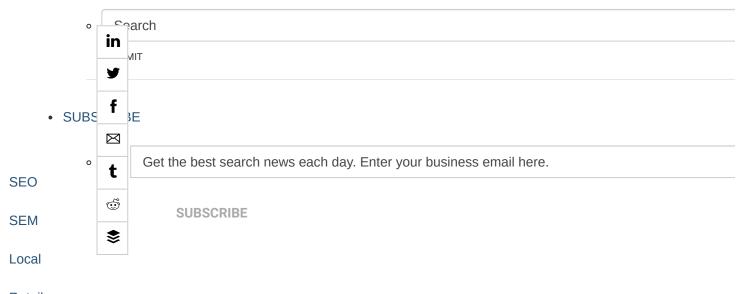
Search Engine Land

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Retail

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Analytics & Conversion

Learn how to chart and track Google Trends in Data Studio using Python

By using the codes in this article, you can connect Google Spreadsheets and Jupyter Notebook to import data into Google Data Studio and easily share the analysis with your team.

Hülya Coban on February 12, 2020 at 3:27 pm



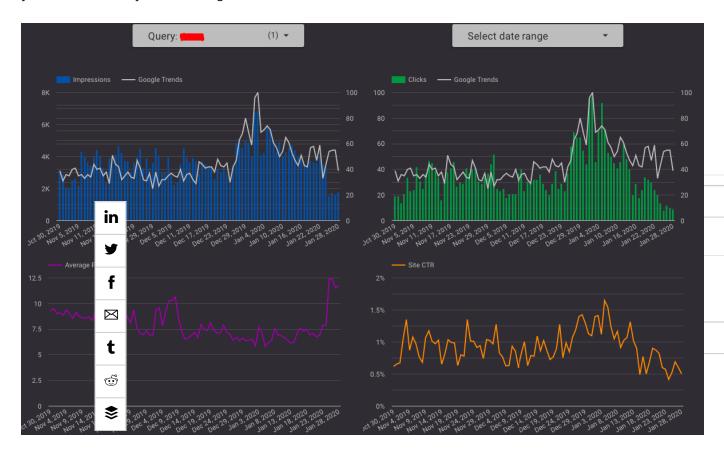
Google Trends is a free and incredibly useful tool that provides search interests, popular keywords and hot topics in a lot of languages for different platforms such as web search, Youtube or Google Shopping. Regardless of the marketing channel, it can be a very helpful tool to get valuable insights and make meaningful choices for the next steps of your project.

Basically, it gives the data on the relative popularity of a keyword from 2004 to the present, which is really cool! (*Relative popularity means the ratio of your search term interest to the interests of all keywords searched on Google.*)

Everything is great so far, but analyzing Google Trends data at scale is mostly not practical. Many of us don't use it much because it seems like a tedious job to search for

keywords on the website and get data points one by one. So how can we use Google Trends in a more effective way?

In this article, my aim is to show you the <u>pytrends</u> library in Python and what benefits you can get from it in your data analysis. I will also explain the connection between Google Spreadsheets and Jupyter Notebook in order to import data into Google Data Studio to share it with others easily. For example, while analyzing Search Console data on Data Studio dashboard, wouldn't it be nice to have Google Trends data on the same page? If your answer is yes, let's dig in!



3 topics I will cover in this article:

- Coding with Pytrends library and exploring its features
- Connecting Jupyter Notebook to Google Spreadsheets with gspread library
- Importing data into Google Data Studio

System requirements to use the Pytrends Library

- Python 2.7+ and Python 3.3+
- Requires Requests, lxml, Pandas libraries. If you don't know how to install libraries, check this Python document. (hint: pip install pandas)

• Jupyter Notebook is an open source web application provides the environment to run your code.

