

WeatherPy

Analysis

- As expected, the weather becomes significantly warmer as one approaches the equator (0 Deg. Latitude). More interestingly, however, is the fact that the southern hemisphere tends to be warmer this time of year than the northern hemisphere. This may be due to the tilt of the earth.
 - There is no strong relationship between latitude and cloudiness. However, it is interesting to see that a strong band of cities sits at 0, 80, and 100% cloudiness.
 - There is no strong relationship between latitude and wind speed. However, in northern hemispheres there is a flurry of cities with over 20 mph of wind.
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Note

- Instructions have been included for each segment. You do not have to follow them exactly, but they are included to help you think through the steps.

```
In [8]: # Dependencies and Setup
import matplotlib.pyplot as plt
import pandas as pd
import numpy as np
import requests
import time

# Import API key
from api_keys import api_key

# Incorporated citipy to determine city based on Latitude and Longitude
import sys
!{sys.executable} -m pip install citipy
from citipy import citipy

# Range of Latitudes and Longitudes
lat_range = (-90, 90)
lng_range = (-180, 180)
```

Requirement already satisfied: citipy in c:\users\pyash\anaconda3\lib\site-packages (0.0.5)

Requirement already satisfied: kdtree>=0.12 in c:\users\pyash\anaconda3\lib\site-packages (from citipy) (0.16)

Generate Cities List

```
In [9]: # List for holding lat_lngs and cities
lat_lngs = []
cities = []

# Create a set of random Lat and lng combinations
lats = np.random.uniform(low=-90.000, high=90.000, size=1500)
lngs = np.random.uniform(low=-180.000, high=180.000, size=1500)
lat_lngs = zip(lats, lngs)

# Identify nearest city for each Lat, lng combination
for lat_lng in lat_lngs:
    city = citipy.nearest_city(lat_lng[0], lat_lng[1]).city_name

    # If the city is unique, then add it to our cities list
    if city not in cities:
        cities.append(city)

# Print the city count to confirm sufficient count
len(cities)
```

Out[9]: 679

Perform API Calls

- Perform a weather check on each city using a series of successive API calls.
- Include a print log of each city as it's being processed (with the city number and city name).

```

In [18]: # create a params dict that will be updated with new city each iteration
params = {"APPID": api_key}

CityList = []
CloudinessList = []
CountryList = []
DateList = []
HumidityList = []
LatList = []
LngList = []
MaxTempList = []
WindSpeedList = []

count = 0
print('Beginning Data Retrieval')
for cityValue in cities:
    base_url = "http://api.openweathermap.org/data/2.5/weather?units=Imperial"
    # update address key value
    params['q'] = f"{cityValue}"

    cityWeatherParameters = requests.get(base_url, params = params)

    try:

        print('Processing Record ' + str(count) + ' of Set ' + '1' + ' | ' + c
ityValue)
        #print(cityWeatherParameters.url)

        cityWeatherParameters = cityWeatherParameters.json()

        # get the columns from json
        CityList.append(cityWeatherParameters['name'])
        CloudinessList.append(cityWeatherParameters['clouds']['all'])
        CountryList.append(cityWeatherParameters['sys']['country'])
        DateList.append(cityWeatherParameters['dt'])
        HumidityList.append(cityWeatherParameters['main']['humidity'])
        LatList.append(cityWeatherParameters['coord']['lat'])
        LngList.append(cityWeatherParameters['coord']['lon'])
        MaxTempList.append(cityWeatherParameters['main']['temp_max'])
        WindSpeedList.append(cityWeatherParameters['wind']['speed'])
        count = count + 1

    except (KeyError, IndexError):
        print('City not found. Skipping...')

print('-----')
print('Data Retrieval Complete')
print('-----')

