VacationPy

June 9, 2024

0.1 # VacationPy

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

```
[1]: # Dependencies and Setup
     import hvplot.pandas
     import pandas as pd
     import requests
     import warnings
     warnings.filterwarnings('ignore')


     # Import API key
     from api_keys import geoapify_key
```

```
[2]: # Load the CSV file created in Part 1 into a Pandas DataFrame
     city_data_df = pd.read_csv("output_data/cities.csv")

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

```
[2]:    City_ID              City       Lat        Lng  Max Temp  Humidity  \
     0        0            avarua  -21.2078  -159.7750     22.03        60
     1        1  port-aux-francais  -49.3500    70.2167      6.42        98
     2        2              roma   43.2128   -75.4557     14.42        94
     3        3         adamstown  -25.0660  -130.1015     22.34        77
     4        4           jackson   42.4165  -122.8345     20.93        54

        Cloudiness  Wind Speed Country        Date
     0          20        2.57      CK  2024-06-08
     1         100       13.24      TF  2024-06-08
     2          75        0.89      US  2024-06-08
     3          19        5.28      PN  2024-06-08
     4           0        1.54      US  2024-06-08
```

0.2.1 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.

```
[3]: %%capture --no-display

     # Configure the map plot
     humidity_map = city_data_df.hvplot.points(
         "Lng",
         "Lat",
         geo = True,
         tiles = "OSM",
         frame_width = 800,
         frame_height = 600,
         size = "Humidity",
         scale = 1,
         color = "City",
     )

     # Display the map
     humidity_map
```

```
[3]: :Overlay
        .WMTS.I    :WMTS    [Longitude,Latitude]
        .Points.I :Points    [Lng,Lat]    (City,Humidity)
```

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

```
[4]: # Narrow down cities that fit criteria and drop any results with null values
     cities_narrow_lats_df = city_data_df[(city_data_df['Lat'] >= -19) &␣
      ↪(city_data_df['Lat'] <= 40)]

     # Drop any rows with null values
     ideal_weather_city_df = cities_narrow_lats_df.dropna()

     # Display sample data
     ideal_weather_city_df
```

```
[4]:      City_ID                                City      Lat       Lng  \
     9          9                     riachao das neves -11.7461  -44.9100
     13        13  palikir - national government center   6.9248  158.1611
     14        14                                 lihue  21.9789 -159.3672
     15        15                                 danli  14.0333  -86.5833
     24        24               santa elena de uairen    4.6167  -61.1333
     ..       ...                                   ...      ...       ...
     561      561                                 pisco -13.7000  -76.2167
     564      564                                 paita  -5.0892  -81.1144
     566      566                               mukalla  14.5425   49.1242
```

```
568         568                                    sola  -13.8833   167.5500
572         572                                    hilo   19.7297  -155.0900

     Max Temp  Humidity  Cloudiness  Wind Speed Country       Date
9       17.25        60          34        0.30      BR  2024-06-08
13      26.41        89         100        1.54      FM  2024-06-08
14      27.58        84          20        6.17      US  2024-06-08
15      20.60        98          98        1.11      HN  2024-06-08
24      18.64        94          16        0.43      VE  2024-06-08
..        ...       ...         ...         ...     ...        ...
561     17.03        88         100        2.57      PE  2024-06-08
564     18.40        87          65        5.39      PE  2024-06-08
566     33.34        59           4        3.09      YE  2024-06-08
568     26.75        71          25        6.84      VU  2024-06-08
572     25.85        79         100        2.06      US  2024-06-08

[301 rows x 10 columns]
```

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

```python
# Use the Pandas copy function to create DataFrame called hotel_df to store the
 ↪city, country, coordinates, and humidity
hotel_df = ideal_weather_city_df[['City', 'Country','Lat', 'Lng', 'Humidity']]

# Add an empty column, "Hotel Name," to the DataFrame so you can store the
 ↪hotel found using the Geoapify API
hotel_df['Hotel Name'] = ''

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

```
[5]:                                    City Country      Lat       Lng  Humidity  \
    9                    riachao das neves      BR -11.7461  -44.9100        60
    13  palikir - national government center   FM   6.9248   158.1611        89
    14                                lihue      US  21.9789 -159.3672        84
    15                                danli      HN  14.0333  -86.5833        98
    24                   santa elena de uairen   VE   4.6167  -61.1333        94

        Hotel Name
    9
    13
    14
    15
    24
```

