Lab 7

COMP6043: Physical Computing

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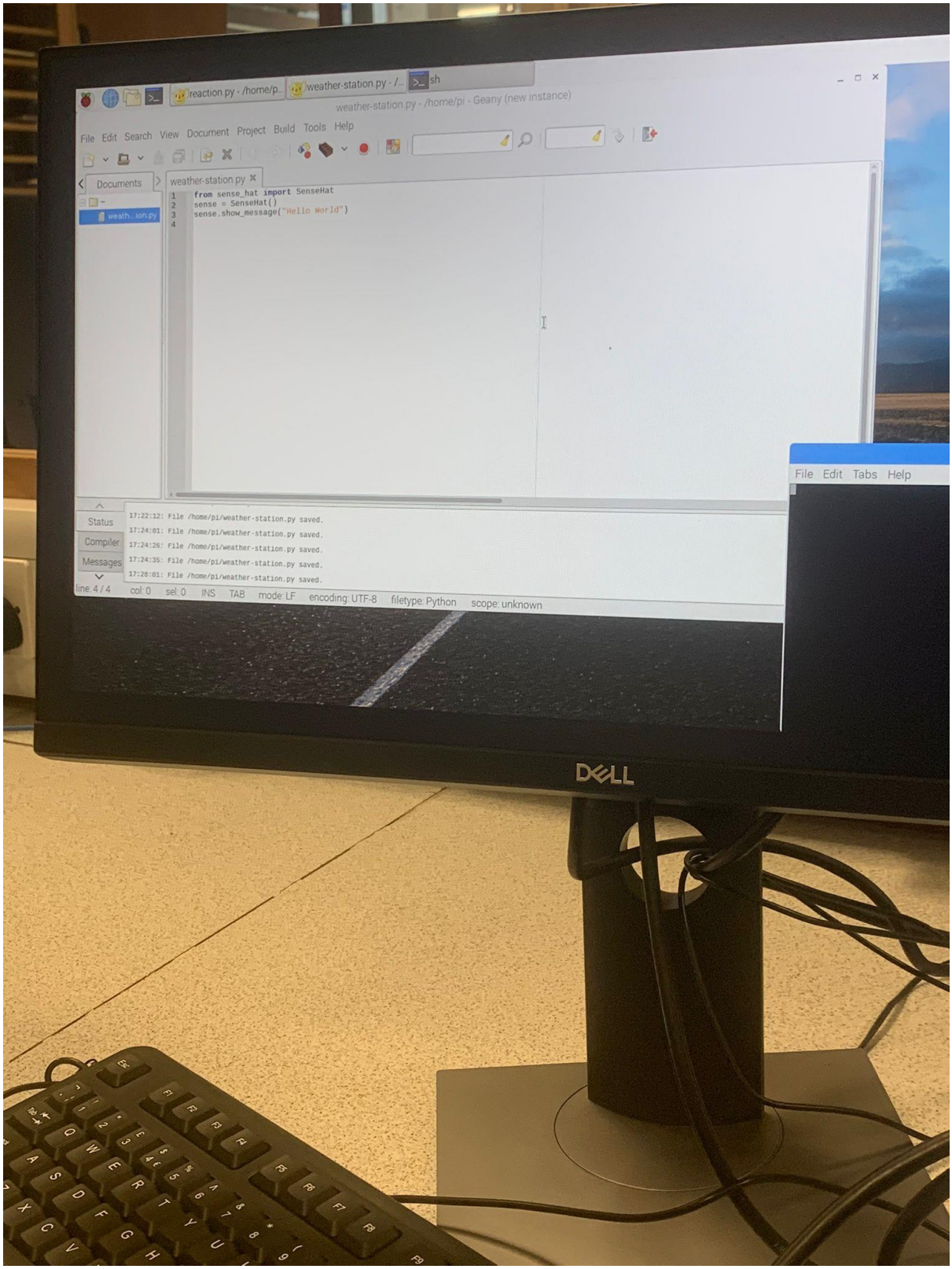
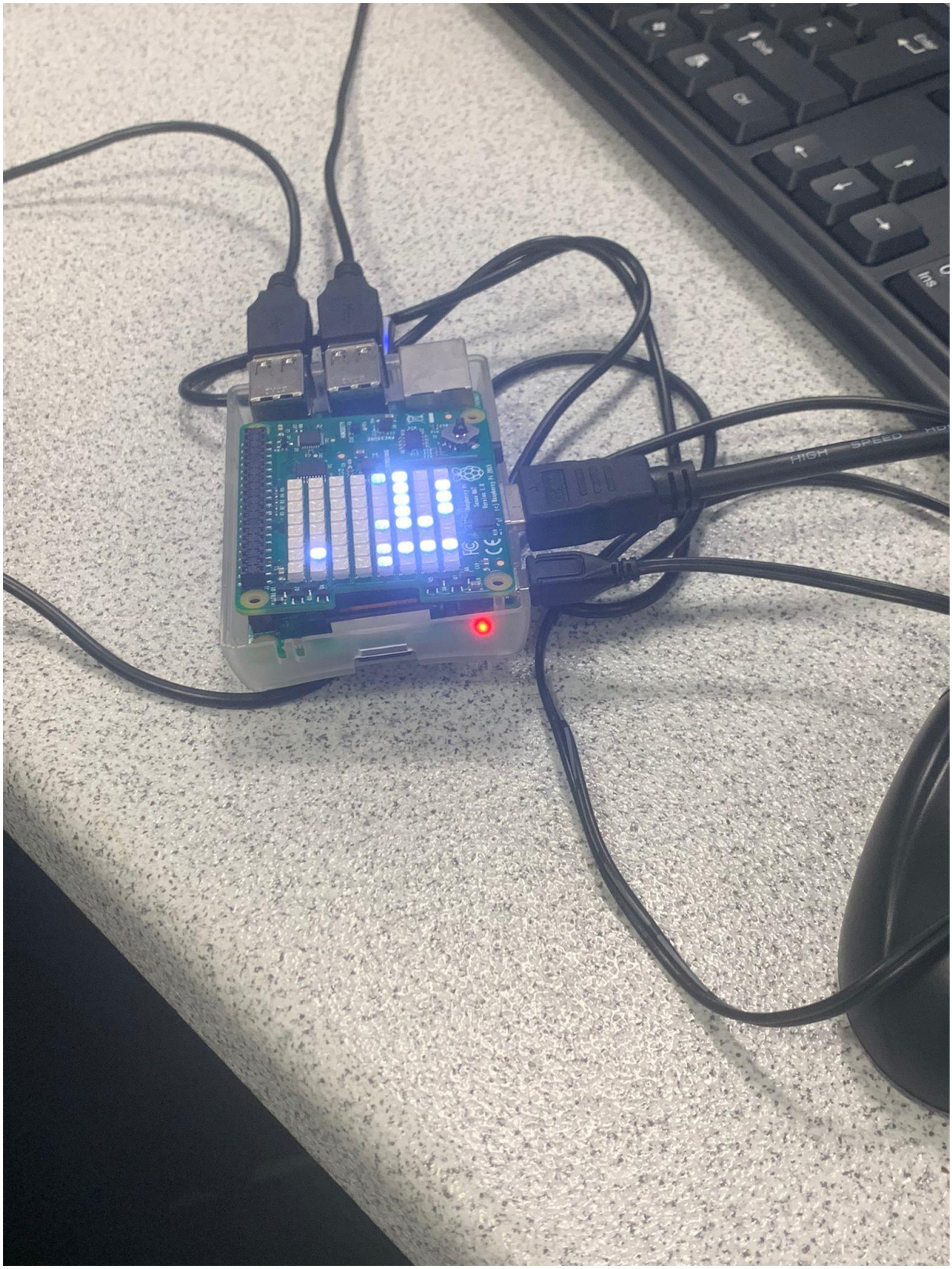
Date: 21.03.2022

