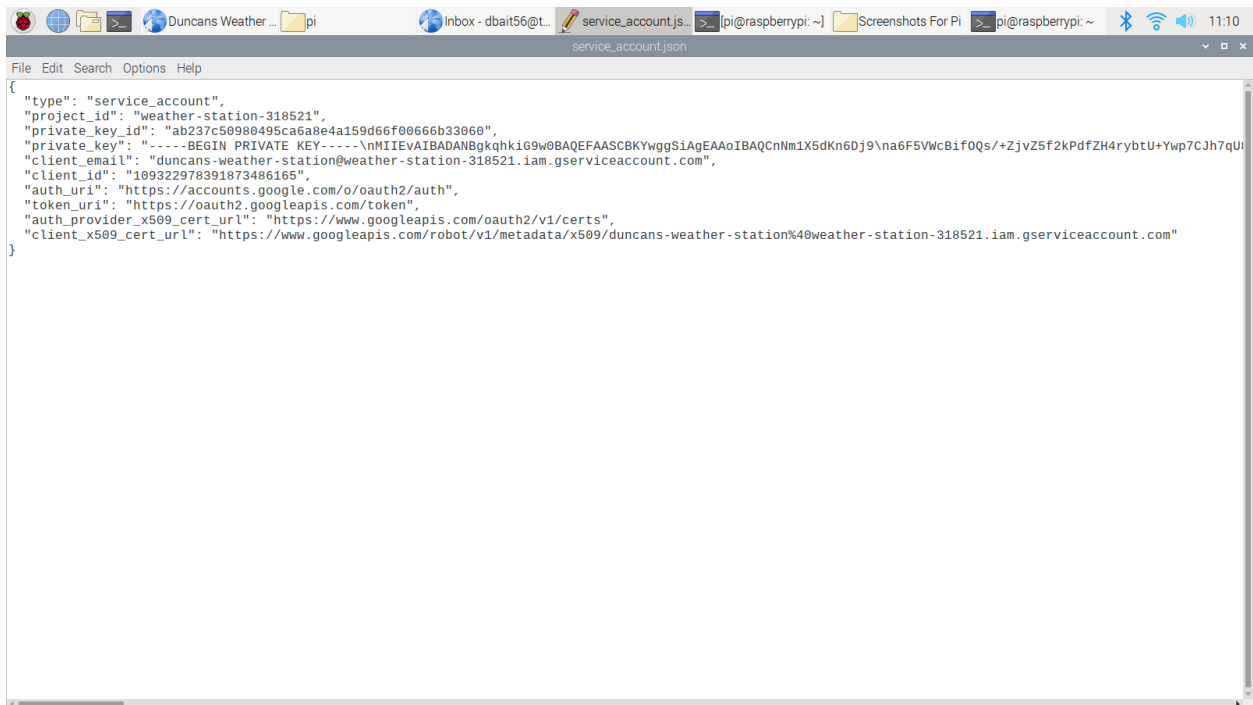
    except RuntimeError as error:
        # Errors happen fairly often, DHT's are hard to read, just keep going
        print(error.args[0])
        time.sleep(2.0)
        continue
    except Exception as error:
        dhtDevice.exit()
        raise error

    time.sleep(2.0)