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

```python
# Set parameters to search for a hotel
limit = 20
radius = 10000
params = {
    "limit":limit,
    "categories": "accommodation.hotel",
    "apiKey":geoapify_key
}

# 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 filter and bias parameters with 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 an API request using the params dictionary
    name_address = requests.get(base_url, params=params)

    # Convert the API response to JSON format
    name_address = 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["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"{hotel_df.loc[index, 'City']} - nearest hotel: {hotel_df.loc[index, ↵
↪'Hotel Name']}")

# Display sample data
hotel_df
```

Starting hotel search
riachao das neves - nearest hotel: No hotel found
palikir - national government center - nearest hotel: Mangrove Bay Hotel
lihue - nearest hotel: Kauai Palms
danli - nearest hotel: Hotel granada
santa elena de uairen - nearest hotel: Posada Villa Fairmont
andkhoy - nearest hotel: No hotel found
miri - nearest hotel: One Times One Inn
dunda - nearest hotel: No hotel found
dharmavaram - nearest hotel: No hotel found
utrik - nearest hotel: No hotel found
tucumcari - nearest hotel: Pow Wow Inn
chania - nearest hotel: Morum
qurayyat - nearest hotel:
matsue - nearest hotel:
carloforte - nearest hotel: Hotel Riviera
lamu - nearest hotel: Hotel Archipelago villa bed and breakfast
taoudenni - nearest hotel: No hotel found
aripuana - nearest hotel: No hotel found
hithadhoo - nearest hotel: Pebbles Inn
tongchuanshi - nearest hotel: No hotel found
pacasmayo - nearest hotel: Playa Linda
tamandare - nearest hotel: Pousada Baia dos Corais
atafu village - nearest hotel: No hotel found
wailua homesteads - nearest hotel: Hilton Garden Inn Kauai Wailua Bay
malango - nearest hotel: Madarana
bechar - nearest hotel: Hôtel Madania
hamilton - nearest hotel: North Vista Manor
west island - nearest hotel: Cocos Village Bungalows
prachuap khiri khan - nearest hotel: No hotel found
shingu - nearest hotel:
cabo san lucas - nearest hotel: Comfort Rooms
twentynine palms - nearest hotel: Holiday Inn Express Hotel & Suites Twentynine
Palms
mejit - nearest hotel: No hotel found
idri - nearest hotel: No hotel found
santana - nearest hotel: Hotel Teodoro
mincivan - nearest hotel: No hotel found
rio preto da eva - nearest hotel: Hotel Santo Antonio
ridgecrest - nearest hotel: Best Western China Lake Inn
santiago de cao - nearest hotel: Hostal El Encanto

kavieng - nearest hotel: Kavieng Hotel
bogor - nearest hotel: Abu Pension
vila franca do campo - nearest hotel: Vinha d'Areia Beach Hotel
faya-largeau - nearest hotel: No hotel found
puerto ayora - nearest hotel: Hostal La Mirada De Solitario George
nova vicosa - nearest hotel: Pousada Pontal da Barra
santa barbara - nearest hotel: No hotel found
enewetak - nearest hotel: No hotel found
fukuecho - nearest hotel:
namibe - nearest hotel: Nelsal Pensao
tsimasham - nearest hotel: No hotel found
as sulayyil - nearest hotel: No hotel found
sumbe - nearest hotel: No hotel found
hawaiian paradise park - nearest hotel: No hotel found
hun - nearest hotel:
saipan - nearest hotel: Chalan Kanoa Beach Hotel
sinabang - nearest hotel: No hotel found
bardai - nearest hotel: No hotel found
gamay - nearest hotel: No hotel found
banda aceh - nearest hotel: Hotel 61
mili - nearest hotel: No hotel found
areka - nearest hotel: Selam Hotel
mata-utu - nearest hotel: Gîte Oceania
tura - nearest hotel: Hotel Polo Orchid
lagoa - nearest hotel: Casa da Madrinha
fale old settlement - nearest hotel: No hotel found
natchitoches - nearest hotel: College Inn
amahai - nearest hotel: Hotel Irene
twon-brass - nearest hotel: KC Hotel
mersa matruh - nearest hotel:
ajdabiya - nearest hotel:
sinan - nearest hotel: No hotel found
kaliganj - nearest hotel: No hotel found
cedartown - nearest hotel: Quality Inn
rabaul - nearest hotel: Rabaul Hotel
al hazm - nearest hotel: No hotel found
jiwani - nearest hotel: No hotel found
red hill - nearest hotel: No hotel found
manokwari - nearest hotel: Hotel Arfak
moyale - nearest hotel: Paul's guest house
nyaungdon - nearest hotel: Osaka Guesthouse
pa sang - nearest hotel:
boyolangu - nearest hotel: Crown Victoria
georgetown - nearest hotel: Page 63 hostel
itoman - nearest hotel: No hotel found
weno - nearest hotel: High Tide Hotel
paka - nearest hotel: Paka Inn
zhangye - nearest hotel: Zhangye Hotel