Group: COMP1D-Y

Task2:


weather-station.py - /home/pi - Geany (new instance)
File Edit Search View Document Project Build Tools Help
Documents
weather-station.py
from sense_hat import SenseHat
sense = SenseHat()
sense.show_message("Hello World")
Status
Compiler
Messages
17:22:12: File /home/pi/weather-station.py saved.
17:24:01: File /home/pi/weather-station.py saved.
17:24:26: File /home/pi/weather-station.py saved.
17:24:35: File /home/pi/weather-station.py saved.
17:28:01: File /home/pi/weather-station.py saved.
line: 4 / 4 col: 0 sel: 0 INS TAB mode: LF encoding: UTF-8 filetype: Python scope: unknown
File Edit Tabs Help
DELL

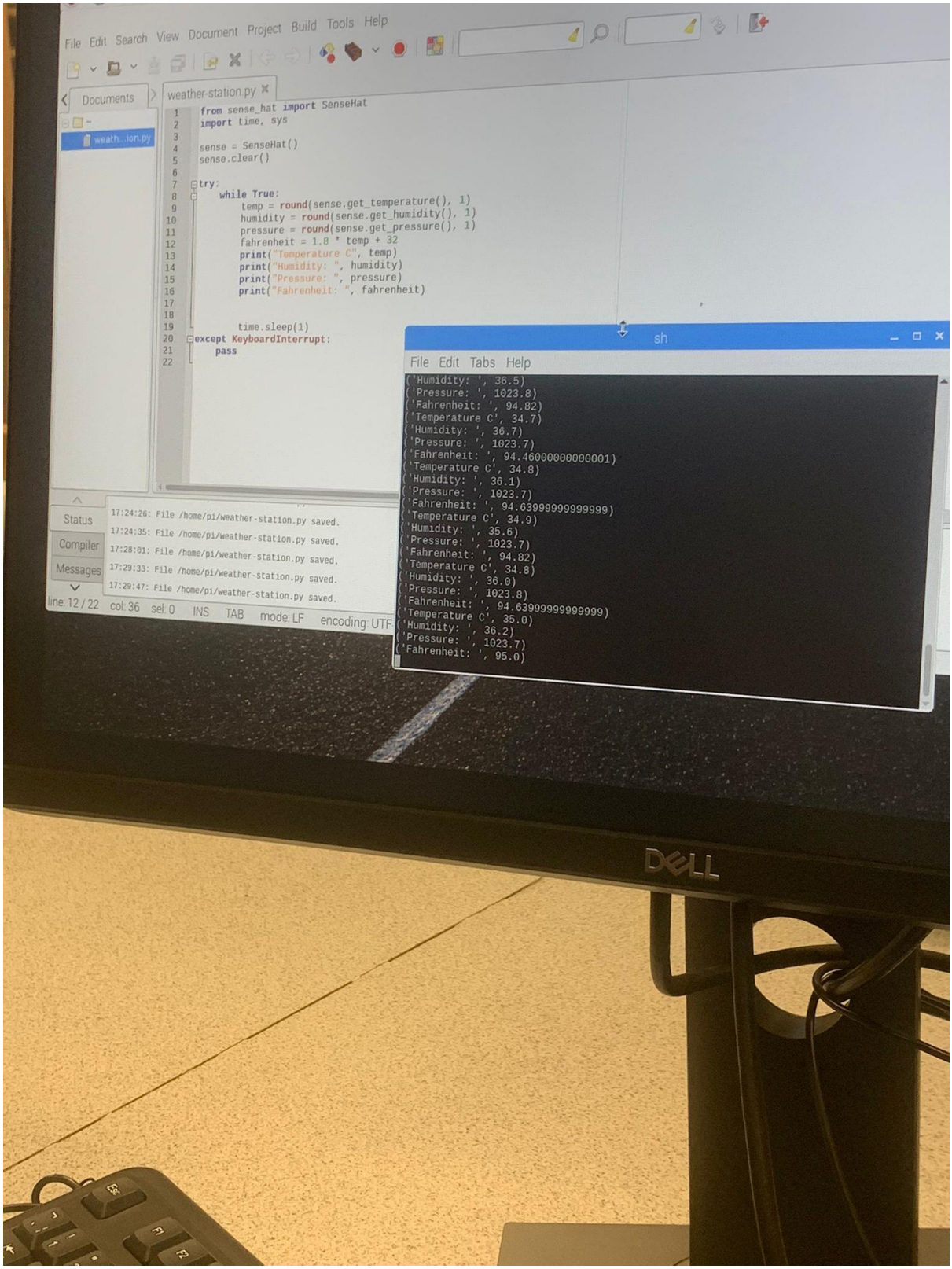

HIGH SPEED

Task3:

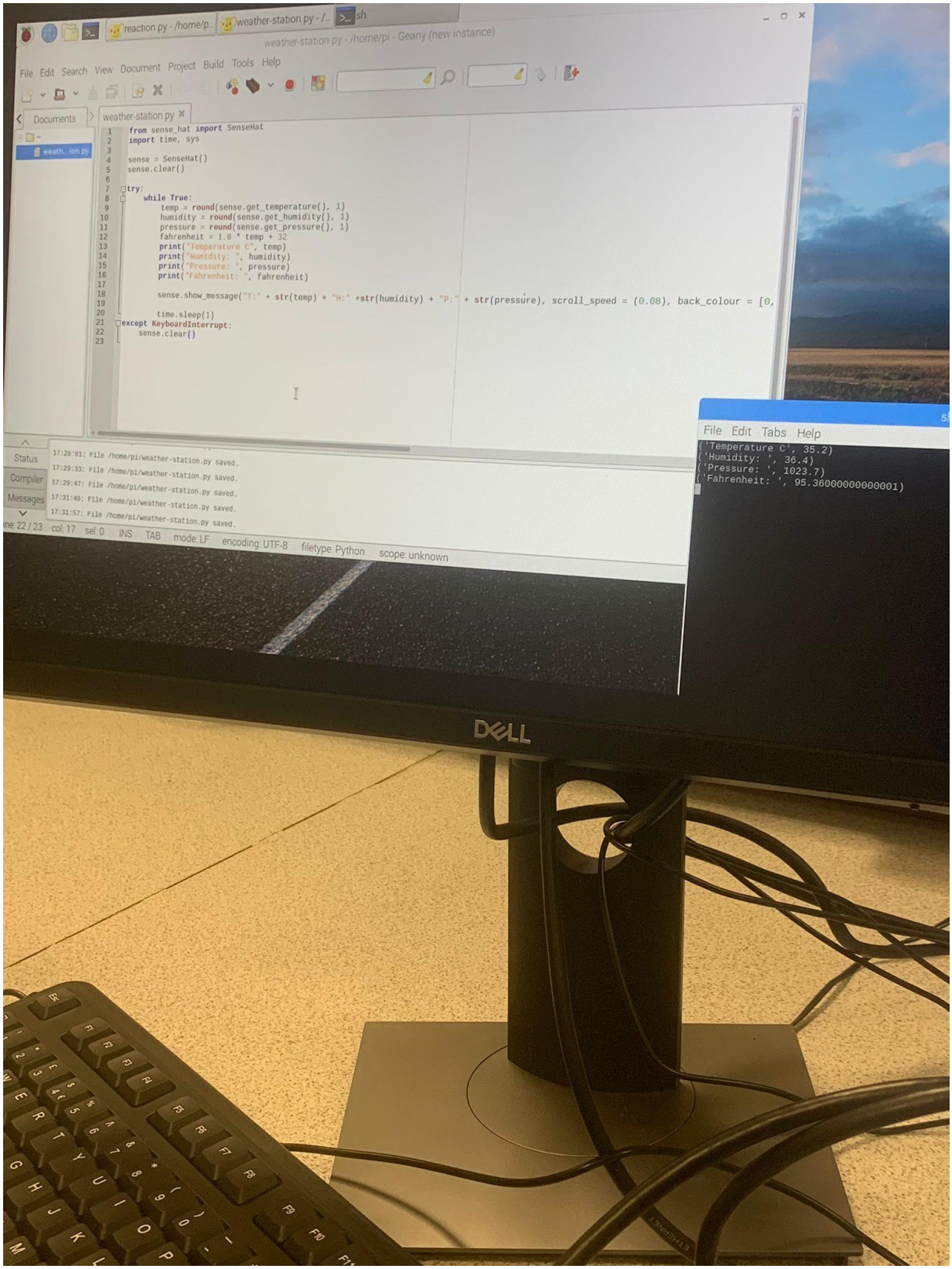
```
from sense_hat import SenseHat
import time, sys

sense = SenseHat()
sense.clear()

try:
    while True:
        temp = round(sense.get_temperature(), 1)
        humidity = round(sense.get_humidity(), 1)
        pressure = round(sense.get_pressure(), 1)
        print('Temperature C', temp)
        print('Humidity: ', humidity)
        print('Pressure: ', pressure)


        time.sleep(1)
except KeyboardInterrupt:
    pass
```

```
sh
File  Edit  Tabs  Help
('Humidity: ', 39.5)
('Pressure: ', 1023.7)
('Temperature C', 33.7)
('Humidity: ', 38.8)
('Pressure: ', 1023.7)
('Temperature C', 33.6)
('Humidity: ', 39.6)
('Pressure: ', 1023.7)
('Temperature C', 33.6)
('Humidity: ', 38.6)
('Pressure: ', 1023.7)
('Temperature C', 33.6)
('Humidity: ', 38.5)
('Pressure: ', 1023.7)
('Temperature C', 33.6)
('Humidity: ', 38.9)
('Pressure: ', 1023.7)
('Temperature C', 33.6)
('Humidity: ', 37.9)
('Pressure: ', 1023.7)
('Temperature C', 33.5)
('Humidity: ', 39.2)
('Pressure: ', 1023.7)
```

Task4:


File Edit Search View Document Project Build Tools Help
Documents
weather-station.py
weath...ion.py
from sense_hat import SenseHat
import time, sys
sense = SenseHat()
sense.clear()
try:
while True:
temp = round(sense.get_temperature(), 1)
humidity = round(sense.get_humidity(), 1)
pressure = round(sense.get_pressure(), 1)
fahrenheit = 1.8 * temp + 32
print("Temperature C", temp)
print("Humidity: ", humidity)
print("Pressure: ", pressure)
print("Fahrenheit: ", fahrenheit)
time.sleep(1)
except KeyboardInterrupt:
pass
Status
Compiler
Messages
17:24:26: File /home/pi/weather-station.py saved.
17:24:35: File /home/pi/weather-station.py saved.
17:28:01: File /home/pi/weather-station.py saved.
17:29:33: File /home/pi/weather-station.py saved.
17:29:47: File /home/pi/weather-station.py saved.
line: 12 / 22 col: 36 sel: 0 INS TAB mode: LF encoding: UTF
sh
File Edit Tabs Help
('Humidity: ', 36.5)
('Pressure: ', 1023.8)
('Fahrenheit: ', 94.82)
('Temperature C', 34.7)
('Humidity: ', 36.7)
('Pressure: ', 1023.7)
('Fahrenheit: ', 94.46000000000001)
('Temperature C', 34.8)
('Humidity: ', 36.1)
('Pressure: ', 1023.7)
('Fahrenheit: ', 94.63999999999999)
('Temperature C', 34.9)
('Humidity: ', 35.6)
('Pressure: ', 1023.7)
('Fahrenheit: ', 94.82)
('Temperature C', 34.8)
('Humidity: ', 36.0)
('Pressure: ', 1023.8)
('Fahrenheit: ', 94.63999999999999)
('Temperature C', 35.0)
('Humidity: ', 36.2)
('Pressure: ', 1023.7)
('Fahrenheit: ', 95.0)
DELL

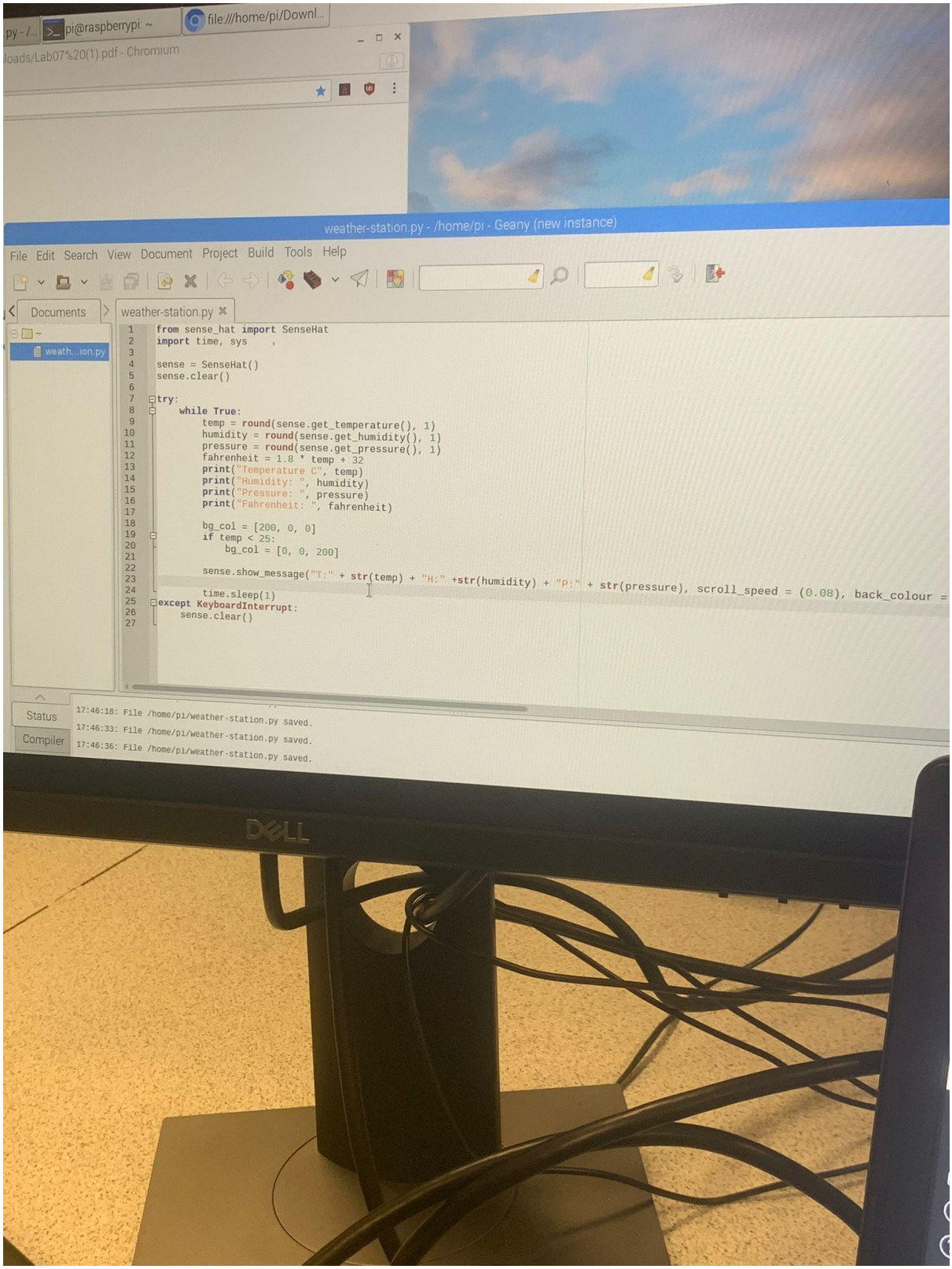
Task5:



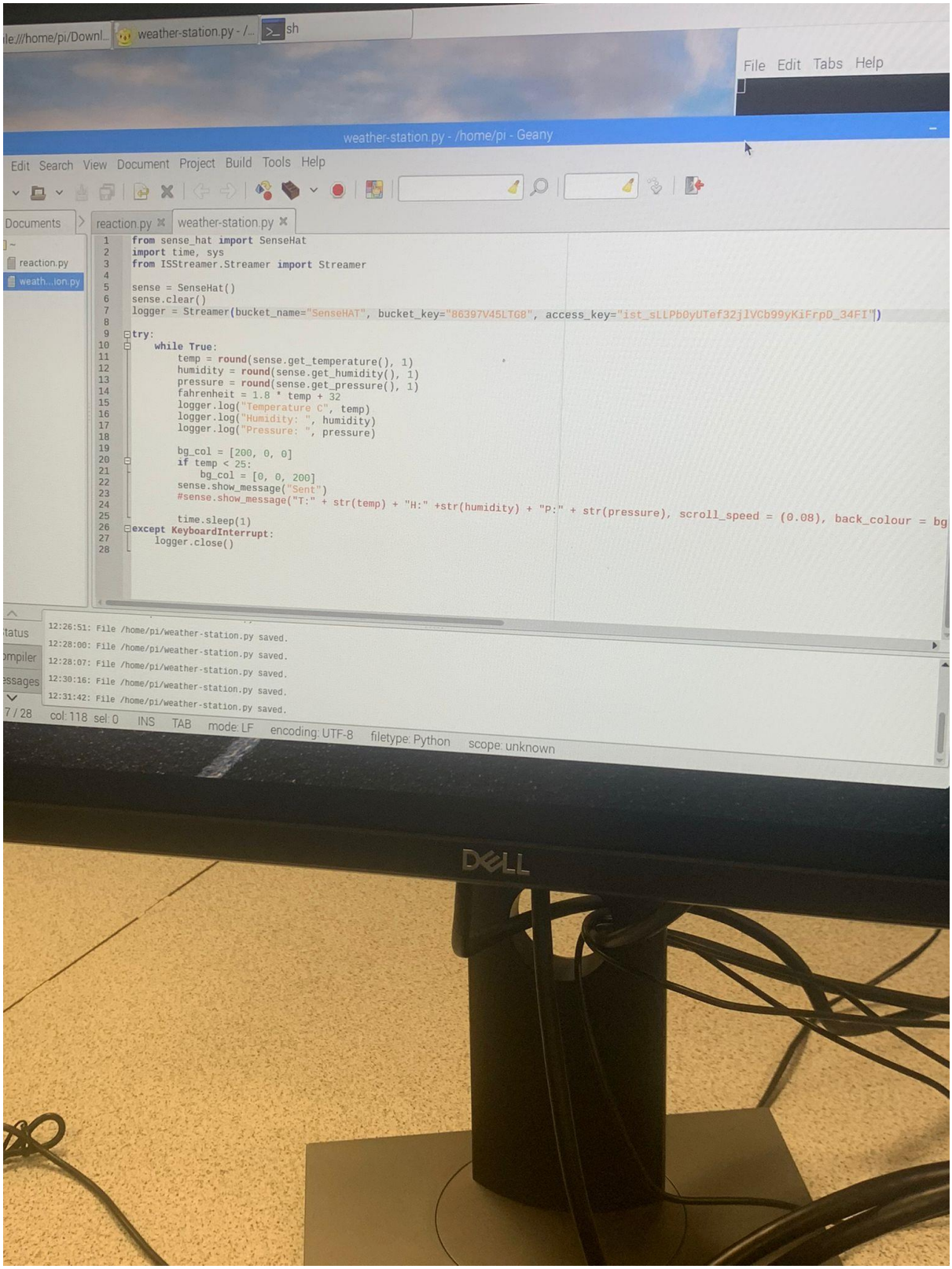
Q. What is the purpose adding sense.clear() to the exception handler? i.e. what is the effect of omitting this?

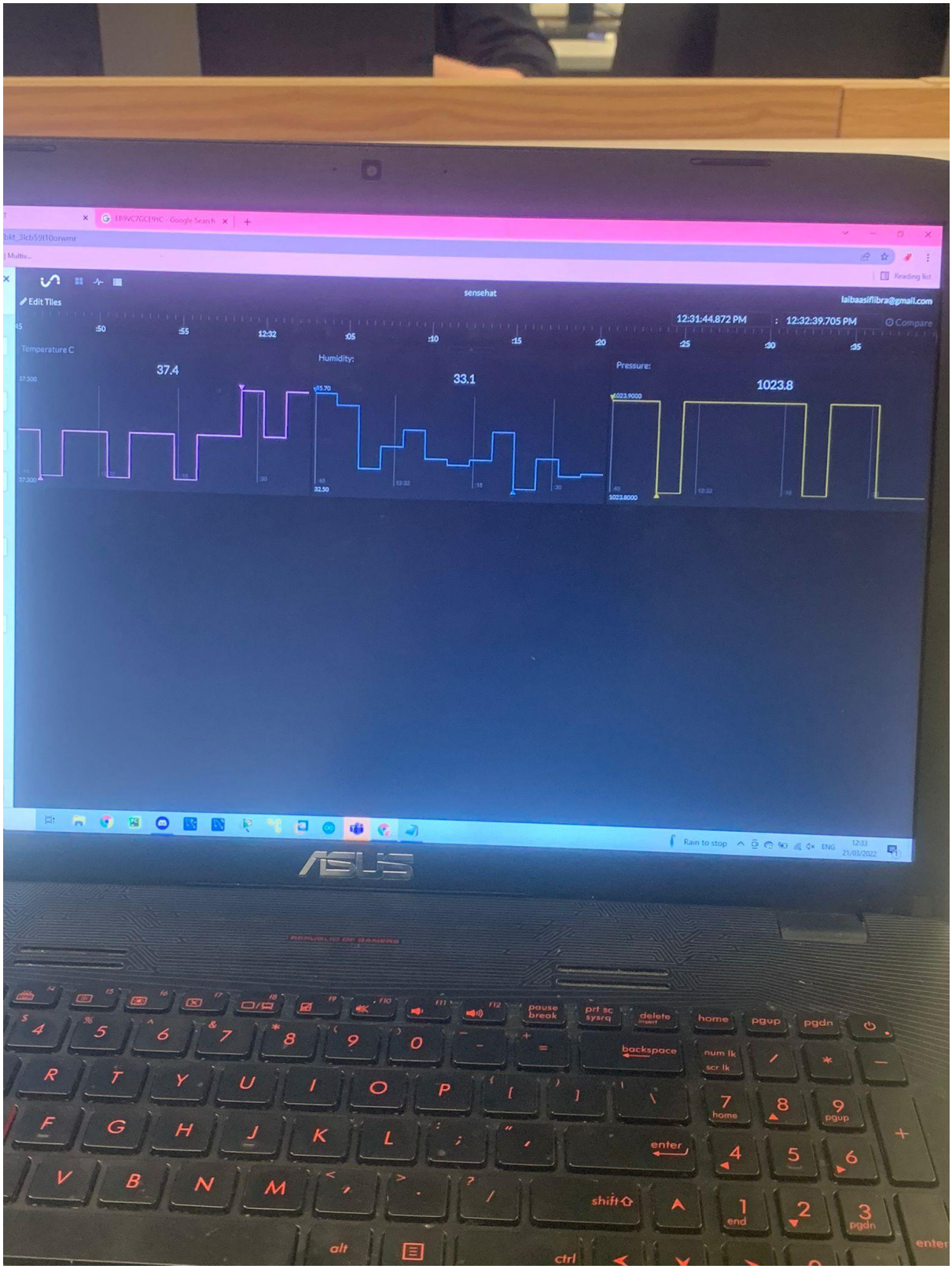
Ans: Sets the entire LED matrix to a single colour, defaults to blank / off.