^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify
^X Exit          ^R Read File    ^\ Replace      ^U Uncut Text   ^T To Spell
```

7-2-21

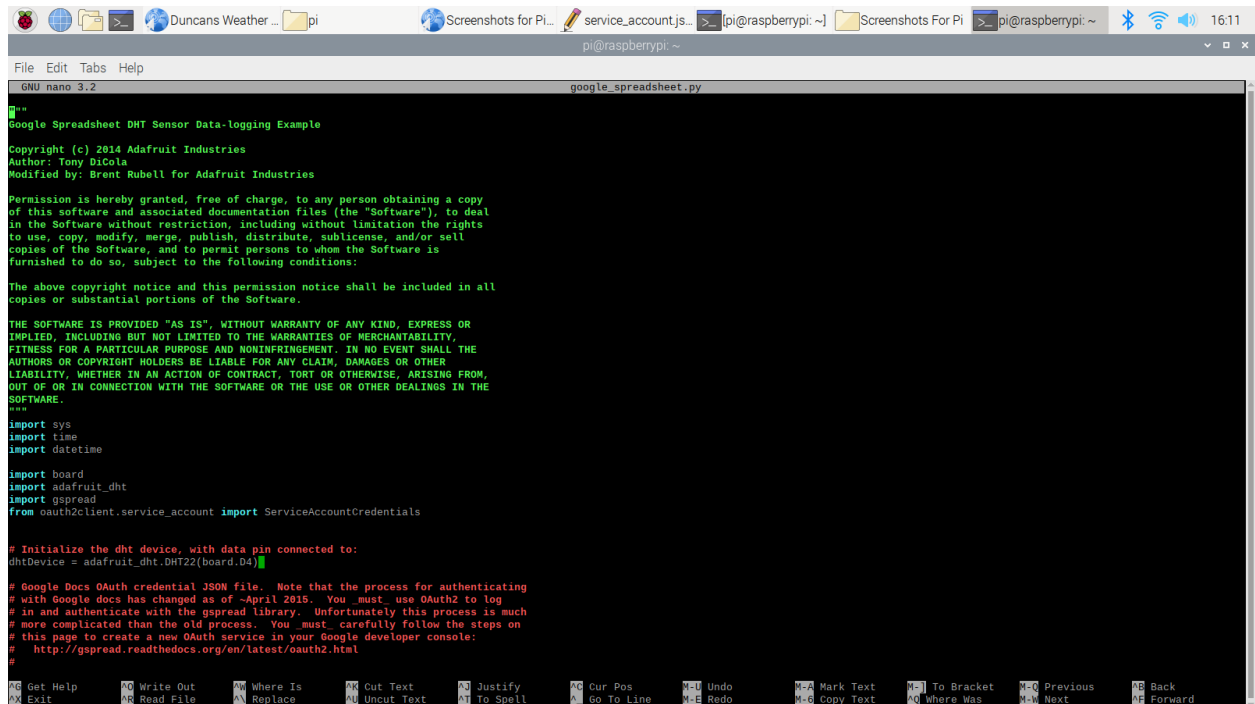
To enable API permissions all I had to do was search up in google cloud Google Drive API and Google Sheets API. Please note that due to security issues I am not allowed to show screenshots. Then I had to enable them by pressing enable. Now it gave me a .json file to download that has all the permissions in it. I named it `service_account.json`.

A screenshot of a terminal window on a Raspberry Pi. The window title is "service\_account.json". The terminal displays the following JSON content:

```
{
  "type": "service_account",
  "project_id": "weather-station-318521",
  "private_key_id": "ab237c50980495ca6a8e4a159d66f00666b33060",
  "private_key": "-----BEGIN PRIVATE KEY-----\nMIIEVAIBADANBgkqhkiG9w0BAQEFAASCByggSiAgEAAoIBAQCnNm1X5dKn6Dj9\na6F5VwcBif0Qs/+ZjvZ5f2kPdfZ4frybtU+Ywp7CJh7qU\n",
  "client_email": "duncans-weather-station@weather-station-318521.iam.gserviceaccount.com",
  "client_id": "109322978391873486165",
  "auth_uri": "https://accounts.google.com/o/oauth2/auth",
  "token_uri": "https://oauth2.googleapis.com/token",
  "auth_provider_x509_cert_url": "https://www.googleapis.com/oauth2/v1/certs",
  "client_x509_cert_url": "https://www.googleapis.com/robot/v1/metadata/x509/duncans-weather-station%40weather-station-318521.iam.gserviceaccount.com"
}
```

Then I copied and pasted the text for long-term recordings that will be logged into a text file called `google_spreadsheet.py`. To access this I used the command `sudo nano google_spreadsheet.py`. I also copied and pasted this time because I didn't want to get anything wrong and it was 127 lines. After working out the bugs in this file. I have managed to get it to log to a spreadsheet. To activate logging you just run the command `python3 google_spreadsheet.py`. As of writing this, I have successfully gotten 117 readings logged on the spreadsheet.

Now I know the code still has some bugs in it because I can't just leave it running because if something doesn't return in time it will stop sending code to and from the sensor.