```

Beginning Data Retrieval

```
Processing Record 0 of Set 1 | rikitea
Processing Record 1 of Set 1 | bredasdorp
Processing Record 2 of Set 1 | terrace
Processing Record 3 of Set 1 | castro
Processing Record 4 of Set 1 | mataura
Processing Record 5 of Set 1 | ushuaia
Processing Record 6 of Set 1 | ouadda
Processing Record 7 of Set 1 | cidreira
Processing Record 8 of Set 1 | aksu
Processing Record 9 of Set 1 | meridian
Processing Record 10 of Set 1 | sedro-woolley
Processing Record 11 of Set 1 | yellowknife
Processing Record 12 of Set 1 | arica
Processing Record 13 of Set 1 | san patricio
Processing Record 14 of Set 1 | urdoma
Processing Record 15 of Set 1 | saskylakh
Processing Record 16 of Set 1 | matara
Processing Record 17 of Set 1 | ciras
City not found. Skipping...
Processing Record 17 of Set 1 | cherskiy
Processing Record 18 of Set 1 | lebu
Processing Record 19 of Set 1 | busselton
Processing Record 20 of Set 1 | alyangula
Processing Record 21 of Set 1 | hithadhoo
Processing Record 22 of Set 1 | dvinskoy
Processing Record 23 of Set 1 | hermanus
Processing Record 24 of Set 1 | kamenka
Processing Record 25 of Set 1 | ixtapa
Processing Record 26 of Set 1 | bambanglipuro
Processing Record 27 of Set 1 | semey
Processing Record 28 of Set 1 | punta arenas
Processing Record 29 of Set 1 | guerrero negro
Processing Record 30 of Set 1 | butaritari
Processing Record 31 of Set 1 | zhangjiakou
Processing Record 32 of Set 1 | kodiak
Processing Record 33 of Set 1 | bengkulu
City not found. Skipping...
Processing Record 33 of Set 1 | yar-sale
Processing Record 34 of Set 1 | half moon bay
Processing Record 35 of Set 1 | abalak
Processing Record 36 of Set 1 | vardo
Processing Record 37 of Set 1 | omsukchan
Processing Record 38 of Set 1 | seymchan
Processing Record 39 of Set 1 | sobolevo
Processing Record 40 of Set 1 | sao filipe
Processing Record 41 of Set 1 | quang ngai
Processing Record 42 of Set 1 | pitimbu
Processing Record 43 of Set 1 | zhangye
Processing Record 44 of Set 1 | laguna
Processing Record 45 of Set 1 | new norfolk
Processing Record 46 of Set 1 | te anau
Processing Record 47 of Set 1 | port elizabeth
Processing Record 48 of Set 1 | amderma
City not found. Skipping...
Processing Record 48 of Set 1 | esperance
Processing Record 49 of Set 1 | bluff
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Processing Record 50 of Set 1 | port lincoln
Processing Record 51 of Set 1 | atuona
Processing Record 52 of Set 1 | abha
Processing Record 53 of Set 1 | asyut
Processing Record 54 of Set 1 | clyde river
Processing Record 55 of Set 1 | amapa
Processing Record 56 of Set 1 | praia
Processing Record 57 of Set 1 | tiksi
Processing Record 58 of Set 1 | taolanaro
City not found. Skipping...
Processing Record 58 of Set 1 | cape town
Processing Record 59 of Set 1 | alizai
Processing Record 60 of Set 1 | necochea
Processing Record 61 of Set 1 | kaitangata
Processing Record 62 of Set 1 | salalah
Processing Record 63 of Set 1 | lishui
Processing Record 64 of Set 1 | yamada
Processing Record 65 of Set 1 | kapaa
Processing Record 66 of Set 1 | santa marta
Processing Record 67 of Set 1 | santa vitoria do palmar
Processing Record 68 of Set 1 | kargopol
Processing Record 69 of Set 1 | toyota
Processing Record 70 of Set 1 | drovyanaya
Processing Record 71 of Set 1 | upernavik
Processing Record 72 of Set 1 | bara
Processing Record 73 of Set 1 | poum
Processing Record 74 of Set 1 | sakaiminato
Processing Record 75 of Set 1 | torbay
Processing Record 76 of Set 1 | mocambique
City not found. Skipping...
Processing Record 76 of Set 1 | gardan diwal
City not found. Skipping...
Processing Record 76 of Set 1 | qaanaaq
Processing Record 77 of Set 1 | puerto ayora
Processing Record 78 of Set 1 | shentala
Processing Record 79 of Set 1 | aginskoye
Processing Record 80 of Set 1 | matagami
Processing Record 81 of Set 1 | dingle
Processing Record 82 of Set 1 | ust-tsilma
Processing Record 83 of Set 1 | chokurdakh
Processing Record 84 of Set 1 | almenara
Processing Record 85 of Set 1 | tecoanapa
Processing Record 86 of Set 1 | taoudenni
Processing Record 87 of Set 1 | fez
Processing Record 88 of Set 1 | magadan
Processing Record 89 of Set 1 | marzuq
Processing Record 90 of Set 1 | yanaul
Processing Record 91 of Set 1 | constitucion
Processing Record 92 of Set 1 | marsh harbour
Processing Record 93 of Set 1 | ribeira grande
Processing Record 94 of Set 1 | orje
Processing Record 95 of Set 1 | pudozh
Processing Record 96 of Set 1 | ramsar
Processing Record 97 of Set 1 | billings
Processing Record 98 of Set 1 | brae
Processing Record 99 of Set 1 | sexsmith
Processing Record 100 of Set 1 | nikolskoye

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Processing Record 101 of Set 1 | tanza
Processing Record 102 of Set 1 | karaul
City not found. Skipping...
Processing Record 102 of Set 1 | mandalgovi
Processing Record 103 of Set 1 | never
Processing Record 104 of Set 1 | trairi
Processing Record 105 of Set 1 | urucara
Processing Record 106 of Set 1 | ponta do sol
Processing Record 107 of Set 1 | rong kwang
Processing Record 108 of Set 1 | navirai
Processing Record 109 of Set 1 | griffith
Processing Record 110 of Set 1 | berlevag
Processing Record 111 of Set 1 | kinkala
Processing Record 112 of Set 1 | kavarratti
Processing Record 113 of Set 1 | carnarvon
Processing Record 114 of Set 1 | pevek
Processing Record 115 of Set 1 | jamestown
Processing Record 116 of Set 1 | waipawa
Processing Record 117 of Set 1 | patancheru
Processing Record 118 of Set 1 | ariquemes
Processing Record 119 of Set 1 | wazzan
City not found. Skipping...
Processing Record 119 of Set 1 | formoso do araguaia
City not found. Skipping...
Processing Record 119 of Set 1 | san-pedro
Processing Record 120 of Set 1 | otane
Processing Record 121 of Set 1 | calbuco
Processing Record 122 of Set 1 | vaini
Processing Record 123 of Set 1 | lorengau
Processing Record 124 of Set 1 | hilo
Processing Record 125 of Set 1 | tsihombe
City not found. Skipping...
Processing Record 125 of Set 1 | doha
Processing Record 126 of Set 1 | arraial do cabo
Processing Record 127 of Set 1 | dudinka
Processing Record 128 of Set 1 | bellevue
