VacationPy

Starter Code to Import Libraries and Load the Weather and Coordinates Data

In [7]:
```
# Dependencies and Setup
import matplotlib.pyplot as plt
import hvplot.pandas
import pandas as pd
import requests

# Import API key
from api_keys import geoapify_key
```

In [8]:
```
# Load the CSV file created in Part 1 into a Pandas DataFrame
city_data_df = pd.read_csv(r"C:\Users\conne\OneDrive\Desktop\NU-VIRT-DATA-PT-10-2023-U-LOLC\02-Homework\06-Python-A

# Display sample data
city_data_df.head()
```

Out[8]:

	City_ID	City	Lat	Lng	Max Temp	Humidity	Cloudiness	Wind Speed	Country	Date
0	0	iqaluit	63.7506	-68.5145	259.00	72	75	1.54	CA	1702492584
1	1	port-aux-francais	-49.3500	70.2167	280.74	97	100	19.11	TF	1702492567
2	2	brisas de zicatela	15.8369	-97.0419	303.21	48	75	2.94	MX	1702492640
3	3	masterton	-40.9597	175.6575	288.09	77	4	1.27	NZ	1702493072
4	4	udachny	66.4167	112.4000	245.62	82	100	4.80	RU	1702492584

Step 1: Create a map that displays a point for every city in the `city_data_df` DataFrame. The size of the point should be the humidity in each city.

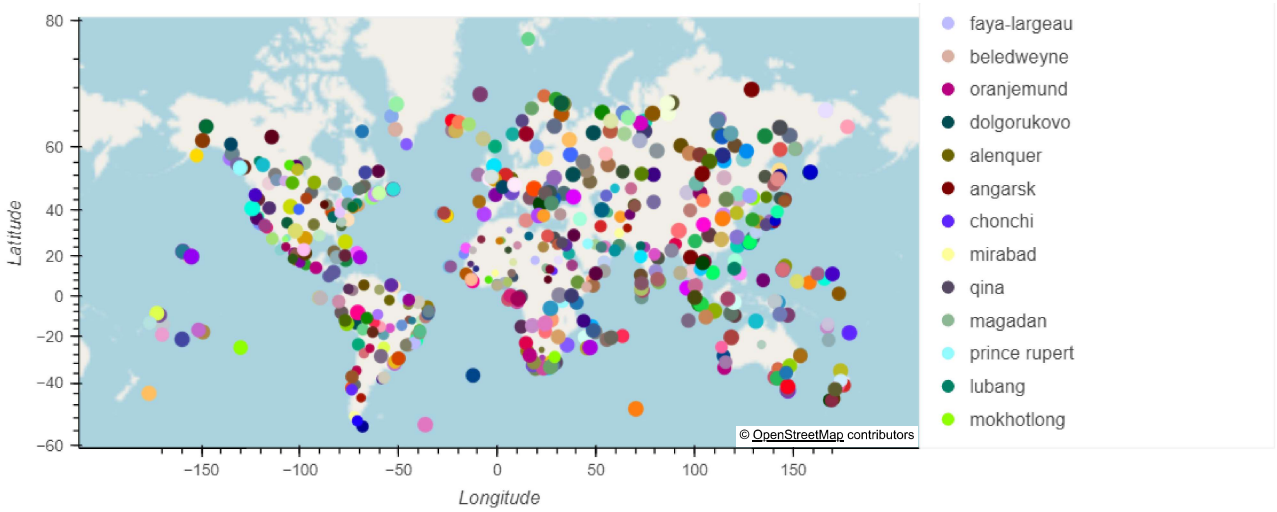
In [18]:
```
%%capture --no-display

# Configure the map plot

map_plot_1 = city_data_df.hvplot.points(
    "Lng",
    "Lat",
    geo = True,
    tiles = "OSM",
    size = "Humidity",
    color = "City")# Display the map

map_plot_1
```

Out[18]:



Step 2: Narrow down the `city_data_df` DataFrame to find your ideal weather condition

In [10]:
```
# Narrow down cities that fit criteria and drop any results with null values

# Filter the DataFrame by the specified conditions
ideal_weather = city_data_df[(city_data_df["Max Temp"] < 320) & (city_data_df["Max Temp"] > 300) & (city_data_df["H

# Drop any rows with null values
filtered_ideal_weather = ideal_weather.dropna()

# Display sample data
filtered_ideal_weather
```

Out[10]:

