

## Assignment 2

### Temperature and humidity monitoring using python

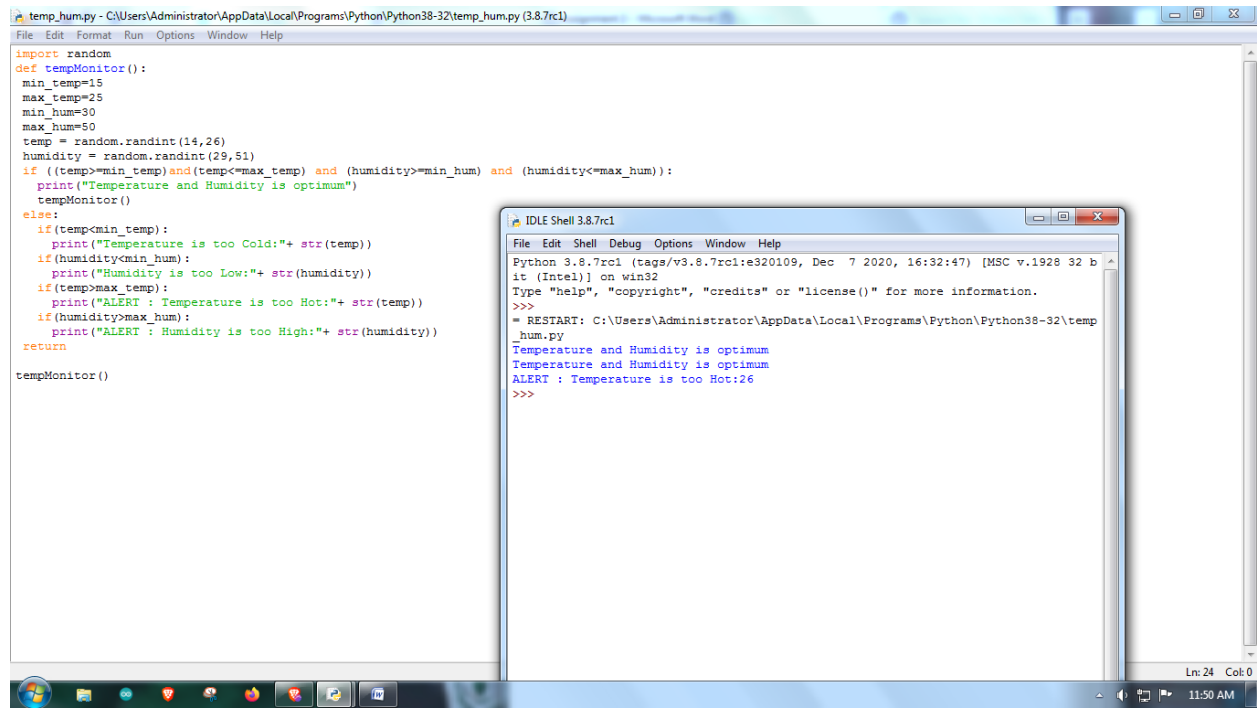
#### **Python code:**

```
import random

def tempMonitor():
    min_temp=15
    max_temp=25
    min_hum=30
    max_hum=50
    temp = random.randint(14,26)
    humidity = random.randint(29,51)
    if ((temp>=min_temp)and(temp<=max_temp) and (humidity>=min_hum) and
(humidity<=max_hum)):
        print("Temperature and Humidity is optimum")
        tempMonitor()
    else:
        if(temp<min_temp):
            print("Temperature is too Cold:"+ str(temp))
        if(humidity<min_hum):
            print("Humidity is too Low:"+ str(humidity))
        if(temp>max_temp):
            print("ALERT : Temperature is too Hot:"+ str(temp))
        if(humidity>max_hum):
            print("ALERT : Humidity is too High:"+ str(humidity))
    return
```