remire-montjoly – nearest hotel: Complexe Belova
semnan – nearest hotel: –
bobo-dioulasso – nearest hotel: Teria
crestview – nearest hotel: Country Inn & Suites
baardheere – nearest hotel: No hotel found
phrai bueng – nearest hotel: No hotel found
hobyo – nearest hotel: Iftin Hotel Hobyo
kapa'a – nearest hotel: Pono Kai Resort
uvalde – nearest hotel: No hotel found
kill devil hills – nearest hotel: Mariner Days Inn & Suites
javea – nearest hotel: Hotel Sol de Jávea
ribeira grande – nearest hotel: Hospedaria JSF
ukata – nearest hotel: No hotel found
lushun – nearest hotel: No hotel found
puerto colombia – nearest hotel: Hotel Puerto Colombia
mega – nearest hotel: No hotel found
luganville – nearest hotel: Beachfront Resort
san patricio – nearest hotel: No hotel found
tukrah – nearest hotel: No hotel found
dalbandin – nearest hotel: SF Al-dawood Restaurant
luwuk – nearest hotel: No hotel found
tanjung pandan – nearest hotel: Billiton Hotel & Club
katsuura – nearest hotel:
burutu – nearest hotel: No hotel found
childress – nearest hotel: Red Roof Inn Childress
kiunga – nearest hotel: No hotel found
corinto – nearest hotel: Apollon
nasiriyah – nearest hotel:
morehead city – nearest hotel: Bask Hotel Big Rock Landing, Trademark Collection
by Wyndham
dayr al balah – nearest hotel:
beas de segura – nearest hotel: Hotel Avenida
menongue – nearest hotel: No hotel found
inirida – nearest hotel: Residencias El Turista del Guainia
bhag – nearest hotel: No hotel found
lagos – nearest hotel: No hotel found
mareeba – nearest hotel: The Gateway Hotel
fort bragg – nearest hotel: Airborne Inn Lodging
pacific grove – nearest hotel: Pacific Grove Inn
los osos – nearest hotel: Back Bay Inn
afaahiti – nearest hotel: Omati Lodge
naze – nearest hotel:
meadow lake – nearest hotel: No hotel found
tropea – nearest hotel: La Perla
labasa – nearest hotel: Grand Eastern Hotel
santa cruz – nearest hotel: Aviador Hotel Boutique
kampene – nearest hotel: No hotel found
kipushi – nearest hotel: No hotel found

```
mutuali - nearest hotel: No hotel found
astaneh-ye ashrafiyeh - nearest hotel:
saint david's - nearest hotel: Petite Bacaye
hasaki - nearest hotel: Choshi Plaza Hotel
chikwawa - nearest hotel: Memories Lodge
surgana - nearest hotel: No hotel found
sotouboua - nearest hotel: Verger
port moresby - nearest hotel: The Sanctuary Hotel and Spa
hinche - nearest hotel: Maguana Hôtel
al jubayl - nearest hotel: Sharq
henderson - nearest hotel: Hawthorn Suites By Wyndham Las Vegas/Henderson
mongu - nearest hotel: Country Lodge
sanming - nearest hotel:
porto novo - nearest hotel: Hôtel 6500 CFA
chalus - nearest hotel:
constantina - nearest hotel: Hôtel El Hawa Talk
sittwe - nearest hotel: Yuzana Aung Motel 1
maitum - nearest hotel: No hotel found
antsiranana - nearest hotel: Central
jianshui - nearest hotel:
salahonda - nearest hotel: No hotel found
kirakira - nearest hotel: No hotel found
niafunke - nearest hotel: No hotel found
machico - nearest hotel: Residence Inn
kalabo - nearest hotel: Golden Lodge Luxury Acomodation
san luis de la loma - nearest hotel: No hotel found
kalmunai - nearest hotel: Saji new food
moussoro - nearest hotel: No hotel found
angaur state - nearest hotel: No hotel found
al ghayzah - nearest hotel:
santa rosalia - nearest hotel: Sol y Mar
katsuren-haebaru - nearest hotel: No hotel found
bovalino - nearest hotel: No hotel found
radford - nearest hotel: La Quinta Inn by Wyndham Radford
ciudad bolivar - nearest hotel: Paoca
crane - nearest hotel: No hotel found
tamanrasset - nearest hotel:
mersing - nearest hotel: Mersing Inn Hotel
lospalos - nearest hotel: Hotel Roberto Carlos
hirara - nearest hotel:
tofol - nearest hotel: Nautilus Resort
kitui - nearest hotel: Parkside Hotel
puerto baquerizo moreno - nearest hotel: Dory's House
simanggang - nearest hotel: Mega Inn
heber springs - nearest hotel: Quality Inn & Conference Center
wenling - nearest hotel: Koro
thoen - nearest hotel: No hotel found
laojunmiao - nearest hotel: No hotel found
```