Processing Record 129 of Set 1 | phek
Processing Record 130 of Set 1 | hwange
Processing Record 131 of Set 1 | whitefish
Processing Record 132 of Set 1 | attawapiskat
City not found. Skipping...
Processing Record 132 of Set 1 | norman wells
Processing Record 133 of Set 1 | skibbereen
Processing Record 134 of Set 1 | san joaquin
Processing Record 135 of Set 1 | mwinilunga
Processing Record 136 of Set 1 | uch
Processing Record 137 of Set 1 | olafsvik
City not found. Skipping...
Processing Record 137 of Set 1 | totness
Processing Record 138 of Set 1 | mahebourg
Processing Record 139 of Set 1 | sechura
Processing Record 140 of Set 1 | tuktoyaktuk
Processing Record 141 of Set 1 | nanortalik
Processing Record 142 of Set 1 | acarau
City not found. Skipping...
Processing Record 142 of Set 1 | port blair
Processing Record 143 of Set 1 | luwuk

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Processing Record 144 of Set 1 | sheltozero
Processing Record 145 of Set 1 | katsuura
Processing Record 146 of Set 1 | avarua
Processing Record 147 of Set 1 | college
Processing Record 148 of Set 1 | saleaula
City not found. Skipping...
Processing Record 148 of Set 1 | bethel
Processing Record 149 of Set 1 | zhigansk
Processing Record 150 of Set 1 | chuy
Processing Record 151 of Set 1 | ulaangom
Processing Record 152 of Set 1 | sorvag
City not found. Skipping...
Processing Record 152 of Set 1 | khatanga
Processing Record 153 of Set 1 | isla mujeres
Processing Record 154 of Set 1 | bambous virieux
Processing Record 155 of Set 1 | ingham
Processing Record 156 of Set 1 | kodinsk
Processing Record 157 of Set 1 | lagoa
Processing Record 158 of Set 1 | georgetown
Processing Record 159 of Set 1 | natal
Processing Record 160 of Set 1 | east london
Processing Record 161 of Set 1 | kjollefjord
Processing Record 162 of Set 1 | altamont
Processing Record 163 of Set 1 | aykhal
Processing Record 164 of Set 1 | lompoc
Processing Record 165 of Set 1 | fortuna
Processing Record 166 of Set 1 | barentsburg
City not found. Skipping...
Processing Record 166 of Set 1 | ploemeur
Processing Record 167 of Set 1 | vagur
Processing Record 168 of Set 1 | iqaluit
Processing Record 169 of Set 1 | mar del plata
Processing Record 170 of Set 1 | albany
Processing Record 171 of Set 1 | srandakan
Processing Record 172 of Set 1 | canas
Processing Record 173 of Set 1 | bathsheba
Processing Record 174 of Set 1 | venado tuerto
Processing Record 175 of Set 1 | port arthur
Processing Record 176 of Set 1 | saldanha
Processing Record 177 of Set 1 | hofn
Processing Record 178 of Set 1 | broken hill
Processing Record 179 of Set 1 | kailua
Processing Record 180 of Set 1 | dikson
Processing Record 181 of Set 1 | nara
Processing Record 182 of Set 1 | dunedin
Processing Record 183 of Set 1 | loano
Processing Record 184 of Set 1 | nizhneyansk
City not found. Skipping...
Processing Record 184 of Set 1 | akyab
City not found. Skipping...
Processing Record 184 of Set 1 | kholbon
Processing Record 185 of Set 1 | codrington
Processing Record 186 of Set 1 | airai
Processing Record 187 of Set 1 | atasu
Processing Record 188 of Set 1 | pacific grove
Processing Record 189 of Set 1 | ternate
Processing Record 190 of Set 1 | huamuxtitlan

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Processing Record 191 of Set 1 | dzhusaly
City not found. Skipping...
Processing Record 191 of Set 1 | barrow
Processing Record 192 of Set 1 | copiapó
Processing Record 193 of Set 1 | luangwa
Processing Record 194 of Set 1 | cerro largo
Processing Record 195 of Set 1 | saint george
Processing Record 196 of Set 1 | labuhan
Processing Record 197 of Set 1 | klaksvik
Processing Record 198 of Set 1 | cabo san lucas
Processing Record 199 of Set 1 | kendari
Processing Record 200 of Set 1 | loknya
Processing Record 201 of Set 1 | kruisfontein
Processing Record 202 of Set 1 | muisne
Processing Record 203 of Set 1 | tucuman
Processing Record 204 of Set 1 | provideniya
Processing Record 205 of Set 1 | kahului
Processing Record 206 of Set 1 | hihifo
City not found. Skipping...
Processing Record 206 of Set 1 | kamsack
Processing Record 207 of Set 1 | akdepe
Processing Record 208 of Set 1 | eyl
Processing Record 209 of Set 1 | hasaki
Processing Record 210 of Set 1 | biak
Processing Record 211 of Set 1 | sorland
Processing Record 212 of Set 1 | ikwiriri
Processing Record 213 of Set 1 | tasiilaq
Processing Record 214 of Set 1 | belushya guba
City not found. Skipping...
Processing Record 214 of Set 1 | dhidhdhoo
Processing Record 215 of Set 1 | kieta
Processing Record 216 of Set 1 | fare
Processing Record 217 of Set 1 | sanghar
Processing Record 218 of Set 1 | den helder
Processing Record 219 of Set 1 | aklavik
Processing Record 220 of Set 1 | hohhot
Processing Record 221 of Set 1 | yulara
Processing Record 222 of Set 1 | slave lake
Processing Record 223 of Set 1 | bolshoye selo
Processing Record 224 of Set 1 | santa cruz del sur
Processing Record 225 of Set 1 | araouane
Processing Record 226 of Set 1 | santa isabel
Processing Record 227 of Set 1 | saint-philippe
Processing Record 228 of Set 1 | muros
Processing Record 229 of Set 1 | kapuskasing
Processing Record 230 of Set 1 | oranjemund
Processing Record 231 of Set 1 | ayan
Processing Record 232 of Set 1 | lazarev
Processing Record 233 of Set 1 | dirba
Processing Record 234 of Set 1 | fuerte olimpo
Processing Record 235 of Set 1 | padang
Processing Record 236 of Set 1 | dronten
Processing Record 237 of Set 1 | imbituba
Processing Record 238 of Set 1 | longyearbyen
Processing Record 239 of Set 1 | kvarkenø
Processing Record 240 of Set 1 | port-gentil
Processing Record 241 of Set 1 | tateyama

Processing Record 242 of Set 1 | sabang
Processing Record 243 of Set 1 | aflu
City not found. Skipping...
Processing Record 243 of Set 1 | illoqqortoormiut
City not found. Skipping...
Processing Record 243 of Set 1 | hami
Processing Record 244 of Set 1 | tigil
Processing Record 245 of Set 1 | bonthe
Processing Record 246 of Set 1 | ipixuna
Processing Record 247 of Set 1 | pangkalanbuun
Processing Record 248 of Set 1 | saint anthony
Processing Record 249 of Set 1 | ola
Processing Record 250 of Set 1 | ewa beach
Processing Record 251 of Set 1 | rungata