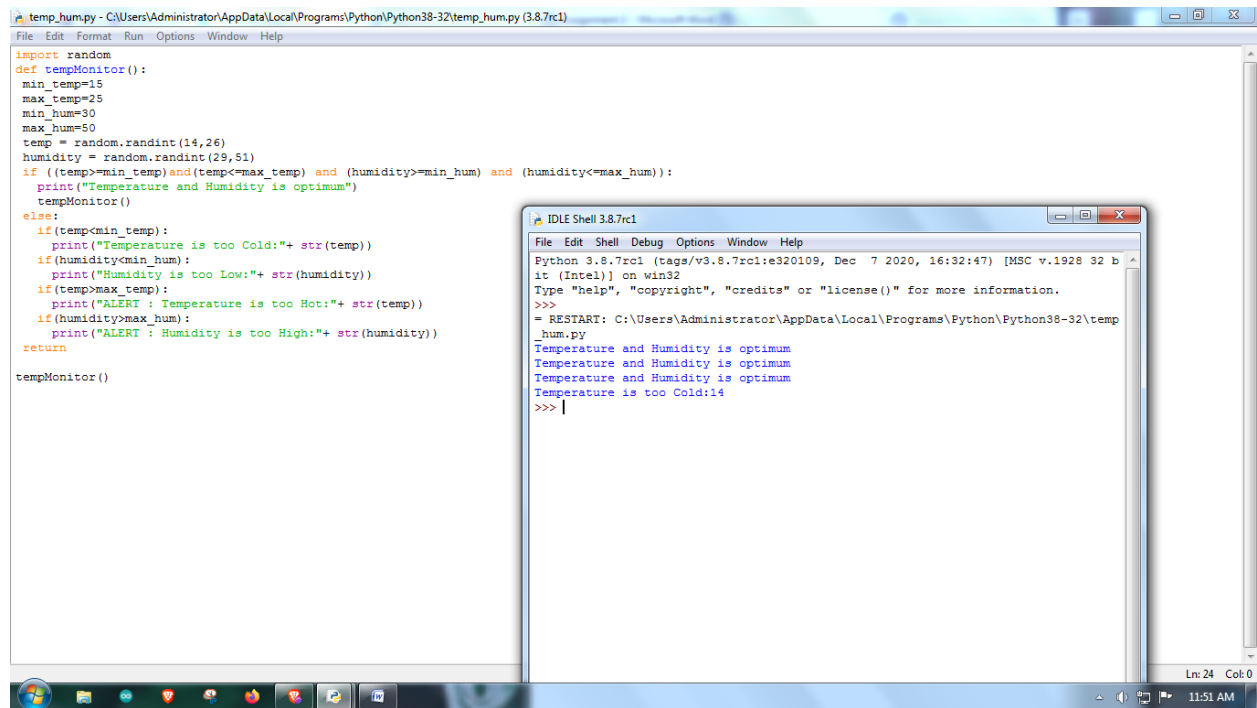
tempMonitor()

