Google search Analysis Using Python

Installation of Pytrends

```
!pip install pytrends
```

```
Collecting pytrends
  Obtaining dependency information for pytrends from
https://files.pythonhosted.org/packages/68/ba/7a24a3723c790000faf880505ff
1cc46f4d29f46dd353037938a070c4d23/pytrends-4.9.2-py3-none-
any.whl.metadata
  Downloading pytrends-4.9.2-py3-none-any.whl.metadata (13 kB)
Requirement already satisfied: requests>=2.0 in c:\users\bheem\anaconda3\
lib\site-packages (from pytrends) (2.31.0)
Requirement already satisfied: pandas>=0.25 in c:\users\bheem\anaconda3\
lib\site-packages (from pytrends) (2.0.3)
Requirement already satisfied: lxml in c:\users\bheem\anaconda3\lib\site-
packages (from pytrends) (4.9.3)
Requirement already satisfied: python-dateutil>=2.8.2 in c:\users\bheem\
anaconda3\lib\site-packages (from pandas>=0.25->pytrends) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in c:\users\bheem\anaconda3\
lib\site-packages (from pandas>=0.25->pytrends) (2023.3.post1)
Requirement already satisfied: tzdata>=2022.1 in c:\users\bheem\
anaconda3\lib\site-packages (from pandas>=0.25->pytrends) (2023.3)
Requirement already satisfied: numpy>=1.21.0 in c:\users\bheem\anaconda3\
lib\site-packages (from pandas>=0.25->pytrends) (1.24.3)
Requirement already satisfied: charset-normalizer<4,>=2 in c:\users\
bheem\anaconda3\lib\site-packages (from requests>=2.0->pytrends) (2.0.4)
Requirement already satisfied: idna<4,>=2.5 in c:\users\bheem\anaconda3\
lib\site-packages (from requests>=2.0->pytrends) (3.4)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\users\bheem\
anaconda3\lib\site-packages (from requests>=2.0->pytrends) (1.26.16)
Requirement already satisfied: certifi>=2017.4.17 in c:\users\bheem\
anaconda3\lib\site-packages (from requests>=2.0->pytrends) (2024.7.4)
Requirement already satisfied: six>=1.5 in c:\users\bheem\anaconda3\lib\
site-packages (from python-dateutil>=2.8.2->pandas>=0.25->pytrends)
(1.16.0)
Downloading pytrends-4.9.2-py3-none-any.whl (15 kB)
Installing collected packages: pytrends
Successfully installed pytrends-4.9.2
```

Connecting to Google

Google search trends by importing the required python libraries

Importing methods TrendReq and pytrends.req for requesting the google trending topics

```
import pandas as pd
from pytrends.request import TrendReq
import matplotlib.pyplot as plt
import time

Trending_topics=TrendReq(hl='en-US',tz=350)
```