City not found. Skipping...
Processing Record 251 of Set 1 | santa rosa del sur
Processing Record 252 of Set 1 | coslada
Processing Record 253 of Set 1 | godda
Processing Record 254 of Set 1 | inta
Processing Record 255 of Set 1 | aktash
City not found. Skipping...
Processing Record 255 of Set 1 | san policarpo
Processing Record 256 of Set 1 | gura sutii
Processing Record 257 of Set 1 | bad sachsa
Processing Record 258 of Set 1 | pulsano
Processing Record 259 of Set 1 | vestmannaeyjar
Processing Record 260 of Set 1 | hobart
Processing Record 261 of Set 1 | thompson
Processing Record 262 of Set 1 | praia da vitoria
Processing Record 263 of Set 1 | mount isa
Processing Record 264 of Set 1 | gwadar
Processing Record 265 of Set 1 | ostrovnoy
Processing Record 266 of Set 1 | carutapera
Processing Record 267 of Set 1 | sampit
Processing Record 268 of Set 1 | puerto colombia
Processing Record 269 of Set 1 | lufilufi
Processing Record 270 of Set 1 | lasa
Processing Record 271 of Set 1 | samarai
Processing Record 272 of Set 1 | sitka
Processing Record 273 of Set 1 | kolyshley
Processing Record 274 of Set 1 | juybar
Processing Record 275 of Set 1 | dawlatabad
Processing Record 276 of Set 1 | avera
Processing Record 277 of Set 1 | fukue
Processing Record 278 of Set 1 | port macquarie
Processing Record 279 of Set 1 | champerico
Processing Record 280 of Set 1 | shizunai
Processing Record 281 of Set 1 | tatarsk
Processing Record 282 of Set 1 | roald
Processing Record 283 of Set 1 | lavrentiya
Processing Record 284 of Set 1 | haines junction
Processing Record 285 of Set 1 | thinadhoo
Processing Record 286 of Set 1 | locri
Processing Record 287 of Set 1 | cockburn town
Processing Record 288 of Set 1 | maxixe
Processing Record 289 of Set 1 | agva
City not found. Skipping...

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Processing Record 289 of Set 1 | port alfred
Processing Record 290 of Set 1 | serebryansk
Processing Record 291 of Set 1 | gamba
Processing Record 292 of Set 1 | yeppoon
Processing Record 293 of Set 1 | baykit
Processing Record 294 of Set 1 | bintulu
Processing Record 295 of Set 1 | jilmah
City not found. Skipping...
Processing Record 295 of Set 1 | pobe
Processing Record 296 of Set 1 | tual
Processing Record 297 of Set 1 | santa fe
Processing Record 298 of Set 1 | shache
Processing Record 299 of Set 1 | srisailam
Processing Record 300 of Set 1 | kitui
Processing Record 301 of Set 1 | zyryanka
Processing Record 302 of Set 1 | plettenberg bay
Processing Record 303 of Set 1 | touros
Processing Record 304 of Set 1 | boa vista
Processing Record 305 of Set 1 | vestmanna
Processing Record 306 of Set 1 | finnsnes
Processing Record 307 of Set 1 | rocha
Processing Record 308 of Set 1 | york
Processing Record 309 of Set 1 | grand river south east
City not found. Skipping...
Processing Record 309 of Set 1 | krasnoselkup
City not found. Skipping...
Processing Record 309 of Set 1 | merauke
Processing Record 310 of Set 1 | lodwar
Processing Record 311 of Set 1 | souillac
Processing Record 312 of Set 1 | altay
Processing Record 313 of Set 1 | diapaga
Processing Record 314 of Set 1 | chumikan
Processing Record 315 of Set 1 | tumanny
City not found. Skipping...
Processing Record 315 of Set 1 | coihaique
Processing Record 316 of Set 1 | bagdarin
Processing Record 317 of Set 1 | pasni
Processing Record 318 of Set 1 | namtsy
Processing Record 319 of Set 1 | cap-aux-meules
Processing Record 320 of Set 1 | salamanca
Processing Record 321 of Set 1 | sile
Processing Record 322 of Set 1 | boda
Processing Record 323 of Set 1 | marsaxlokk
Processing Record 324 of Set 1 | harigue
City not found. Skipping...
Processing Record 324 of Set 1 | vung tau
Processing Record 325 of Set 1 | tura
Processing Record 326 of Set 1 | dondo
Processing Record 327 of Set 1 | okato
Processing Record 328 of Set 1 | hailar
Processing Record 329 of Set 1 | viligili
City not found. Skipping...
Processing Record 329 of Set 1 | awjilah
Processing Record 330 of Set 1 | sentyabrskiy
City not found. Skipping...
Processing Record 330 of Set 1 | zhanaozen
Processing Record 331 of Set 1 | pavagada

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Processing Record 332 of Set 1 | pauini
Processing Record 333 of Set 1 | chilia vecche
Processing Record 334 of Set 1 | talara
Processing Record 335 of Set 1 | bubaque
Processing Record 336 of Set 1 | poronaysk
Processing Record 337 of Set 1 | naze
Processing Record 338 of Set 1 | oga
Processing Record 339 of Set 1 | deh rawud
City not found. Skipping...
Processing Record 339 of Set 1 | batemans bay
Processing Record 340 of Set 1 | coahuayana
Processing Record 341 of Set 1 | san pedro de ycuamandiyu
Processing Record 342 of Set 1 | bairiki
City not found. Skipping...
Processing Record 342 of Set 1 | henties bay
Processing Record 343 of Set 1 | monywa
Processing Record 344 of Set 1 | gravdal
Processing Record 345 of Set 1 | havelock
Processing Record 346 of Set 1 | gorontalo
Processing Record 347 of Set 1 | vila velha
Processing Record 348 of Set 1 | knysna
Processing Record 349 of Set 1 | moosomin
Processing Record 350 of Set 1 | manaus
Processing Record 351 of Set 1 | belaya gora
Processing Record 352 of Set 1 | formosa do rio preto
Processing Record 353 of Set 1 | puerto escondido
Processing Record 354 of Set 1 | beya
Processing Record 355 of Set 1 | acapulco
Processing Record 356 of Set 1 | san lorenzo de el escorial
Processing Record 357 of Set 1 | marv dasht
City not found. Skipping...
Processing Record 357 of Set 1 | cabedelo
Processing Record 358 of Set 1 | iracoubo
Processing Record 359 of Set 1 | villavieja
Processing Record 360 of Set 1 | belmonte
Processing Record 361 of Set 1 | khuzdar
Processing Record 362 of Set 1 | arcachon
Processing Record 363 of Set 1 | coquimbo
Processing Record 364 of Set 1 | tsybli
Processing Record 365 of Set 1 | beloha
Processing Record 366 of Set 1 | fairbanks
Processing Record 367 of Set 1 | valparaiso
Processing Record 368 of Set 1 | port hardy
Processing Record 369 of Set 1 | dalby
Processing Record 370 of Set 1 | tongliao
Processing Record 371 of Set 1 | saint-pierre
Processing Record 372 of Set 1 | riyadh