## IDLE OUTPUT:



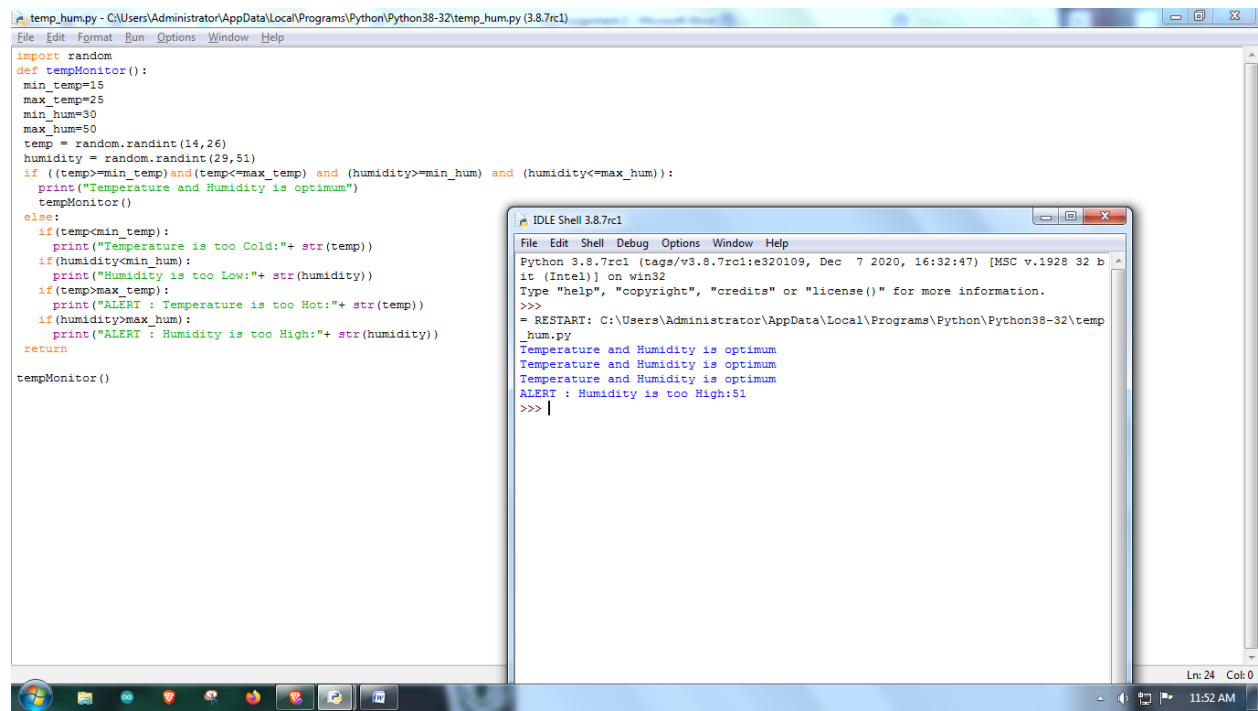
```
temp_monitor.py - C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp_monitor.py (3.8.7rc1)
File Edit Format Run Options Window Help
import random
def tempMonitor():
    min_temp=15
    max_temp=25
    min_hum=30
    max_hum=50
    temp = random.randint(14,26)
    humidity = random.randint(29,51)
    if ((temp>min_temp)and(temp<=max_temp) and (humidity>min_hum) and (humidity<=max_hum)):
        print("Temperature and Humidity is optimum")
        tempMonitor()
    else:
        if(temp<min_temp):
            print("Temperature is too Cold:"+ str(temp))
        if(humidity<min_hum):
            print("Humidity is too Low:"+ str(humidity))
        if(temp>max_temp):
            print("ALERT : Temperature is too Hot:"+ str(temp))
        if(humidity>max_hum):
            print("ALERT : Humidity is too High:"+ str(humidity))
    return
tempMonitor()

IDLE Shell 3.8.7rc1
File Edit Shell Debug Options Window Help
Python 3.8.7rc1 (tags/v3.8.7rc1:e320109, Dec 7 2020, 16:32:47) [MSC v.1928 32 b
it (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp
_monitor.py
Temperature and Humidity is optimum
Temperature and Humidity is optimum
ALERT : Temperature is too Hot:26
>>>
```



```
temp_monitor.py - C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp_monitor.py (3.8.7rc1)
File Edit Format Run Options Window Help
import random
def tempMonitor():
    min_temp=15
    max_temp=25
    min_hum=30
    max_hum=50
    temp = random.randint(14,26)
    humidity = random.randint(29,51)
    if ((temp>min_temp)and(temp<=max_temp) and (humidity>min_hum) and (humidity<=max_hum)):
        print("Temperature and Humidity is optimum")
        tempMonitor()
    else:
        if(temp<min_temp):
            print("Temperature is too Cold:"+ str(temp))
        if(humidity<min_hum):
            print("Humidity is too Low:"+ str(humidity))
        if(temp>max_temp):
            print("ALERT : Temperature is too Hot:"+ str(temp))
        if(humidity>max_hum):
            print("ALERT : Humidity is too High:"+ str(humidity))
    return
tempMonitor()

IDLE Shell 3.8.7rc1
File Edit Shell Debug Options Window Help
Python 3.8.7rc1 (tags/v3.8.7rc1:e320109, Dec 7 2020, 16:32:47) [MSC v.1928 32 b
it (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp
_monitor.py
Temperature and Humidity is optimum
Temperature and Humidity is optimum
Temperature and Humidity is optimum
Temperature is too Cold:14
>>>
```

