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SCREEN SHORT:

The first screenshot shows the Programiz Python Online Compiler interface. The code in `main.py` defines two functions, `generate_temperature()` and `generate_humidity()`, which return random values between 20.0 and 40.0 degrees Celsius and 40.0% and 80.0% humidity, respectively. The main logic checks if the generated temperature and humidity exceed thresholds of 30.0 degrees Celsius and 60.0% humidity. If both conditions are met, it triggers an alarm.

```
1 import random
2
3 def generate_temperature():
4     return random.uniform(20.0, 40.0) # Generate temperature
5     between 20.0 and 40.0 degrees Celsius
6
7 def generate_humidity():
8     return random.uniform(40.0, 80.0) # Generate humidity between
9     40.0% and 80.0%
10
11 # Generate random temperature and humidity values
12 temperature = generate_temperature()
13 humidity = generate_humidity()
14
15 # Check if the temperature and humidity values exceed the thresholds
16 # for the alarm
17 temperature_threshold = 30.0 # Set the temperature threshold to 30
18 .0 degrees Celsius
19 humidity_threshold = 60.0 # Set the humidity threshold to 60.0%
20
21 if temperature > temperature_threshold and humidity >
22 humidity_threshold:
```

The second screenshot shows the same interface after the code has been executed. The output in the Shell window is "High temperature detected! Alarm triggered."

```
10 temperature = generate_temperature()
11 humidity = generate_humidity()
12
13 # Check if the temperature and humidity values exceed the thresholds
14 # for the alarm
15 temperature_threshold = 30.0 # Set the temperature threshold to 30
16 .0 degrees Celsius
17 humidity_threshold = 60.0 # Set the humidity threshold to 60.0%
18
19 if temperature > temperature_threshold and humidity >
20 humidity_threshold:
21     print("High temperature and high humidity detected! Alarm
22     triggered.")
23 elif temperature > temperature_threshold:
24     print("High temperature detected! Alarm triggered.")
25 elif humidity > humidity_threshold:
26     print("High humidity detected! Alarm triggered.")
27 else:
28     print("Temperature and humidity are within the normal range.")
```

PROGRAM:

```
import random
```

```

def generate_temperature():
    return random.uniform(20.0, 40.0) # Generate temperature between 20.0 and 40.0
degrees Celsius

def generate_humidity():
    return random.uniform(40.0, 80.0) # Generate humidity between 40.0% and 80.0%

# Generate random temperature and humidity values
temperature = generate_temperature()
humidity = generate_humidity()

# Check if the temperature and humidity values exceed the thresholds for the alarm
temperature_threshold = 30.0 # Set the temperature threshold to 30.0 degrees Celsius
humidity_threshold = 60.0 # Set the humidity threshold to 60.0%

if temperature > temperature_threshold and humidity > humidity_threshold:
    print("High temperature and high humidity detected! Alarm triggered.")
elif temperature > temperature_threshold:
    print("High temperature detected! Alarm triggered.")
elif humidity > humidity_threshold:
    print("High humidity detected! Alarm triggered.")
else:
    print("Temperature and humidity are within the normal range.")

```

OUTPUT:

High temperature detected! Alarm triggered.