Processing Record 373 of Set 1 | coolum beach
Processing Record 374 of Set 1 | itacare
Processing Record 375 of Set 1 | nome
Processing Record 376 of Set 1 | hajnowka
Processing Record 377 of Set 1 | hamilton
Processing Record 378 of Set 1 | hashtgerd
Processing Record 379 of Set 1 | odweyne
City not found. Skipping...
Processing Record 379 of Set 1 | winneba
Processing Record 380 of Set 1 | denizli

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Processing Record 381 of Set 1 | tabas
Processing Record 382 of Set 1 | kemijarvi
City not found. Skipping...
Processing Record 382 of Set 1 | horsham
Processing Record 383 of Set 1 | vanimo
Processing Record 384 of Set 1 | lamar
Processing Record 385 of Set 1 | burica
City not found. Skipping...
Processing Record 385 of Set 1 | vao
Processing Record 386 of Set 1 | idritsa
Processing Record 387 of Set 1 | port pirie
Processing Record 388 of Set 1 | asau
City not found. Skipping...
Processing Record 388 of Set 1 | milkovo
Processing Record 389 of Set 1 | najran
Processing Record 390 of Set 1 | budogoshch
Processing Record 391 of Set 1 | havoysund
Processing Record 392 of Set 1 | qaqortoq
Processing Record 393 of Set 1 | san jose
Processing Record 394 of Set 1 | tonj
City not found. Skipping...
Processing Record 394 of Set 1 | jardim
Processing Record 395 of Set 1 | egvekinot
Processing Record 396 of Set 1 | tilichiki
Processing Record 397 of Set 1 | hanting
Processing Record 398 of Set 1 | parana
Processing Record 399 of Set 1 | alofi
Processing Record 400 of Set 1 | gat
Processing Record 401 of Set 1 | petropavlovsk-kamchatskiy
Processing Record 402 of Set 1 | victoria point
Processing Record 403 of Set 1 | verkhnyaya inta
Processing Record 404 of Set 1 | mehamn
Processing Record 405 of Set 1 | faanui
Processing Record 406 of Set 1 | dafeng
Processing Record 407 of Set 1 | tottori
Processing Record 408 of Set 1 | quelimane
Processing Record 409 of Set 1 | tazmalt
Processing Record 410 of Set 1 | belousovka
Processing Record 411 of Set 1 | loukisia
Processing Record 412 of Set 1 | juegang
Processing Record 413 of Set 1 | vila do maio
Processing Record 414 of Set 1 | tessalit
Processing Record 415 of Set 1 | taixing
Processing Record 416 of Set 1 | kalemie
Processing Record 417 of Set 1 | gazanjyk
Processing Record 418 of Set 1 | apaseo el alto
Processing Record 419 of Set 1 | luderitz
Processing Record 420 of Set 1 | vanavara
Processing Record 421 of Set 1 | havre-saint-pierre
Processing Record 422 of Set 1 | conceicao do araguaia
Processing Record 423 of Set 1 | sinnamary
Processing Record 424 of Set 1 | mount gambier
Processing Record 425 of Set 1 | itarema
Processing Record 426 of Set 1 | guataqui
Processing Record 427 of Set 1 | pisco
Processing Record 428 of Set 1 | veraval
Processing Record 429 of Set 1 | nuuk

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Processing Record 430 of Set 1 | kuche
City not found. Skipping...
Processing Record 430 of Set 1 | solnechnyy
Processing Record 431 of Set 1 | palabuhanratu
City not found. Skipping...
Processing Record 431 of Set 1 | adrar
Processing Record 432 of Set 1 | takoradi
Processing Record 433 of Set 1 | shebalino
Processing Record 434 of Set 1 | gangtok
Processing Record 435 of Set 1 | isiro
Processing Record 436 of Set 1 | richards bay
Processing Record 437 of Set 1 | paamiut
Processing Record 438 of Set 1 | yuanping
Processing Record 439 of Set 1 | matoury
Processing Record 440 of Set 1 | zhuhai
Processing Record 441 of Set 1 | ahuimanu
Processing Record 442 of Set 1 | kununurra
Processing Record 443 of Set 1 | karratha
Processing Record 444 of Set 1 | thaba nchu
Processing Record 445 of Set 1 | francistown
Processing Record 446 of Set 1 | galgani
City not found. Skipping...
Processing Record 446 of Set 1 | quatre cocos
Processing Record 447 of Set 1 | tanout
Processing Record 448 of Set 1 | martapura
Processing Record 449 of Set 1 | kattivakkam
Processing Record 450 of Set 1 | deputatskiy
Processing Record 451 of Set 1 | ciudad bolivar
Processing Record 452 of Set 1 | vwawa
Processing Record 453 of Set 1 | uwajima
Processing Record 454 of Set 1 | gull lake
Processing Record 455 of Set 1 | emerald
Processing Record 456 of Set 1 | maniitsoq
Processing Record 457 of Set 1 | halalo
City not found. Skipping...
Processing Record 457 of Set 1 | sao jose da coroa grande
Processing Record 458 of Set 1 | bogale
Processing Record 459 of Set 1 | sabha
Processing Record 460 of Set 1 | progreso
Processing Record 461 of Set 1 | bosaso
Processing Record 462 of Set 1 | morondava
Processing Record 463 of Set 1 | akureyri
Processing Record 464 of Set 1 | chandur
Processing Record 465 of Set 1 | hirara
Processing Record 466 of Set 1 | blagoyevo
Processing Record 467 of Set 1 | ancud
Processing Record 468 of Set 1 | namatanai
Processing Record 469 of Set 1 | mersing
Processing Record 470 of Set 1 | saint-joseph
Processing Record 471 of Set 1 | humaita
Processing Record 472 of Set 1 | talnakh
Processing Record 473 of Set 1 | batsfjord
Processing Record 474 of Set 1 | canela
Processing Record 475 of Set 1 | dakar
Processing Record 476 of Set 1 | mvuma
Processing Record 477 of Set 1 | samusu
City not found. Skipping...

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Processing Record 477 of Set 1 | celestun
Processing Record 478 of Set 1 | khalkhal
Processing Record 479 of Set 1 | hongan
City not found. Skipping...
Processing Record 479 of Set 1 | soubre
Processing Record 480 of Set 1 | vaasa
Processing Record 481 of Set 1 | colares
Processing Record 482 of Set 1 | umzimvubu
City not found. Skipping...
Processing Record 482 of Set 1 | dunmore east
Processing Record 483 of Set 1 | lichtenburg
Processing Record 484 of Set 1 | zhitikara
City not found. Skipping...
Processing Record 484 of Set 1 | san carlos de bariloche
Processing Record 485 of Set 1 | nyurba
Processing Record 486 of Set 1 | marrakesh
Processing Record 487 of Set 1 | ndele
City not found. Skipping...
Processing Record 487 of Set 1 | mys shmidta
City not found. Skipping...
Processing Record 487 of Set 1 | calama
Processing Record 488 of Set 1 | vinstra
Processing Record 489 of Set 1 | gladstone