Creating the Dataframe of the top countires and searching the term COULD COMPUTING, we are using the method build_payload

```
kw_list=["Cloud Computing"]
Trending_topics.build_payload(kw_list,cat=0,timeframe='today 12-m')
time.sleep(10)

import pandas as pd
from pytrends.request import TrendReq
import matplotlib.pyplot as plt
import time

Trending_topics = TrendReq(hl='en-US', tz=360)

kw_list=["Cloud Computing"]
Trending_topics.build_payload(kw_list,cat=0, timeframe='today 12-m')
time.sleep(10)

data = Trending_topics.interest_over_time()
data = data.sort_values(by="Cloud Computing", ascending = False)
data = data.head(10)
print(data)
```

```
            Cloud Computing  isPartial
date
2023-12-10              100      False
2024-01-28               84      False
2023-12-17               82      False
2024-11-17               81      False
2024-02-11               80      False
2024-03-17               79      False
2024-01-21               79      False
2024-01-07               78      False
2024-05-05               78      False
2024-04-28               78      False
```

```
kw_list = ["Cloud Computing"]
Trending_topics.build_payload(kw_list, cat=0, timeframe='2018-01-01 2018-
02-01', geo='', gprop='')
data = Trending_topics.interest_over_time()
data = data.sort_values(by="Cloud Computing", ascending = False)
data = data.head(10)
print(data)
```

```
            Cloud Computing  isPartial
date
2018-01-30              100      False
2018-01-18               97      False
2018-02-01               95      False
2018-01-08               92      False
2018-01-24               91      False
2018-01-04               90      False
2018-01-11               90      False
2018-01-10               89      False
2018-01-22               89      False
2018-01-09               88      False
```

```
data = Trending_topics.interest_by_region()
data = data.sort_values(by="Cloud Computing",
                        ascending = False)
data = data.head(10)
print(data)
```

```
---------------------------------------------------------------------
TooManyRequestsError                Traceback (most recent call last)
Cell In[28], line 1
----> 1 data = Trending_topics.interest_by_region()
      2 data = data.sort_values(by="Cloud Computing",
      3                         ascending = False)
      4 data = data.head(10)

File ~\anaconda3\Lib\site-packages\pytrends\request.py:340, in
TrendReq.interest_by_region(self, resolution, inc_low_vol, inc_geo_code)
    337 region_payload['tz'] = self.tz
    339 # parse returned json
--> 340 req_json = self._get_data(
    341     url=TrendReq.INTEREST_BY_REGION_URL,
    342     method=TrendReq.GET_METHOD,
    343     trim_chars=5,
    344     params=region_payload,
    345 )
    346 df = pd.DataFrame(req_json['default']['geoMapData'])
    347 if (df.empty):

File ~\anaconda3\Lib\site-packages\pytrends\request.py:159, in
TrendReq._get_data(self, url, method, trim_chars, **kwargs)
    157 else:
    158     if response.status_code ==
status_codes.codes.too_many_requests:
--> 159         raise
exceptions.TooManyRequestsError.from_response(response)
    160     raise exceptions.ResponseError.from_response(response)

TooManyRequestsError: The request failed: Google returned a response with
code 429
```

```
!pip install backoff
```

```
Collecting backoff
  Obtaining dependency information for backoff from
https://files.pythonhosted.org/packages/df/73/b6e24bd22e6720ca8ee9a85a0c4
a2971af8497d8f3193fa05390cbd46e09/backoff-2.2.1-py3-none-any.whl.metadata
  Downloading backoff-2.2.1-py3-none-any.whl.metadata (14 kB)
Downloading backoff-2.2.1-py3-none-any.whl (15 kB)
Installing collected packages: backoff
Successfully installed backoff-2.2.1
```

```
import pandas as pd
from pytrends.request import TrendReq
import matplotlib.pyplot as plt
import time
import backoff

@backoff.on_exception(backoff.expo,
```

```
pytrends.exceptions.TooManyRequestsError, max_tries=3)  # Decorator to
handle TooManyRequestsError
def get_trends_data(trending_topics, kw_list):
        trending_topics.build_payload(kw_list, cat=0, timeframe='today
12-m')
        interest_over_time_data = trending_topics.interest_over_time()
        interest_by_region_data = trending_topics.interest_by_region()
        return interest_over_time_data, interest_by_region_data

Trending_topics = TrendReq(hl='en-US', tz=360)
kw_list = ["Cloud Computing"]


interest_over_time_data, interest_by_region_data =
get_trends_data(Trending_topics, kw_list)


data = interest_over_time_data.sort_values(by="Cloud Computing",
ascending=False)
data = data.head(10)
print("Interest Over Time:")
print(data)


data = interest_by_region_data.sort_values(by="Cloud Computing",
ascending=False)
data = data.head(10)
print("\nInterest By Region:")
print(data)
```