nam som – nearest hotel: No hotel found
kingston – nearest hotel: Aphrodite Hotel
nova sintra – nearest hotel: Residência Ka Dencho
el granada – nearest hotel: Beach House
uturoa – nearest hotel: Hawaiki Nui hotel
puerto lempira – nearest hotel: Hotel Yu Baiwan
kankauli – nearest hotel: Neelams countryside
nowshahr – nearest hotel: No hotel found
ko pha ngan – nearest hotel: The Shore Resort
tuburan – nearest hotel: No hotel found
kulhudhuffushi – nearest hotel: No hotel found
mogadishu – nearest hotel: Villa Rays Restaurant & Hotel
srikakulam – nearest hotel: SVA Hotel Grand
mbarara – nearest hotel: Palace Hotel
lumphat – nearest hotel: No hotel found
murakami – nearest hotel:
la'ie – nearest hotel: No hotel found
touros – nearest hotel: Pousada Atlântico
benguela – nearest hotel: Hotel Moibela
yaren – nearest hotel: Aiwo Hotel
mangrol – nearest hotel: No hotel found
belmonte – nearest hotel: No hotel found
al bawiti – nearest hotel: Old Oasis Hotel
karyes – nearest hotel: Hotel Parnon
hotan – nearest hotel: Hua Yi International Hotel (accepts foreigners)
zachary – nearest hotel: Best Western Zachary Inn
bushehr – nearest hotel:
goz beida – nearest hotel: No hotel found
shahrud – nearest hotel:
nadi – nearest hotel: President Hotel
sarangani – nearest hotel: No hotel found
muli – nearest hotel: Mulaku Atoll
ukiah – nearest hotel: Palace Hotel
lazaro cardenas – nearest hotel: Hotel Sol del Pacífico
acapulco de juarez – nearest hotel: Hotel del Valle
cockburn town – nearest hotel: The Salt Raker Inn
aipe – nearest hotel: Hotel Casa Blanca
zhob – nearest hotel: No hotel found
digras – nearest hotel: No hotel found
howrah – nearest hotel: Sun India Guest House
ishigaki – nearest hotel:
freetown – nearest hotel: Formal Leona hotel
hancheng – nearest hotel: No hotel found
argo – nearest hotel: Apollon Hotel
newman – nearest hotel: No hotel found
huaraz – nearest hotel: Andes Camp
beja – nearest hotel: Hotel Sidi Bou Teffaha
acajutla – nearest hotel: Hotel Lara

```
kailua-kona - nearest hotel: Kona Seaside Hotel
brisas de zicatela - nearest hotel: Casa de Olas
nouadhibou - nearest hotel: Hotel valencia
i-n-salah - nearest hotel:
redencao - nearest hotel: No hotel found
shakawe - nearest hotel: EdenWood guesthouse
barra do garcas - nearest hotel: Pousada Portal
heroica ciudad de tlaxiaco - nearest hotel: No hotel found
birjand - nearest hotel:
george town - nearest hotel: Page 63 hostel
betio village - nearest hotel: Seaman Hostel
bel ombre - nearest hotel: Villa La Cachette
wanning - nearest hotel: No hotel found
pangoa - nearest hotel: No hotel found
al qadarif - nearest hotel: No hotel found
zarand - nearest hotel: No hotel found
riberalta - nearest hotel: Hotel Jomali
kindu - nearest hotel: Hôtel Karibu
kuta - nearest hotel: Ida Hotel Bali
nova russas - nearest hotel: No hotel found
quelimane - nearest hotel: Mabassa
enriquillo - nearest hotel: Hotel Juan José
tak - nearest hotel: No hotel found
praia da vitoria - nearest hotel: Salles
mesquite - nearest hotel: Holiday Inn Express & Suites
piti village - nearest hotel: The Cliff Hotel
caleta de carquin - nearest hotel: Hotel Mi Choacan
bandarbeyla - nearest hotel: No hotel found
douz - nearest hotel: Louage station Douz
sainte-rose - nearest hotel: Habitation du Compté
bubaque - nearest hotel: Chez Julio
balabac - nearest hotel: No hotel found
lompoc - nearest hotel: Red Roof Inn Lompoc
aransas pass - nearest hotel: Executive Inn & Suites
borazjan - nearest hotel:
carmi - nearest hotel: No hotel found
sanibel - nearest hotel: Sanibel Moorings
bandar-e lengeh - nearest hotel: Old owner do not like foreigners hotel
huarmey - nearest hotel: Hostal Santa Rosa
svay rieng - nearest hotel: sopheakmonkol hotel
yigo village - nearest hotel: No hotel found
san andres - nearest hotel: Hotel Decameron Isleño
port arthur - nearest hotel: No hotel found
maumere - nearest hotel: Bogor
samarinda - nearest hotel: Hotel Bumi Senyiur
januaria - nearest hotel: No hotel found
as saffaniyah - nearest hotel: No hotel found
robertsport - nearest hotel: Nana's Lodge
```

```
shimoda - nearest hotel:
tamiahua - nearest hotel: No hotel found
raigarh - nearest hotel: Hotel Trinity Grand
banamba - nearest hotel: No hotel found
haiku-pauwela - nearest hotel: Inn At Mama's Fish House
karanpur - nearest hotel: No hotel found
guskhara - nearest hotel: Guskara Municipal Lodge
machakos - nearest hotel: Lau Guest House
kimbe - nearest hotel: Kimbe Bay Hotel
bamboo flat - nearest hotel: Hotel Megapode Nest
sur - nearest hotel: Sur Hotel
santo antonio do ica - nearest hotel: No hotel found
zaranj - nearest hotel: No hotel found
gaomi - nearest hotel: No hotel found
dara - nearest hotel: Auberge WSD Kër Gan
alaghsas - nearest hotel: Hôtel Zagado
ceeldheer - nearest hotel: No hotel found
al kharj - nearest hotel:
pisco - nearest hotel: La Portada
paita - nearest hotel: Victor's
mukalla - nearest hotel:
sola - nearest hotel: No hotel found
hilo - nearest hotel: Dolphin Bay Hotel
```