Task6:

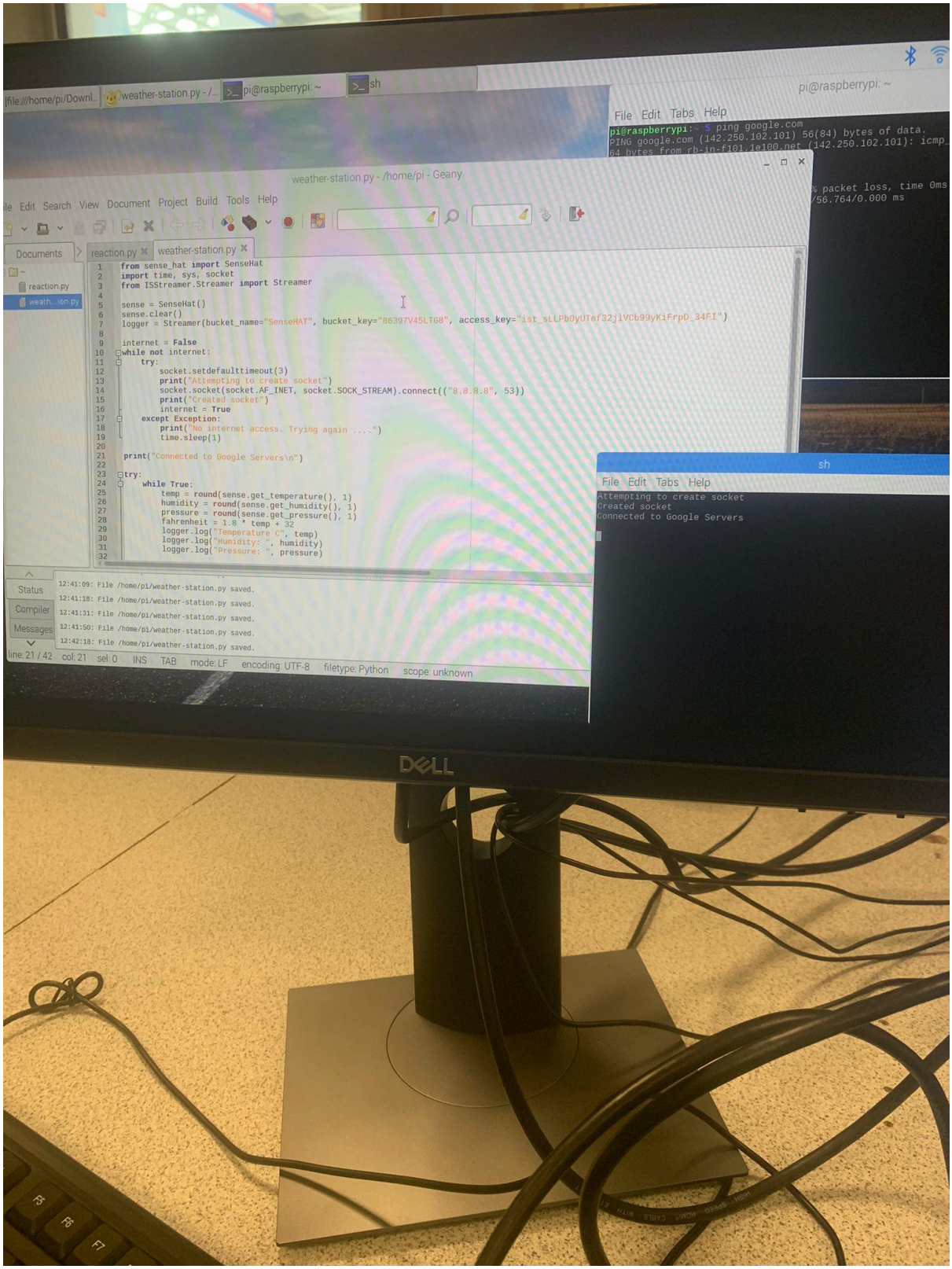

weather-station.py - /home/pi - Geany (new instance)
File Edit Search View Document Project Build Tools Help
Documents
weather-station.py
from sense_hat import SenseHat
import time, sys
sense = SenseHat()
sense.clear()
try:
while True:
temp = round(sense.get_temperature(), 1)
humidity = round(sense.get_humidity(), 1)
pressure = round(sense.get_pressure(), 1)
fahrenheit = 1.8 * temp + 32
print("Temperature C", temp)
print("Humidity: ", humidity)
print("Pressure: ", pressure)
print("Fahrenheit: ", fahrenheit)
bg_col = [200, 0, 0]
if temp < 25:
bg_col = [0, 0, 200]
sense.show_message("T:" + str(temp) + "H:" +str(humidity) + "P:" + str(pressure), scroll_speed = (0.08), back_colour =
time.sleep(1)
except KeyboardInterrupt:
sense.clear()
Status
Compiler
17:46:18: File /home/pi/weather-station.py saved.
17:46:33: File /home/pi/weather-station.py saved.
17:46:36: File /home/pi/weather-station.py saved.
DELL