Processing Record 490 of Set 1 | arman
Processing Record 491 of Set 1 | jalu
Processing Record 492 of Set 1 | isangel
Processing Record 493 of Set 1 | los llanos de aridane
Processing Record 494 of Set 1 | kavieng
Processing Record 495 of Set 1 | bakani
Processing Record 496 of Set 1 | reconquista
Processing Record 497 of Set 1 | dongsheng
Processing Record 498 of Set 1 | kakching
Processing Record 499 of Set 1 | narsaq
Processing Record 500 of Set 1 | santa cruz
Processing Record 501 of Set 1 | harper
Processing Record 502 of Set 1 | baruun-urt
Processing Record 503 of Set 1 | litoral del san juan
City not found. Skipping...
Processing Record 503 of Set 1 | banda aceh
Processing Record 504 of Set 1 | talawdi
City not found. Skipping...
Processing Record 504 of Set 1 | culpeper
Processing Record 505 of Set 1 | xining
Processing Record 506 of Set 1 | miri
Processing Record 507 of Set 1 | plouzane
Processing Record 508 of Set 1 | antofagasta
Processing Record 509 of Set 1 | cuncolim
Processing Record 510 of Set 1 | margate
Processing Record 511 of Set 1 | orshanka
Processing Record 512 of Set 1 | san luis
Processing Record 513 of Set 1 | eldikan
City not found. Skipping...
Processing Record 513 of Set 1 | tuatapere
Processing Record 514 of Set 1 | tingi
Processing Record 515 of Set 1 | crystal
Processing Record 516 of Set 1 | russell
Processing Record 517 of Set 1 | uyuni

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Processing Record 518 of Set 1 | canutama
Processing Record 519 of Set 1 | ilek
Processing Record 520 of Set 1 | bur gabo
City not found. Skipping...
Processing Record 520 of Set 1 | peniche
Processing Record 521 of Set 1 | tautira
Processing Record 522 of Set 1 | basco
Processing Record 523 of Set 1 | manama
Processing Record 524 of Set 1 | mutsamudu
City not found. Skipping...
Processing Record 524 of Set 1 | astana
Processing Record 525 of Set 1 | baracoa
Processing Record 526 of Set 1 | mpanda
Processing Record 527 of Set 1 | poltava
Processing Record 528 of Set 1 | kirkuk
Processing Record 529 of Set 1 | torata
Processing Record 530 of Set 1 | nikolayevka
Processing Record 531 of Set 1 | venta
Processing Record 532 of Set 1 | lima
Processing Record 533 of Set 1 | kariba
Processing Record 534 of Set 1 | moree
Processing Record 535 of Set 1 | sunrise manor
Processing Record 536 of Set 1 | iskateley
Processing Record 537 of Set 1 | olinda
Processing Record 538 of Set 1 | tarare
Processing Record 539 of Set 1 | lahaina
Processing Record 540 of Set 1 | payo
Processing Record 541 of Set 1 | yarim
Processing Record 542 of Set 1 | asifabad
Processing Record 543 of Set 1 | bandarbeyla
Processing Record 544 of Set 1 | hauterive
Processing Record 545 of Set 1 | puerto ayacucho
Processing Record 546 of Set 1 | cap malheureux
Processing Record 547 of Set 1 | gyal
Processing Record 548 of Set 1 | skjervoy
Processing Record 549 of Set 1 | fort portal
Processing Record 550 of Set 1 | chapais
Processing Record 551 of Set 1 | kargala
Processing Record 552 of Set 1 | san cristobal
Processing Record 553 of Set 1 | masuguru
Processing Record 554 of Set 1 | ilulissat
Processing Record 555 of Set 1 | waingapu
Processing Record 556 of Set 1 | fevralsk
City not found. Skipping...
Processing Record 556 of Set 1 | grindavik
Processing Record 557 of Set 1 | xiongshi
City not found. Skipping...
Processing Record 557 of Set 1 | caala
Processing Record 558 of Set 1 | canavieiras
Processing Record 559 of Set 1 | pokaran
Processing Record 560 of Set 1 | kpandu
Processing Record 561 of Set 1 | neiafu
Processing Record 562 of Set 1 | arlit
Processing Record 563 of Set 1 | lloydminster
Processing Record 564 of Set 1 | dolores
Processing Record 565 of Set 1 | miraflores
Processing Record 566 of Set 1 | malanje

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Processing Record 567 of Set 1 | do gonbadan
Processing Record 568 of Set 1 | jibuti
City not found. Skipping...
Processing Record 568 of Set 1 | beringovski
Processing Record 569 of Set 1 | evanston
Processing Record 570 of Set 1 | mentok
City not found. Skipping...
Processing Record 570 of Set 1 | hobyo
Processing Record 571 of Set 1 | nautla
Processing Record 572 of Set 1 | kangaatsiaq
Processing Record 573 of Set 1 | kidal
Processing Record 574 of Set 1 | balkhash
Processing Record 575 of Set 1 | teguldet
Processing Record 576 of Set 1 | mogadishu
Processing Record 577 of Set 1 | huarmey
Processing Record 578 of Set 1 | minab
Processing Record 579 of Set 1 | jyvaskyla
City not found. Skipping...
Processing Record 579 of Set 1 | mantua
Processing Record 580 of Set 1 | grand gaube
Processing Record 581 of Set 1 | brive-la-gaillarde
Processing Record 582 of Set 1 | namibe
Processing Record 583 of Set 1 | la baule-escoublac
Processing Record 584 of Set 1 | kargasok
Processing Record 585 of Set 1 | zdvinsk
Processing Record 586 of Set 1 | hovd
Processing Record 587 of Set 1 | ankara
Processing Record 588 of Set 1 | lewisporte
Processing Record 589 of Set 1 | saint-paul
Processing Record 590 of Set 1 | hambantota
Processing Record 591 of Set 1 | gushikawa
Processing Record 592 of Set 1 | umm kaddadah
Processing Record 593 of Set 1 | shuyskoye
Processing Record 594 of Set 1 | kudahuvadhoo
Processing Record 595 of Set 1 | severo-kurilsk
Processing Record 596 of Set 1 | alamos
Processing Record 597 of Set 1 | uspenskaya
Processing Record 598 of Set 1 | edinburg
Processing Record 599 of Set 1 | pucallpa
Processing Record 600 of Set 1 | foumbot
Processing Record 601 of Set 1 | amberley
Processing Record 602 of Set 1 | bereda
Processing Record 603 of Set 1 | ordzhonikidze
Processing Record 604 of Set 1 | inirida
Processing Record 605 of Set 1 | meyungs
City not found. Skipping...
Processing Record 605 of Set 1 | yumen
Processing Record 606 of Set 1 | nogliki
Processing Record 607 of Set 1 | evensk
Processing Record 608 of Set 1 | bellingham
Processing Record 609 of Set 1 | non thai
Processing Record 610 of Set 1 | meulaboh
Processing Record 611 of Set 1 | sibolga
Processing Record 612 of Set 1 | porto walter
Processing Record 613 of Set 1 | marcona
City not found. Skipping...
Processing Record 613 of Set 1 | wanning