[6]:

	City	Country	Lat	Lng \
9	riachao das neves	BR	-11.7461	-44.9100
13	palikir - national government center	FM	6.9248	158.1611
14	lihue	US	21.9789	-159.3672
15	danli	HN	14.0333	-86.5833
24	santa elena de uairen	VE	4.6167	-61.1333
..	…	…	…	…
561	pisco	PE	-13.7000	-76.2167
564	paita	PE	-5.0892	-81.1144
566	mukalla	YE	14.5425	49.1242
568	sola	VU	-13.8833	167.5500
572	hilo	US	19.7297	-155.0900

	Humidity	Hotel Name
9	60	No hotel found
13	89	Mangrove Bay Hotel
14	84	Kauai Palms
15	98	Hotel granada
24	94	Posada Villa Fairmont
..	…	…
561	88	La Portada
564	87	Victor's
566	59	

```
568          71          No hotel found
572          79          Dolphin Bay Hotel
```

```
[301 rows x 6 columns]
```

[7]:
```python
# Export the City_Data into a csv
hotel_df.to_csv("output_data/hotel.csv", index_label="City_ID")
```

[8]:
```python
# Read saved data
hotel_df = pd.read_csv("output_data/hotel.csv", index_col="City_ID")

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

[8]:
```
                                       City Country      Lat       Lng  \
City_ID
9                          riachao das neves      BR -11.7461  -44.9100
13       palikir - national government center      FM   6.9248  158.1611
14                                     lihue      US  21.9789 -159.3672
15                                     danli      HN  14.0333  -86.5833
24                    santa elena de uairen      VE   4.6167  -61.1333

         Humidity            Hotel Name
City_ID
9              60          No hotel found
13             89      Mangrove Bay Hotel
14             84            Kauai Palms
15             98          Hotel granada
24             94  Posada Villa Fairmont
```

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

[9]:
```python
%%capture --no-display

# Configure the map plot
hotel_map = hotel_df.hvplot.points(
    "Lng",
    "Lat",
    geo = True,
    tiles = "OSM",
    frame_width = 800,
    frame_height = 600,
    size = "Lat",
    scale = 1,
    color = "City",
    hover_cols = ["Hotel Name", "Country"]
```

```
)

# Display the map
hotel_map
```

[9]: :Overlay
     .WMTS.I   :WMTS   [Longitude,Latitude]
     .Points.I :Points   [Lng,Lat]   (City,Hotel Name,Country)