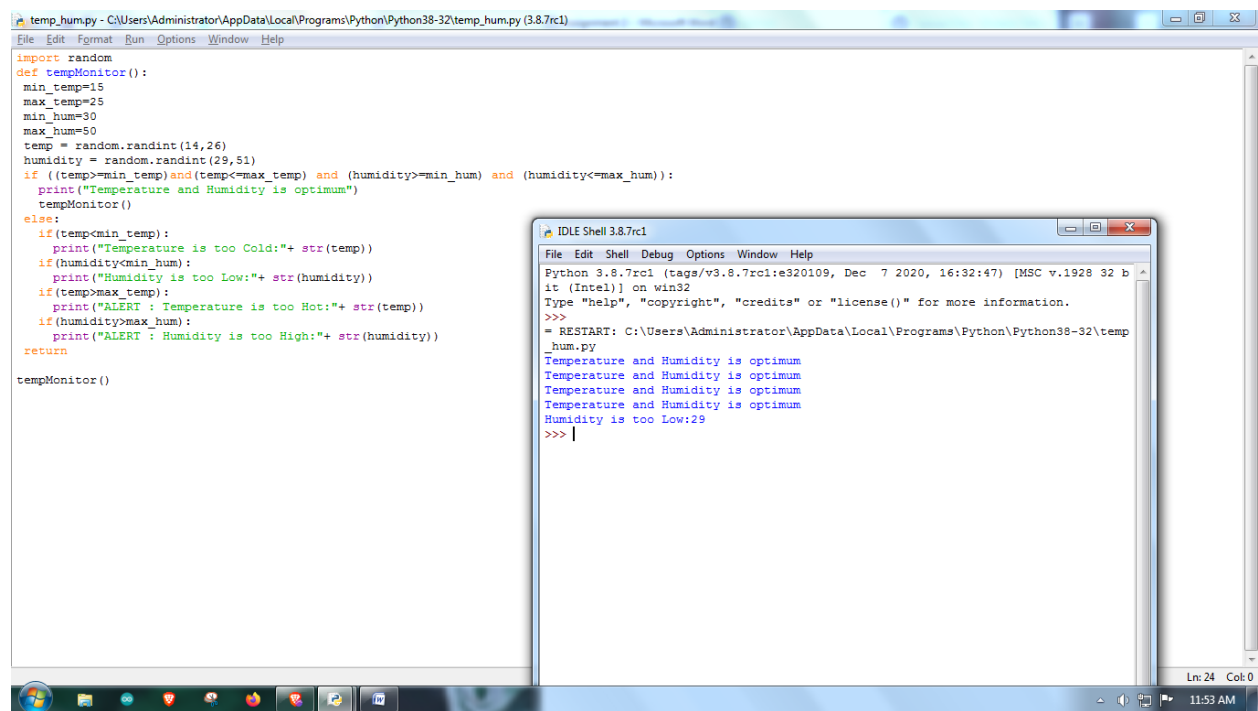


The screenshot shows a Python IDE window titled "temp\_hum.py - C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp\_hum.py (3.8.7rc1)". The code defines a function `tempMonitor()` that generates random temperature and humidity values and prints messages based on their ranges. An `if` statement checks for an optimum range, and an `else` block handles out-of-range values with specific alert messages. The function is called at the bottom of the script.

```
import random
def tempMonitor():
    min_temp=15
    max_temp=25
    min_hum=30
    max_hum=50
    temp = random.randint(14,26)
    humidity = random.randint(29,51)
    if ((temp>=min_temp)and(temp<=max_temp) and (humidity>=min_hum) and (humidity<=max_hum)):
        print("Temperature and Humidity is optimum")
        tempMonitor()
    else:
        if(temp<min_temp):
            print("Temperature is too Cold:"+ str(temp))
        if(humidity<min_hum):
            print("Humidity is too Low:"+ str(humidity))
        if(temp>max_temp):
            print("ALERT : Temperature is too Hot:"+ str(temp))
        if(humidity>max_hum):
            print("ALERT : Humidity is too High:"+ str(humidity))
    return
tempMonitor()
```

The IDE Shell window shows the execution output:

```
Python 3.8.7rc1 (tags/v3.8.7rc1:e320109, Dec 7 2020, 16:32:47) [MSC v.1928 32 b
it (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp
_hum.py
Temperature and Humidity is optimum
Temperature and Humidity is optimum
Temperature and Humidity is optimum
ALERT : Humidity is too High:51
>>> |
```