```



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Processing Record 614 of Set 1 | vostok
Processing Record 615 of Set 1 | znamensk
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Data Retrieval Complete
-----

```

Convert Raw Data to DataFrame

- Export the city data into a .csv.
- Display the DataFrame

```

In [19]: allCityWeatherDataDF = {
          'City':CityList,
          'Cloudiness':CloudinessList,
          'Country':CountryList,
          'Date':DateList,
          'Humidity':HumidityList,
          'Lat':LatList,
          'Lng':LngList,
          'Max Temp':MaxTemplList,
          'Wind Speed':WindSpeedList
        }

allCityWeatherDataDF = pd.DataFrame(allCityWeatherDataDF)
allCityWeatherDataDF.Date = allCityWeatherDataDF.Date.map(lambda x: '{:.0f}'.format(x))
allCityWeatherDataDF.Cloudiness = allCityWeatherDataDF.Cloudiness.map(lambda x: '{:.0f}'.format(x))
allCityWeatherDataDF.Humidity = allCityWeatherDataDF.Humidity.map(lambda x: '{:.0f}'.format(x))

allCityWeatherDataDF.to_csv("CityWeatherPy_Yash.csv", index = True, header = True)
allCityWeatherDataDF.apply(len)

```

```

Out[19]: City          616
          Cloudiness    616
          Country       616
          Date          616
          Humidity      616
          Lat           616
          Lng           616
          Max Temp      616
          Wind Speed    616
          dtype: int64

```

```
In [20]: allCityWeatherDataDF.head(5)
```

```
Out[20]:
```

	City	Cloudiness	Country	Date	Humidity	Lat	Lng	Max Temp	Wind Speed
0	Rikitea	19	PF	1559705229	79	-23.12	-134.97	75.93	2.37
1	Bredasdorp	13	ZA	1559705075	62	-34.53	20.04	60.01	23.04
2	Terrace	75	CA	1559705297	81	54.52	-128.61	50.00	14.99
3	Castro	100	CL	1559705077	87	-42.48	-73.76	50.00	17.22
4	Mataura	44	NZ	1559705231	69	-46.19	168.86	45.69	7.38

Plotting the Data

- Use proper labeling of the plots using plot titles (including date of analysis) and axes labels.
- Save the plotted figures as .pngs.

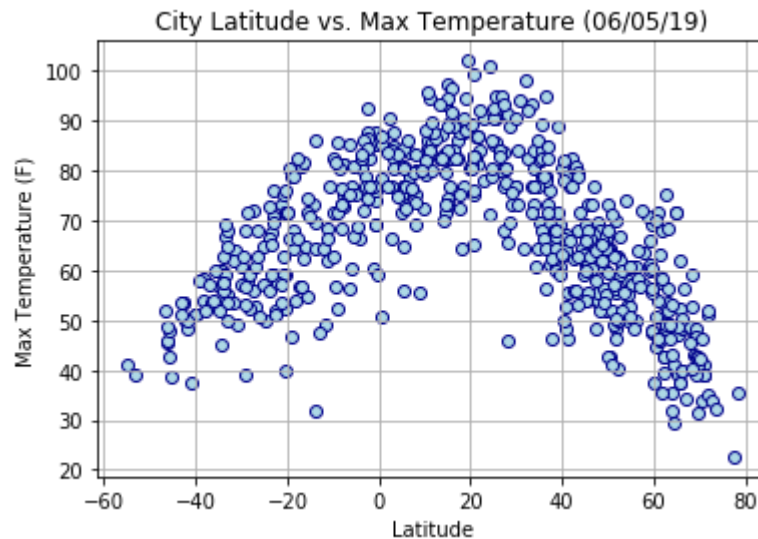
Latitude vs. Temperature Plot