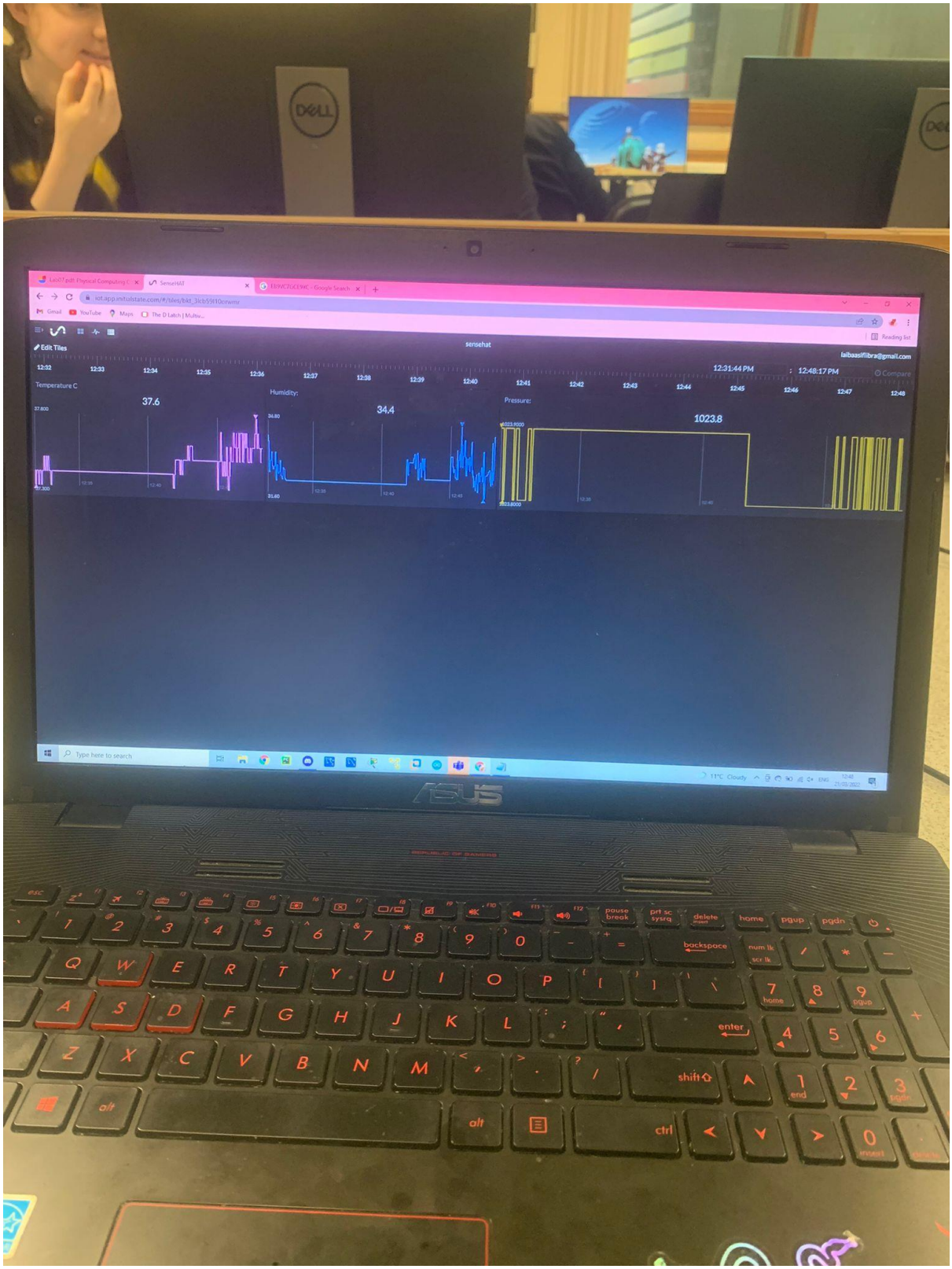
Task7:

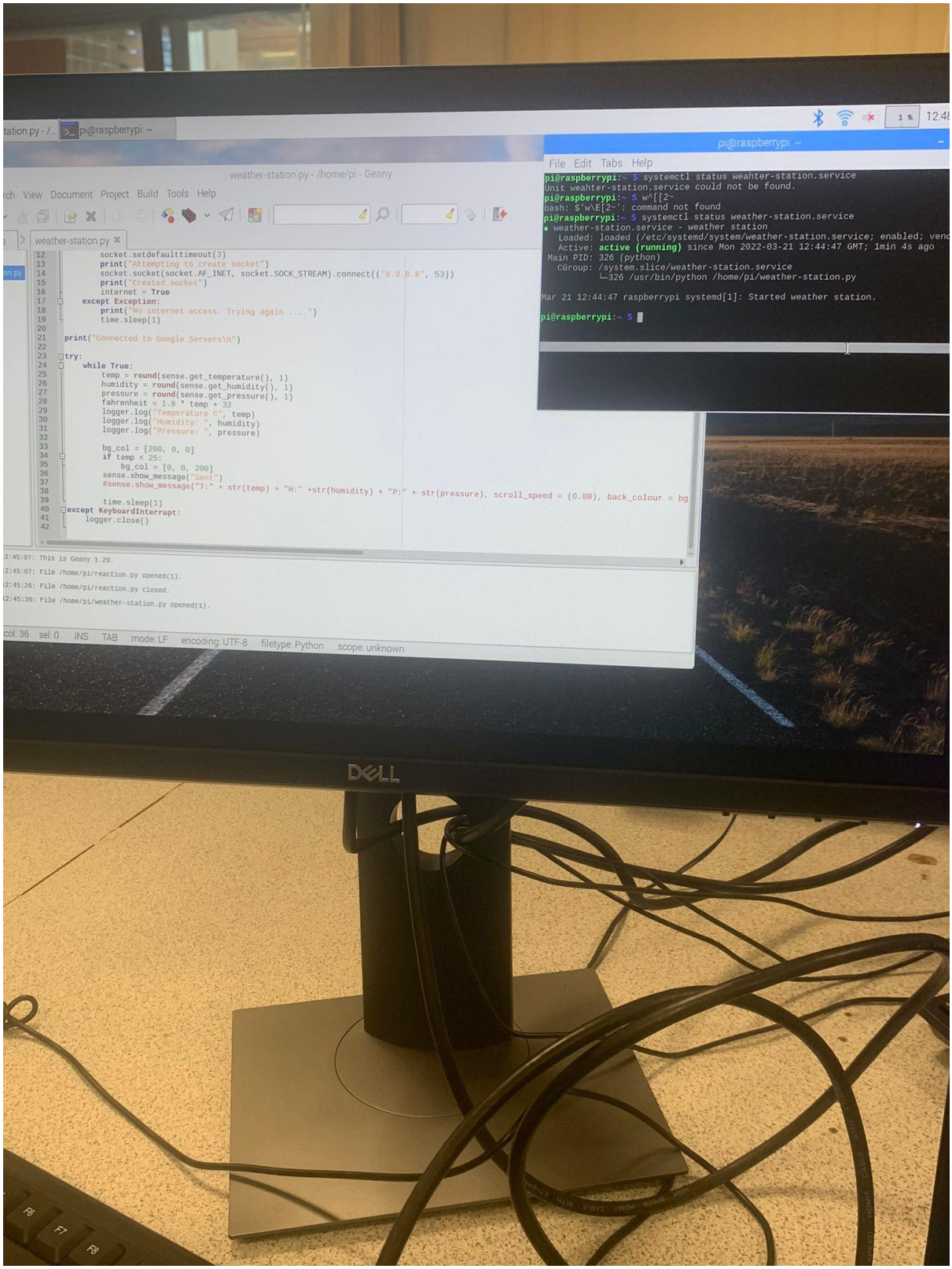

weather-station.py - /home/pi - Geany
File Edit Tabs Help
Edit Search View Document Project Build Tools Help
Documents
reaction.py
weather-station.py
from sense_hat import SenseHat
import time, sys
from ISStreamer.Streamer import Streamer
sense = SenseHat()
sense.clear()
logger = Streamer(bucket_name="SenseHAT", bucket_key="86397V45LTGB", access_key="ist_sLLPb0yUTef32jlVCb99yKiFrpD_34FI")
try:
while True:
temp = round(sense.get_temperature(), 1)
humidity = round(sense.get_humidity(), 1)
pressure = round(sense.get_pressure(), 1)
fahrenheit = 1.8 * temp + 32
logger.log("Temperature C", temp)
logger.log("Humidity: ", humidity)
logger.log("Pressure: ", pressure)
bg_col = [200, 0, 0]
if temp < 25:
bg_col = [0, 0, 200]
sense.show_message("Sent")
#sense.show_message("T:" + str(temp) + "H:" +str(humidity) + "P:" + str(pressure), scroll_speed = (0.08), back_colour = bg
time.sleep(1)
except KeyboardInterrupt:
logger.close()
12:26:51: File /home/pi/weather-station.py saved.
12:28:00: File /home/pi/weather-station.py saved.
12:28:07: File /home/pi/weather-station.py saved.
12:30:16: File /home/pi/weather-station.py saved.
12:31:42: File /home/pi/weather-station.py saved.
col: 118 sel: 0 INS TAB mode: LF encoding: UTF-8 filetype: Python scope: unknown
DELL