```
GNU nano 3.2 google_spreadsheet.py
"""
Google Spreadsheet DHT Sensor Data-logging Example
Copyright (c) 2014 Adafruit Industries
Author: Tony DiCola
Modified by: Brent Rubell for Adafruit Industries
Permission is hereby granted, free of charge, to any person obtaining a copy
of this software and associated documentation files (the "Software"), to deal
in the Software without restriction, including without limitation the rights
to use, copy, modify, merge, publish, distribute, sublicense, and/or sell
copies of the Software, and to permit persons to whom the Software is
furnished to do so, subject to the following conditions:
The above copyright notice and this permission notice shall be included in all
copies or substantial portions of the Software.
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IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE
AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER
LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM,
OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE
SOFTWARE.
"""
import sys
import time
import datetime

import board
import adafruit_dht
import gspread
from oauth2client.service_account import ServiceAccountCredentials

# Initialize the dht device, with data pin connected to:
dhtDevice = adafruit_dht.DHT22(board.D4)

# Google Docs OAuth credential JSON file. Note that the process for authenticating
# with Google docs has changed as of April 2015. You must use OAuth2 to log
# in and authenticate with the gspread library. Unfortunately this process is much
# more complicated than the old process. You must carefully follow the steps on
# this page to create a new OAuth service in your Google developer console:
# http://gspread.readthedocs.org/en/latest/oauth2.html
#
```

```
GNU nano 3.2 google_spreadsheet.py
scope = ['https://spreadsheets.google.com/feeds', 'https://www.googleapis.com/auth/drive']
credentials = ServiceAccountCredentials.from_json_key_file_name(oauth_key_file, scope)
gc = gspread.authorize(credentials)
worksheet = gc.open(spreadsheet).sheet1 # pylint: disable=redefined-outer-name
return worksheet
except Exception as ex: # pylint: disable=bare-exception, broad-exception
    print('Unable to login and get spreadsheet. Check OAuth credentials, spreadsheet name, \
and make sure spreadsheet is shared to the client_email address in the OAuth .json file!')
    print('Google sheet login failed with error:', ex)
    sys.exit(1)

print('Logging sensor measurements to\
{0} every {1} seconds.'.format(GDOOCS_SPREADSHEET_NAME, FREQUENCY_SECONDS))
print('Press Ctrl-C to quit.')
worksheet = None
while True:
    # Login if necessary.
    if worksheet is None:
        worksheet = login_open_sheet(GDOOCS_OAUTH_JSON, GDOOCS_SPREADSHEET_NAME)

    # Attempt to get sensor reading.
    temp = dhtDevice.temperature
    humidity = dhtDevice.humidity

    # Skip to the next reading if a valid measurement couldn't be taken.
    # This might happen if the CPU is under a lot of load and the sensor
    # can't be reliably read (timing is critical to read the sensor).
    if humidity is None or temp is None:
        time.sleep(2)
        continue

    print('Temperature: {0:0.1f} C'.format(temp))
    print('Humidity: {0:0.1f} %'.format(humidity))

    # Append the data in the spreadsheet, including a timestamp
    try:
        worksheet.append_row((datetime.datetime.now().isoformat(), temp, humidity))
    except: # pylint: disable=bare-exception, broad-exception
        # Error appending data, most likely because credentials are stale.
        # Null out the worksheet so a login is performed at the top of the loop.
        print('Append error, logging in again!')
        worksheet = None
        time.sleep(FREQUENCY_SECONDS)
        continue