	City_ID	City	Lat	Lng	Max Temp	Humidity	Cloudiness	Wind Speed	Country	Date
2	2	brisas de zicatela	15.8369	-97.0419	303.21	48	75	2.94	MX	1702492640
5	5	riachao das neves	-11.7461	-44.9100	310.02	22	4	2.07	BR	1702493072
44	44	riachao do jacuipe	-11.8069	-39.3856	307.92	25	2	8.46	BR	1702493077
90	90	cabo san lucas	22.8909	-109.9124	302.38	48	20	0.00	MX	1702492434
151	151	guaratinga	-16.5667	-39.5667	302.68	43	100	5.51	BR	1702492809
199	199	kaedi	16.1465	-13.5047	302.28	13	98	4.49	MR	1702493100
203	203	corumba	-19.0092	-57.6533	310.99	44	40	3.60	BR	1702493100
208	208	bafoulabe	13.8065	-10.8321	302.07	12	23	2.96	ML	1702492663
220	220	lago da pedra	-4.3333	-45.1667	309.15	35	31	2.01	BR	1702493103
231	231	san ignacio de velasco	-16.3667	-60.9500	305.06	49	100	3.21	BO	1702493106
235	235	el rosario	24.2556	-107.1828	302.50	30	100	1.66	MX	1702493107
243	243	fiambala	-27.6871	-67.6149	304.94	39	16	7.52	AR	1702492586
253	253	poxoreo	-15.8372	-54.3892	308.82	33	72	1.46	BR	1702493110
274	274	ciudad lazaro cardenas	17.9583	-102.2000	304.31	41	100	0.59	MX	1702493114
283	283	acapulco de juarez	16.8634	-99.8901	306.05	40	75	3.09	MX	1702492471
343	343	el galpon	-25.3807	-64.6526	311.76	30	11	5.58	AR	1702493127
356	356	posto fiscal rolim de moura	-13.0833	-62.2667	307.03	46	99	1.90	BR	1702493129
369	369	lethem	3.3803	-59.7968	308.68	38	99	5.21	GY	1702492576
373	373	santa cruz	-17.8000	-63.1667	308.18	49	75	8.75	BO	1702493073
382	382	puerto lleras	3.0223	-73.4044	305.55	48	76	3.06	CO	1702493133
395	395	chaparral	3.7232	-75.4832	305.51	41	41	2.10	CO	1702493135
405	405	aripuana	-9.1667	-60.6333	307.50	45	76	1.10	BR	1702492643
419	419	coahuayana de hidalgo	18.7000	-103.6583	304.44	37	100	1.17	MX	1702492581
441	441	puerto ayacucho	5.6639	-67.6236	307.35	48	47	2.25	VE	1702492574
467	467	niquelandia	-14.4739	-48.4597	302.88	46	76	3.95	BR	1702493144
471	471	ibotirama	-12.1853	-43.2206	311.00	19	79	1.38	BR	1702493145
510	510	tshabong	-26.0500	22.4500	302.49	11	100	5.01	BW	1702493150
527	527	beledweyne	4.7358	45.2036	303.93	41	100	4.65	SO	1702493153
530	530	alenquer	-1.9417	-54.7383	307.75	41	99	1.95	BR	1702493153

Step 3: Create a new DataFrame called `hotel_df`.

In [21]:
```
# Use the Pandas copy function to create DataFrame called hotel_df to store the city, country, coordinates, and hum

hotel = filtered_ideal_weather[["City", "Country", "Lat", "Lng", "Max Temp", "Humidity"]]

hotel_df = hotel.copy()

# Add an empty column called "Hotel Name" to the new DataFrame

hotel_df["Hotel Name"]=""

# Display sample data from the new DataFrame
hotel_df
```

Out[21]:

	City	Country	Lat	Lng	Max Temp	Humidity	Hotel Name
2	brisas de zicatela	MX	15.8369	-97.0419	303.21	48	
5	riachao das neves	BR	-11.7461	-44.9100	310.02	22	
44	riachao do jacuipe	BR	-11.8069	-39.3856	307.92	25	
90	cabo san lucas	MX	22.8909	-109.9124	302.38	48	
151	guaratinga	BR	-16.5667	-39.5667	302.68	43	
199	kaedi	MR	16.1465	-13.5047	302.28	13	
203	corumba	BR	-19.0092	-57.6533	310.99	44	
208	bafoulabe	ML	13.8065	-10.8321	302.07	12	
220	lago da pedra	BR	-4.3333	-45.1667	309.15	35	
231	san ignacio de velasco	BO	-16.3667	-60.9500	305.06	49	
235	el rosario	MX	24.2556	-107.1828	302.50	30	
243	fiambala	AR	-27.6871	-67.6149	304.94	39	
253	poxoreo	BR	-15.8372	-54.3892	308.82	33	
274	ciudad lazaro cardenas	MX	17.9583	-102.2000	304.31	41	
283	acapulco de juarez	MX	16.8634	-99.8901	306.05	40	
343	el galpon	AR	-25.3807	-64.6526	311.76	30	
356	posto fiscal rolim de moura	BR	-13.0833	-62.2667	307.03	46	
369	lethem	GY	3.3803	-59.7968	308.68	38	
373	santa cruz	BO	-17.8000	-63.1667	308.18	49	
382	puerto lleras	CO	3.0223	-73.4044	305.55	48	
395	chaparral	CO	3.7232	-75.4832	305.51	41	
405	aripuana	BR	-9.1667	-60.6333	307.50	45	
419	coahuayana de hidalgo	MX	18.7000	-103.6583	304.44	37	
441	puerto ayacucho	VE	5.6639	-67.6236	307.35	48	
467	niquelandia	BR	-14.4739	-48.4597	302.88	46	
471	ibotirama	BR	-12.1853	-43.2206	311.00	19	
510	tshabong	BW	-26.0500	22.4500	302.49	11	
527	beledweyne	SO	4.7358	45.2036	303.93	41	
530	alenquer	BR	-1.9417	-54.7383	307.75	41	