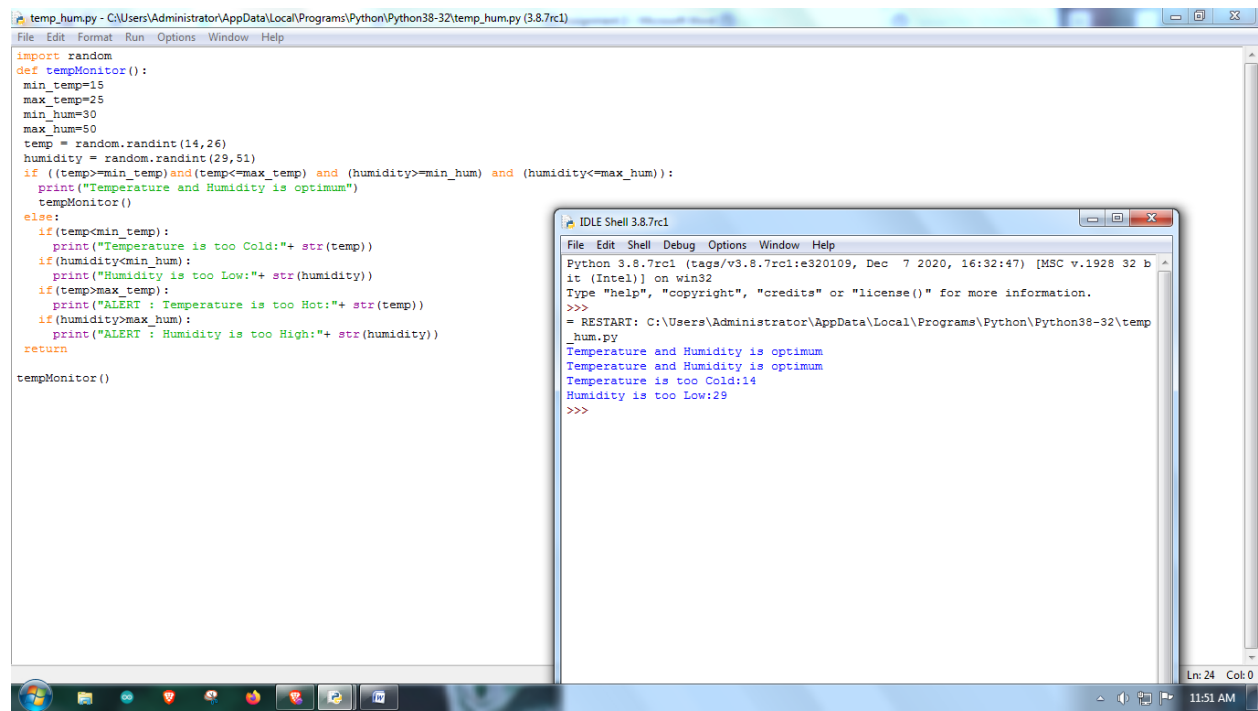


The screenshot shows the same Python IDE window with a modified script. The `if` statement now checks for a different optimum range, and the `else` block has been updated to include an alert for low humidity. The function is called at the bottom of the script.

```
import random
def tempMonitor():
    min_temp=15
    max_temp=25
    min_hum=30
    max_hum=50
    temp = random.randint(14,26)
    humidity = random.randint(29,51)
    if ((temp>=min_temp)and(temp<=max_temp) and (humidity>=min_hum) and (humidity<=max_hum)):
        print("Temperature and Humidity is optimum")
        tempMonitor()
    else:
        if(temp<min_temp):
            print("Temperature is too Cold:"+ str(temp))
        if(humidity<min_hum):
            print("Humidity is too Low:"+ str(humidity))
        if(temp>max_temp):
            print("ALERT : Temperature is too Hot:"+ str(temp))
        if(humidity>max_hum):
            print("ALERT : Humidity is too High:"+ str(humidity))
        if(humidity<min_hum):
            print("ALERT : Humidity is too Low:29")
    return
tempMonitor()
```

The IDE Shell window shows the execution output:

```
Python 3.8.7rc1 (tags/v3.8.7rc1:e320109, Dec 7 2020, 16:32:47) [MSC v.1928 32 b
it (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp
_hum.py
Temperature and Humidity is optimum
Temperature and Humidity is optimum
Temperature and Humidity is optimum
Temperature and Humidity is optimum
Humidity is too Low:29
>>> |
```



temp\_hum.py - C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp\_hum.py (3.8.7rc1)