    # Get Help      Write Out      Where Is      Cut Text      Justify      Cur Pos      Undo      Mark Text      To Bracket      Previous      Back
    # Exit          Read File     Replace       Uncut Text    To Spell     Go To Line   Redo      Copy Text     Where Was     Next         Forward
```

```
GNU nano 3.2 google_spreadsheet.py
humidity = dhtDevice.humidity

# Skip to the next reading if a valid measurement couldn't be taken.
# This might happen if the CPU is under a lot of load and the sensor
# can't be reliably read (timing is critical to read the sensor).
if humidity is None or temp is None:
    time.sleep(2)
    continue

print('Temperature: {0:0.1f} C'.format(temp))
print('Humidity: {0:0.1f} %'.format(humidity))

# Append the data in the spreadsheet, including a timestamp
try:
    worksheet.append_row((datetime.datetime.now().isoformat(), temp, humidity))
except: # pylint: disable=bare-exception, broad-exception
    # Error appending data, most likely because credentials are stale.
    # Null out the worksheet so a login is performed at the top of the loop.
    print('Append error, logging in again!')
    worksheet = None
    time.sleep(FREQUENCY_SECONDS)
    continue

# Wait 30 seconds before continuing
print('Wrote a row to {0}'.format(GDOOCS_SPREADSHEET_NAME))
time.sleep(FREQUENCY_SECONDS)
```

```
GNU nano 3.2 google_spreadsheet.py
# your OAuth2 credentials. This file has a name like SpreadsheetData-<gibberish>.json.
# Place that file in the same directory as this python script.
#
# Now one last very important step before updating the spreadsheet will work.
# Go to your spreadsheet in Google Spreadsheet and share it to the email address
# inside the 'client_email' setting in the SpreadsheetData-.json file. For example
# if the client_email setting inside the .json file has an email address like:
# 149345334675-md0qff5f0kib41meu20f7dihabos3qu@developer.gserviceaccount.com
```

1	Date/Time	Tempature C	Humidity %
2	2021-07-02T14:59:22.405200	24.7	53.9
3	2021-07-02T15:00:06.900408	23.8	54.3
4	2021-07-02T15:00:37.447639	23.8	53.9
5	2021-07-02T15:01:07.931901	23.8	53.6
6	2021-07-02T15:01:38.682947	23.8	53.5
7	2021-07-02T15:02:09.197631	23.8	53.2
8	2021-07-02T15:02:39.962186	23.7	52.1
9	2021-07-02T15:03:10.461038	23.7	52.7
10	2021-07-02T15:03:40.940906	23.7	53.4
11	2021-07-02T15:04:11.407219	23.7	52.5
12	2021-07-02T15:04:41.973969	23.6	52.1
13	2021-07-02T15:05:12.469108	23.6	51.4
14	2021-07-02T16:18:00.934409	23.6	54.8
15	2021-07-02T16:18:31.478525	24	54.2
16	2021-07-02T16:19:02.478131	24	53.6
17	2021-07-02T16:19:33.489968	24	53.3
18	2021-07-02T16:20:04.041749	24	53.8
19	2021-07-02T16:20:34.549232	24	53.5
20	2021-07-02T16:21:05.316709	24	53.7
21	2021-07-02T16:21:36.054495	24.1	53.3
22	2021-07-02T16:22:06.586492	24.1	52.6

## Notes:

```
$ wp user list
$ wp user update 1--user.pas=$up3rstong P4$w0rd
/var/www/html
```

# Sources

[Askubuntu.com](http://askubuntu.com)

[Stackoverflow.com](http://stackoverflow.com)

[Raspberryweather.com](http://raspberrypiweather.com)

[wordpress.org/support/article/resetting-your-password/](http://wordpress.org/support/article/resetting-your-password/)

[learn.adafruit.com](http://learn.adafruit.com)