Step 4: For each city, use the Geoapify API to find the first hotel located within 10,000 metres of your coordinates.

In [23]:
```
# Set parameters to search for a hotel
radius = 10000
params = {
    "categories":"accommodation.hotel",
    "apiKey": "<-API Key->",
    "limit":20
}
# Print a message to follow up the hotel search
print("Starting hotel search")

# Iterate through the hotel_df DataFrame
for index, row in hotel_df.iterrows():
    # get latitude, longitude from the DataFrame
    latitude = row["Lat"]
    longitude = row["Lng"]

     # Add the current city's latitude and longitude to the params dictionary
    params["filter"] = f"circle:{longitude},{latitude},{radius}"
    params["bias"] = f"proximity:{longitude},{latitude}"

    # Set base URL
    base_url = "https://api.geoapify.com/v2/places"


    # Make and API request using the params dictionaty
    name_address = requests.get(base_url, params=params)
    # name_address

    # Convert the API response to JSON format
    name_address_json = name_address.json()

    # Grab the first hotel from the results and store the name in the hotel_df DataFrame
    try:
        hotel_df.loc[index, "Hotel Name"] = name_address_json["features"][0]["properties"]["name"]
    except (KeyError, IndexError):
        # If no hotel is found, set the hotel name as "No hotel found".
        hotel_df.loc[index, "Hotel Name"] = "No hotel found"

    # Log the search results
    # print(f"{name_address}")
    print(f"{hotel_df.loc[index, 'City']} - nearest hotel: {hotel_df.loc[index, 'Hotel Name']}")

# Display sample data
hotel_df
```

```
Starting hotel search
brisas de zicatela - nearest hotel: Casa de Olas
riachao das neves - nearest hotel: No hotel found
riachao do jacuipe - nearest hotel: No hotel found
cabo san lucas - nearest hotel: Comfort Rooms
guaratinga - nearest hotel: Hotel e Restaurante Caraíva
kaedi - nearest hotel: فندق يوتي
corumba - nearest hotel: Hotel El Shadday
bafoulabe - nearest hotel: No hotel found
lago da pedra - nearest hotel: No hotel found
san ignacio de velasco - nearest hotel: Hotel Caparu
el rosario - nearest hotel: No hotel found
fiambala - nearest hotel: Cabañas Lunita
poxoreo - nearest hotel: No hotel found
ciudad lazaro cardenas - nearest hotel: Hotel Sol del Pacífico
acapulco de juarez - nearest hotel: Hotel del Valle
el galpon - nearest hotel: No hotel found
posto fiscal rolim de moura - nearest hotel: No hotel found
lethem - nearest hotel: Hotel Amazonas
santa cruz - nearest hotel: Aviador Hotel Boutique
puerto lleras - nearest hotel: No hotel found
chaparral - nearest hotel: Europa
aripuana - nearest hotel: No hotel found
coahuayana de hidalgo - nearest hotel: No hotel found
puerto ayacucho - nearest hotel: Hotel VENETUR Amazonas
niquelandia - nearest hotel: Serrano Hotel
ibotirama - nearest hotel: Glória Palace Hotel
tshabong - nearest hotel: No hotel found
beledweyne - nearest hotel: Hotel Medina
alenquer - nearest hotel: No hotel found
```

Out[23]:

	City	Country	Lat	Lng	Max Temp	Humidity	Hotel Name
2	brisas de zicatela	MX	15.8369	-97.0419	303.21	48	Casa de Olas
5	riachao das neves	BR	-11.7461	-44.9100	310.02	22	No hotel found
44	riachao do jacuipe	BR	-11.8069	-39.3856	307.92	25	No hotel found
90	cabo san lucas	MX	22.8909	-109.9124	302.38	48	Comfort Rooms
151	guaratinga	BR	-16.5667	-39.5667	302.68	43	Hotel e Restaurante Caraíva
199	kaedi	MR	16.1465	-13.5047	302.28	13	فندق يوتي
203	corumba	BR	-19.0092	-57.6533	310.99	44	Hotel El Shadday
208	bafoulabe	ML	13.8065	-10.8321	302.07	12	No hotel found
220	lago da pedra	BR	-4.3333	-45.1667	309.15	35	No hotel found
231	san ignacio de velasco	BO	-16.3667	-60.9500	305.06	49	Hotel Caparu
235	el rosario	MX	24.2556	-107.1828	302.50	30	No hotel found
243	fiambala	AR	-27.6871	-67.6149	304.94	39	Cabañas Lunita
253	poxoreo	BR	-15.8372	-54.3892	308.82	33	No hotel found
274	ciudad lazaro cardenas	MX	17.9583	-102.2000	304.31	41	Hotel Sol del Pacífico
283	acapulco de juarez	MX	16.8634	-99.8901	306.05	40	Hotel del Valle
343	el galpon	AR	-25.3807	-64.6526	311.76	30	No hotel found
356	posto fiscal rolim de moura	BR	-13.0833	-62.2667	307.03	46	No hotel found
369	lethem	GY	3.3803	-59.7968	308.68	38	Hotel Amazonas
373	santa cruz	BO	-17.8000	-63.1667	308.18	49	Aviador Hotel Boutique
382	puerto lleras	CO	3.0223	-73.4044	305.55	48	No hotel found
395	chaparral	CO	3.7232	-75.4832	305.51	41	Europa
405	aripuana	BR	-9.1667	-60.6333	307.50	45	No hotel found
419	coahuayana de hidalgo	MX	18.7000	-103.6583	304.44	37	No hotel found
441	puerto ayacucho	VE	5.6639	-67.6236	307.35	48	Hotel VENETUR Amazonas
467	niquelandia	BR	-14.4739	-48.4597	302.88	46	Serrano Hotel
471	ibotirama	BR	-12.1853	-43.2206	311.00	19	Glória Palace Hotel
510	tshabong	BW	-26.0500	22.4500	302.49	11	No hotel found
527	beledweyne	SO	4.7358	45.2036	303.93	41	Hotel Medina
530	alenquer	BR	-1.9417	-54.7383	307.75	41	No hotel found

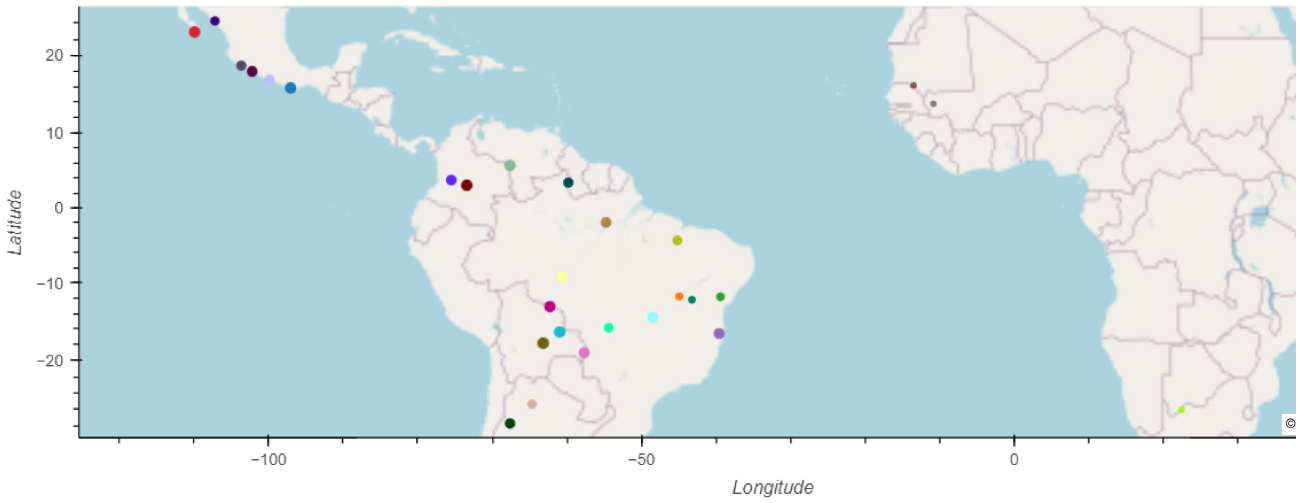
Step 5: Add the hotel name and the country as additional information in the hover message for each city in the map.

In [24]:
```
%%capture --no-display

# Configure the map plot
map_plot_2 = hotel_df.hvplot.points(
    "Lng",
    "Lat",
    geo = True,
    tiles = "OSM",
    size = "Humidity",
    color = "City",
    hover = True,
    hover_cols = 'all',
    use_index = False)


# Display the map
map_plot_2
```

Out[24]:



In [ ]:
```
1
```