sensehat
laibaasifilibra@gmail.com
Edit Tiles
12:31:44.872 PM
12:32:39.705 PM
Compare
Temperature C
37.4
Humidity:
33.1
Pressure:
1023.8
ASUS

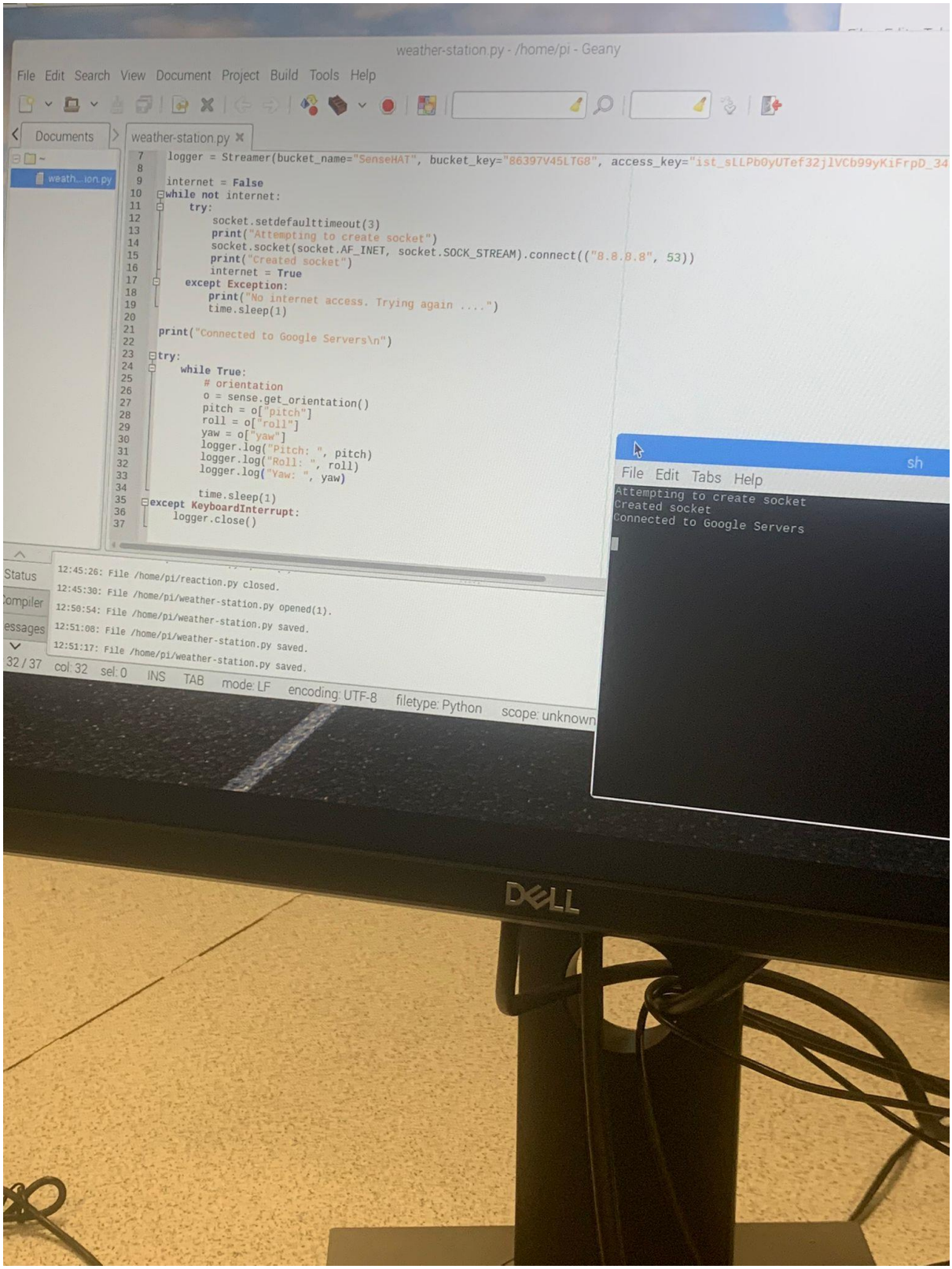
Task8:

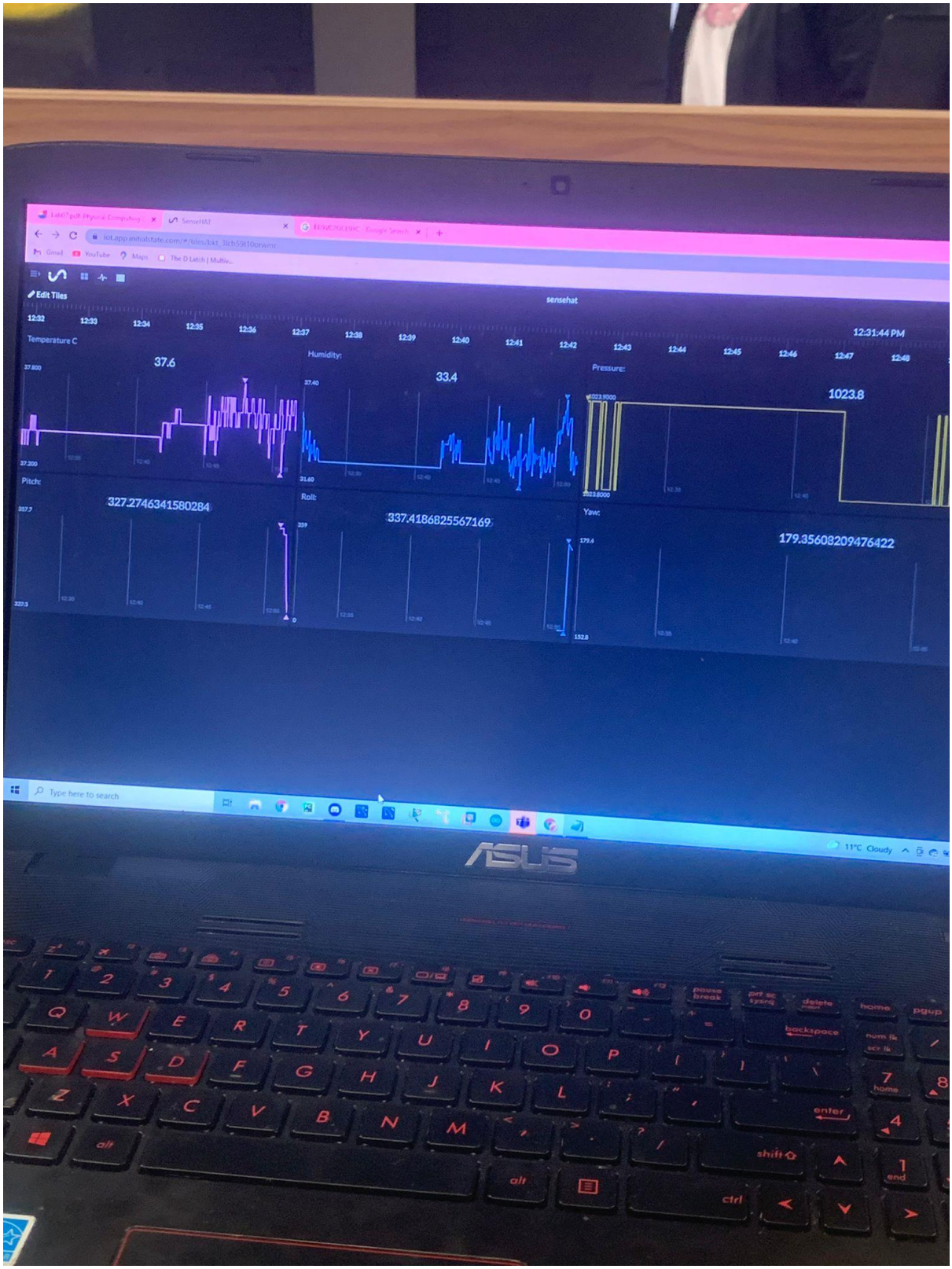

weather-station.py - /home/pi - Geany
File Edit Search View Document Project Build Tools Help
Documents
reaction.py
weather-station.py
from sense_hat import SenseHat
import time, sys, socket
from ISStreamer.Streamer import Streamer
sense = SenseHat()
sense.clear()
logger = Streamer(bucket_name="SenseHAT", bucket_key="86397V45LTG8", access_key="ist_sLLPb0yUTef32j1VCb99yKiFrpD_34FI")
internet = False
while not internet:
try:
socket.setdefaulttimeout(3)
print("Attempting to create socket")
socket.socket(socket.AF_INET, socket.SOCK_STREAM).connect(("8.8.8.8", 53))
print("Created socket")
internet = True
except Exception:
print("No internet access. Trying again ....")
time.sleep(1)
print("Connected to Google Servers\n")
try:
while True:
temp = round(sense.get_temperature(), 1)
humidity = round(sense.get_humidity(), 1)
pressure = round(sense.get_pressure(), 1)
fahrenheit = 1.8 * temp + 32
logger.log("Temperature C", temp)
logger.log("Humidity: ", humidity)
logger.log("Pressure: ", pressure)
Status
Compiler
Messages
12:41:09: File /home/pi/weather-station.py saved.
12:41:18: File /home/pi/weather-station.py saved.
12:41:31: File /home/pi/weather-station.py saved.
12:41:50: File /home/pi/weather-station.py saved.
12:42:18: File /home/pi/weather-station.py saved.
line: 21 / 42 col: 21 sel: 0 INS TAB mode: LF encoding: UTF-8 filetype: Python scope: unknown
pi@raspberrypi: ~
File Edit Tabs Help
pi@raspberrypi:~ $ ping google.com
PING google.com (142.250.102.101) 56(84) bytes of data.
sh
File Edit Tabs Help
Attempting to create socket
Created socket
Connected to Google Servers
DELL


Edit Tiles
sensehat
laibaasiflibra@gmail.com
12:31:44 PM
12:48:17 PM
Compare
Temperature C
37.6
Humidity:
34.4
Pressure:
1023.8


weather-station.py - /home/pi - Geany
File Edit View Document Project Build Tools Help
weather-station.py
socket.setdefaulttimeout(3)
print("Attempting to create socket")
socket.socket(socket.AF_INET, socket.SOCK_STREAM).connect(("8.8.8.8", 53))
print("Created socket")
internet = True
except Exception:
print("No internet access. Trying again ....")
time.sleep(1)
print("Connected to Google Servers\n")
try:
while True:
temp = round(sense.get_temperature(), 1)
humidity = round(sense.get_humidity(), 1)
pressure = round(sense.get_pressure(), 1)
fahrenheit = 1.8 * temp + 32
logger.log("Temperature C", temp)
logger.log("Humidity: ", humidity)
logger.log("Pressure: ", pressure)
bg_col = [200, 0, 0]
if temp < 25:
bg_col = [0, 0, 200]
sense.show_message("Sent")
#sense.show_message("T:" + str(temp) + "H:" +str(humidity) + "P:" + str(pressure), scroll_speed = (0.08), back_colour = bg
time.sleep(1)
except KeyboardInterrupt:
logger.close()
This is Geany 1.29.
File /home/pi/reaction.py opened(1).
File /home/pi/reaction.py closed.
File /home/pi/weather-station.py opened(1).
col: 36 sel: 0 INS TAB mode: LF encoding: UTF-8 filetype: Python scope: unknown
pi@raspberrypi: ~
File Edit Tabs Help
pi@raspberrypi:~ $ systemctl status weahter-station.service
Unit weahter-station.service could not be found.
pi@raspberrypi:~ $ w^[[2~
bash: $'w\E[2~': command not found
pi@raspberrypi:~ $ systemctl status weather-station.service
● weather-station.service - weather station
Loaded: loaded (/etc/systemd/system/weather-station.service; enabled; vend
Active: active (running) since Mon 2022-03-21 12:44:47 GMT; 1min 4s ago
Main PID: 326 (python)
CGroup: /system.slice/weather-station.service
└─326 /usr/bin/python /home/pi/weather-station.py
Mar 21 12:44:47 raspberrypi systemd[1]: Started weather station.
pi@raspberrypi:~ $
DELL

Task9:


weather-station.py - /home/pi - Geany
File Edit Search View Document Project Build Tools Help
Documents
weather-station.py
logger = Streamer(bucket_name="SenseHAT", bucket_key="86397V45LTG8", access_key="ist_sLLPb0yUTef32jlVCb99yKiFrpD_34
internet = False
while not internet:
try:
socket.setdefaulttimeout(3)
print("Attempting to create socket")
socket.socket(socket.AF_INET, socket.SOCK_STREAM).connect(("8.8.8.8", 53))
print("Created socket")
internet = True
except Exception:
print("No internet access. Trying again ....")
time.sleep(1)
print("Connected to Google Servers\n")
try:
while True:
# orientation
o = sense.get_orientation()
pitch = o["pitch"]
roll = o["roll"]
yaw = o["yaw"]
logger.log("Pitch: ", pitch)
logger.log("Roll: ", roll)
logger.log("Yaw: ", yaw)
time.sleep(1)
except KeyboardInterrupt:
logger.close()
Status
12:45:26: File /home/pi/reaction.py closed.
12:45:30: File /home/pi/weather-station.py opened(1).
12:50:54: File /home/pi/weather-station.py saved.
12:51:08: File /home/pi/weather-station.py saved.
12:51:17: File /home/pi/weather-station.py saved.
32 / 37 col: 32 sel: 0 INS TAB mode: LF encoding: UTF-8 filetype: Python scope: unknown
sh
File Edit Tabs Help
Attempting to create socket
Created socket
Connected to Google Servers
DELL


Edit Tiles
sensehat
Temperature C
37.6
Humidity:
33.4
Pressure:
1023.8
12:31:44 PM
Pitch:
327.2746341580284
Roll:
337.4186825567169
Yaw:
179.35608209476422
Type here to search
11°C Cloudy
ASUS