```
In [21]: DateListCoverterFormat = pd.to_datetime(DateList,unit='s').strftime('%m/%d/%y')
UniqueDate = list(set(DateListCoverterFormat))[0]

plt.scatter(LatList, MaxTempList, marker="o", color="lightblue",edgecolors = 'darkblue')
plt.title("City Latitude vs. Max Temperature (" + UniqueDate + ")")
plt.xlabel("Latitude")
plt.ylabel("Max Temperature (F)")
plt.grid()
plt.yticks(np.arange(round(min(MaxTempList)/10,0)*10, (round(max(MaxTempList)/10,0)+1)*10, step=10))

# Save the Figure
plt.savefig('CityLatitude_vs_MaxTemperature.png')

plt.show()
```



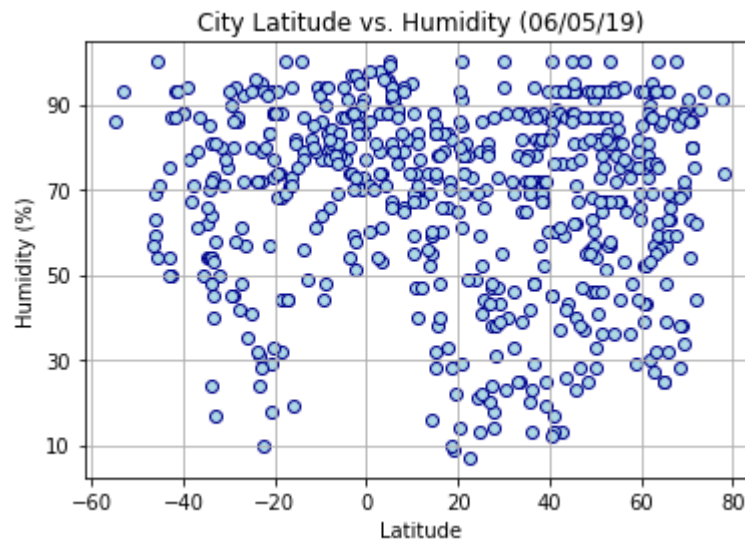
Latitude vs. Humidity Plot

```
In [22]: DateListCoverterFormat = pd.to_datetime(DateList,unit='s').strftime('%m/%d/%y')
UniqueDate = list(set(DateListCoverterFormat))[0]

plt.scatter(LatList, HumidityList, marker="o", color="lightblue",edgecolors =
'darkblue')
plt.title("City Latitude vs. Humidity (" + UniqueDate +)")
plt.xlabel("Latitude")
plt.ylabel("Humidity (%)")
plt.grid()
plt.yticks(np.arange(round(min(HumidityList)/10,0)*10, (round(max(HumidityList
)/10,0)+1)*10, step=20))

# Save the Figure
plt.savefig('CityLatitude_vs_Humidity.png')

plt.show()
```



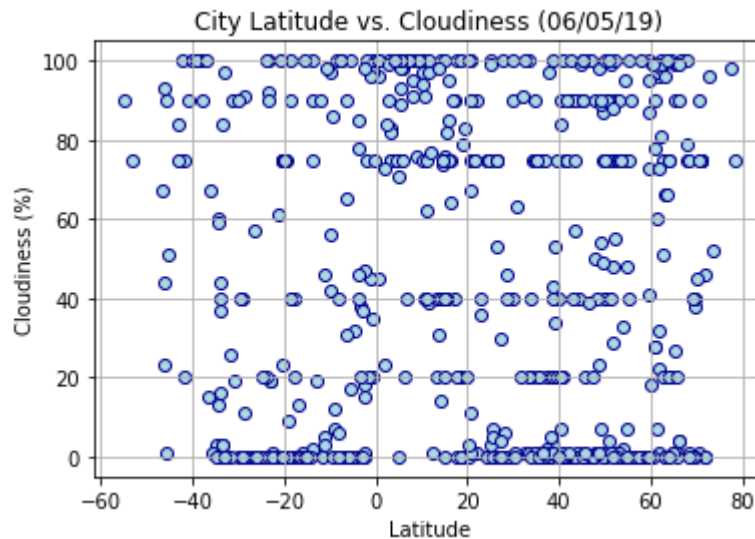
Latitude vs. Cloudiness Plot

```
In [23]: DateListCoverterFormat = pd.to_datetime(DateList,unit='s').strftime('%m/%d/%y')
UniqueDate = list(set(DateListCoverterFormat))[0]

plt.scatter(LatList, CloudinessList, marker="o", color="lightblue",edgecolors
='darkblue')
plt.title("City Latitude vs. Cloudiness (" + UniqueDate + ")")
plt.xlabel("Latitude")
plt.ylabel("Cloudiness (%)")
plt.grid()
plt.yticks(np.arange(round(min(CloudinessList)/10,0)*10, (round(max(Cloudiness
List)/10,0)+1)*10, step=20))

# Save the Figure
plt.savefig('CityLatitude_vs_Cloudiness.png')

plt.show()
```



Latitude vs. Wind Speed Plot

```
In [24]: DateListCoverterFormat = pd.to_datetime(DateList,unit='s').strftime('%m/%d/%y')
UniqueDate = list(set(DateListCoverterFormat))[0]

plt.scatter(LatList, WindSpeedList, marker="o", color="lightblue",edgecolors =
'darkblue')
plt.title("City Latitude vs. Wind Speed (" + UniqueDate +)")
plt.xlabel("Latitude")
plt.ylabel("Wind Speed (mph)")
plt.grid()
plt.yticks(np.arange(round(min(WindSpeedList)/10,0)*10, (round(max(WindSpeedLi
st)/10,0)+0.5)*10, step=5))

# Save the Figure
plt.savefig('CityLatitude_vs_WindSpeed.png')

plt.show()
```