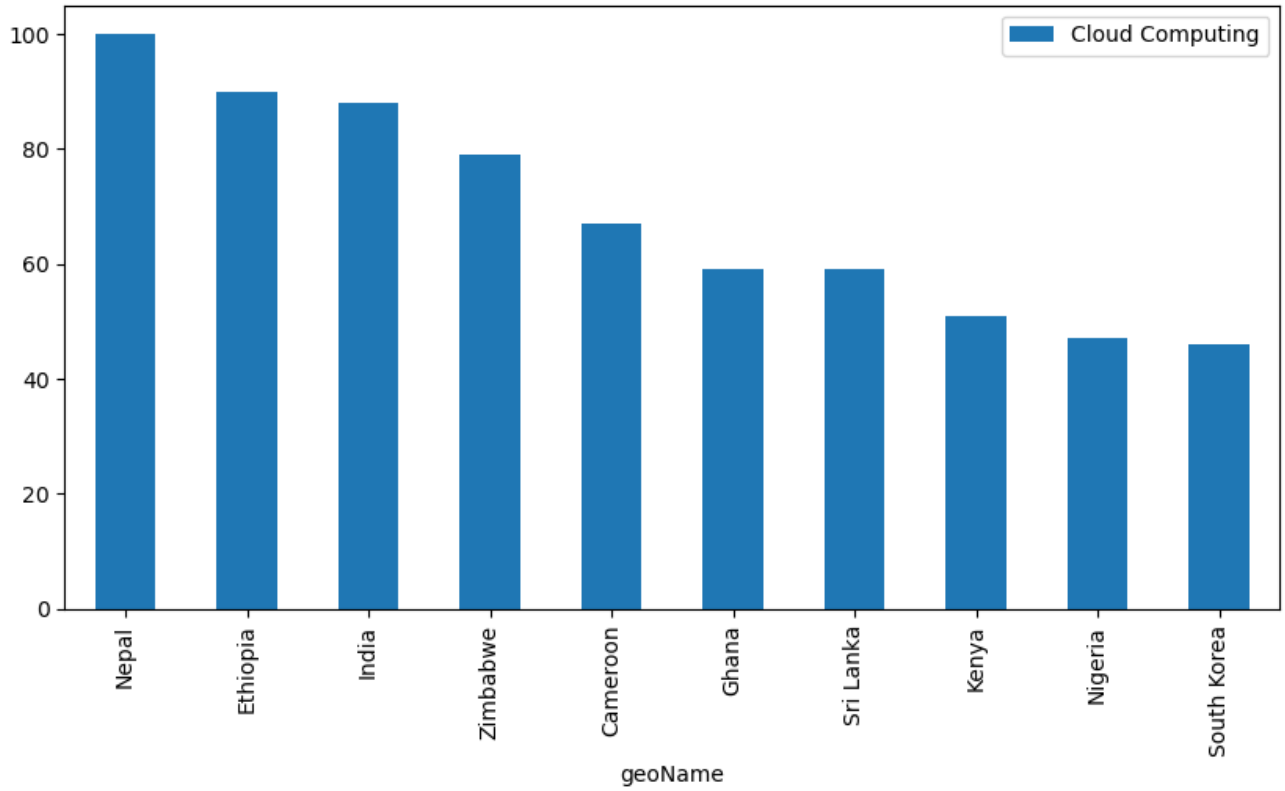
```
---------------------------------------------------------------------
AttributeError                  Traceback (most recent call last)
Cell In[31], line 7
      4 import time
      5 import backoff
----> 7 @backoff.on_exception(backoff.expo,
pytrends.exceptions.TooManyRequestsError, max_tries=3)  # Decorator to
handle TooManyRequestsError
      8 def get_trends_data(trending_topics, kw_list):
      9         trending_topics.build_payload(kw_list, cat=0,
timeframe='today 12-m')
     10         interest_over_time_data =
trending_topics.interest_over_time()

AttributeError: 'TrendReq' object has no attribute 'exceptions'
```

```
import pandas as pd
from pytrends.request import TrendReq
import matplotlib.pyplot as plt
import time
import backoff
import pytrends

@backoff.on_exception(backoff.expo,
pytrends.exceptions.TooManyRequestsError, max_tries=3)  # Decorator to
handle TooManyRequestsError
def get_trends_data(trending_topics, kw_list):
```

```
    trending_topics.build_payload(kw_list, cat=0, timeframe='today 12-m')
    interest_over_time_data = trending_topics.interest_over_time()

    time.sleep(5)
    interest_by_region_data = trending_topics.interest_by_region()
    return interest_over_time_data, interest_by_region_data

Trending_topics = TrendReq(hl='en-US', tz=360)
kw_list = ["Cloud Computing"]


interest_over_time_data, interest_by_region_data =
get_trends_data(Trending_topics, kw_list)


data = interest_over_time_data.sort_values(by="Cloud Computing",
ascending=False)
data = data.head(10)
print("Interest Over Time:")
print(data)


data = interest_by_region_data.sort_values(by="Cloud Computing",
ascending=False)
data = data.head(10)
print("\nInterest By Region:")
print(data)
```

```
Interest Over Time:
            Cloud Computing  isPartial
date
2023-12-10              100      False
2024-01-28               93      False
2024-02-25               91      False
2024-01-21               89      False
2023-12-17               88      False
2024-11-17               87      False
2024-02-11               87      False
2024-03-17               86      False
2024-05-19               86      False
2024-02-04               86      False

Interest By Region:
             Cloud Computing
geoName
Nepal                    100
Ethiopia                  90
India                     88
Zimbabwe                  79
Cameroon                  67
Ghana                     59
Sri Lanka                 59
Kenya                     51
Nigeria                   47
South Korea               46
```

```
data.reset_index().plot(x='geoName', y='Cloud Computing',
                        figsize=(10,5), kind="bar")
plt.style.use('fivethirtyeight')
plt.show()
```




```
df = Trending_topics.top_charts(2023, hl='en-US', tz=300, geo='GLOBAL')
if df is not None:
    print(df.head(10))
else:
    print("No data available for the specified parameters.")
```

```
                    title   exploreQuery
0  War in Israel and Gaza    Israel Gaza
1       Titanic submarine
2       Turkey earthquake
3        Hurricane Hilary
4        Hurricane Idalia
5           Hurricane Lee
6          Maine shooting
7      Nashville shooting
8           Chandrayaan-3  Chandrayaan 3
9            War in Sudan          Sudan
```

For Related Queries

```
try:
    Trending_topics.build_payload(kw_list=['Cloud Computing'])
    related_queries = Trending_topics.related_queries()
    related_queries.values()
except (KeyError, IndexError):
    print("No related queries found for 'Cloud Computing'")
```

```
No related queries found for 'Cloud Computing'
```