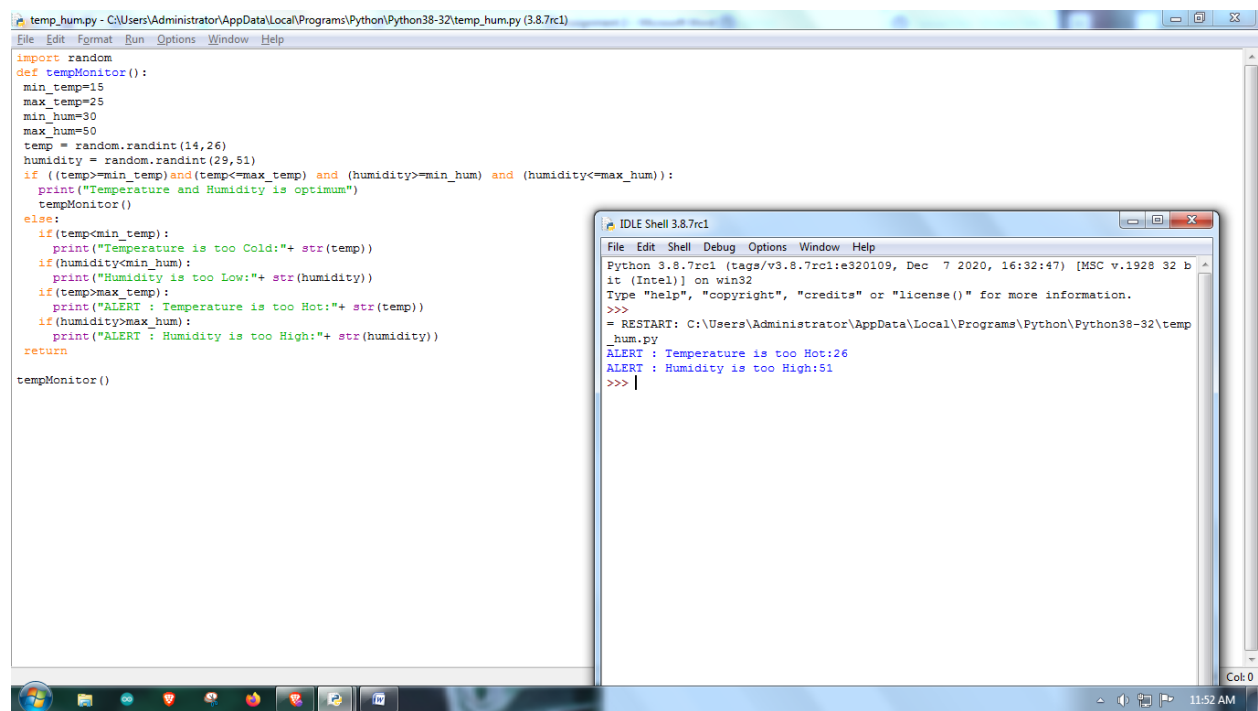
```
File Edit Format Run Options Window Help
import random
def tempMonitor():
    min_temp=15
    max_temp=25
    min_hum=30
    max_hum=50
    temp = random.randint(14,26)
    humidity = random.randint(29,51)
    if ((temp>=min_temp)and(temp<=max_temp) and (humidity>=min_hum) and (humidity<=max_hum)):
        print("Temperature and Humidity is optimum")
        tempMonitor()
    else:
        if (temp<min_temp):
            print("Temperature is too Cold:"+ str(temp))
        if (humidity<min_hum):
            print("Humidity is too Low:"+ str(humidity))
        if (temp>max_temp):
            print("ALERT : Temperature is too Hot:"+ str(temp))
        if (humidity>max_hum):
            print("ALERT : Humidity is too High:"+ str(humidity))
    return
tempMonitor()
```

IDLE Shell 3.8.7rc1

```
File Edit Shell Debug Options Window Help
Python 3.8.7rc1 (tags/v3.8.7rc1:e320109, Dec 7 2020, 16:32:47) [MSC v.1928 32 b
it (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp
_hum.py
Temperature and Humidity is optimum
Temperature and Humidity is optimum
Temperature is too Cold:14
Humidity is too Low:29
>>>
```

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11:51 AM



temp\_hum.py - C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp\_hum.py (3.8.7rc1)

```
File Edit Format Run Options Window Help
import random
def tempMonitor():
    min_temp=15
    max_temp=25
    min_hum=30
    max_hum=50
    temp = random.randint(14,26)
    humidity = random.randint(29,51)
    if ((temp>=min_temp)and(temp<=max_temp) and (humidity>=min_hum) and (humidity<=max_hum)):
        print("Temperature and Humidity is optimum")
        tempMonitor()
    else:
        if (temp<min_temp):
            print("Temperature is too Cold:"+ str(temp))
        if (humidity<min_hum):
            print("Humidity is too Low:"+ str(humidity))
        if (temp>max_temp):
            print("ALERT : Temperature is too Hot:"+ str(temp))
        if (humidity>max_hum):
            print("ALERT : Humidity is too High:"+ str(humidity))
    return
tempMonitor()
```

IDLE Shell 3.8.7rc1

```
File Edit Shell Debug Options Window Help
Python 3.8.7rc1 (tags/v3.8.7rc1:e320109, Dec 7 2020, 16:32:47) [MSC v.1928 32 b
it (Intel)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
= RESTART: C:\Users\Administrator\AppData\Local\Programs\Python\Python38-32\temp
_hum.py
ALERT : Temperature is too Hot:26
ALERT : Humidity is too High:51
>>>
```

Col: 0

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