Coding with Pytrends Library

First of all, you have to install the library:

```
pip install pytrends
```

Importing necessary libraries:

```
import pytrends
from pytrends.request import TrendReq
import pandas as pd
import time
import datetime
from datetime import datetime, date, time
```

```
pytrend
pytrend
f ild_payload(kw_list=['tea', 'coffee', 'coke', 'milk',
'water'

Payload ft
range, loc
analyze. In
results by

to code!

TrendReq()
ild_payload(kw_list=['tea', 'coffee', 'coke', 'milk',
'water'

timeframe='today 12-m', geo = 'GB')

t ion is important to specify your search. Write your keywords, decide date
and many other things like choosing Youtube or Shopping channel to
code above, "today 12-m" means one year data. You can narrow your
cifying location with 'geo'.'
```

Let's say you have a Youtube channel and you only want to see Youtube search trends. Then your code will be like this:

```
pytrend.build_payload(kw_list=['tea', 'coffee', 'coke', 'milk',
'water'], timeframe='today 12-m', geo = 'GB', gprop= youtube)
```

Or let's assume that you have a food&drink blog and want to get trend data of your keywords in that category, not relative to all searches. Then it will be something like this:

```
pytrend.build_payload(kw_list=['tea', 'coffee', 'coke', 'milk',
'water'], timeframe='today 12-m', geo = 'GB', cat = 71)
```

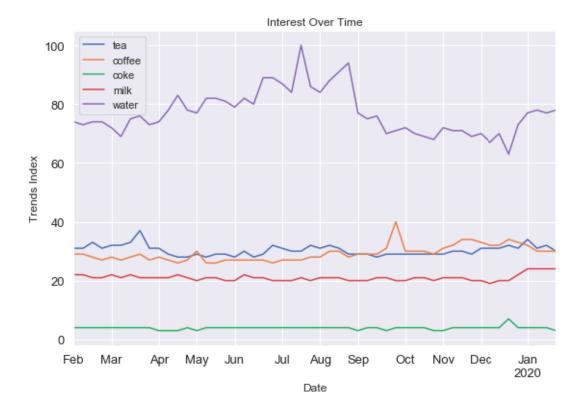
In order to see all features and filters, you should check <u>this repository</u> on Github and also you can find all category codes in <u>here</u>.

(By the way, be careful that you cannot write directly more than 5 keywords in here. It will give an error because you can compare only 5 keywords on Google Trends. I will use another code to analyze keywords more than 5.)

So, let's keep on and get trends score now.

```
#to get interest over time score, you'll need
pytrend.interest_over_time() function.
#For more functions, check this:
https://github.com/GeneralMills/pytrends
interest_over_time_df = pytrend.interest_over_time()
print(interest_over_time_df.head())
```

```
tea coffee coke milk water isPartial
date
2019-02-03 31
                 29
                          22
                                74
                                      False
2019-02-10 31
                 29
                          22
                                73
                      4
                                      False
2019-02-17 33
                 28
                      4
                          21
                                74
                                      False
2019-02-24
          31
                 27
                          21
                                74
                                      False
2019-03-0
         32
                 28
                      4
                          22
                                72
                                      False
        in
# Let's aw
import
        f plotlib.pyplot as plt
        porn as sns
import
sns.set lor codes=True)
dx = in t est_over_time_df.plot.line(figsize = (9,6), title =
"Intere 🚭 Over Time")
dx.set_ set('Date')
dx.set___ bel('Trends Index')
dx.tick params(axis='both', which='major', labelsize=13)
```



```
Now I will function, i wyou another cool feature of Google Trends. If you use the suggestion function, i return with suggested keywords and their "types."

print(p end.suggestions(keyword='search engine land'), '\n') end.suggestions(keyword='amazon'), '\n') print(p end.suggestions(keyword='cats'), '\n') print(p end.suggestions(keyword='macbook pro'), '\n') print(pytrend.suggestions(keyword='beer'), '\n') print(pytrend.suggestions(keyword='ikea'), '\n')
```

```
[{'mid': '/m/Ogkg', 'title': 'Search Engine Land', 'type': 'Blog'}]

[{'mid': '/m/Omgkg', 'title': 'Amazon.com', 'type': 'E-commerce company'}, {'mid': '/m/Ocx4p', 'title': 'Amazon Rainf orest', 'type': 'Rainforest in Brazil'), {'mid': '/g/Ilb6x7cx6n', 'title': 'Amazon Prime', 'type': 'Topic'), {'mid': '/m/Ogylgh', 'title': 'Amazon Prime Video', 'type': 'Television channel'), {'mid': '/m/0sd7', 'title': 'Amazon Rive r', 'type': 'River in South America'}]

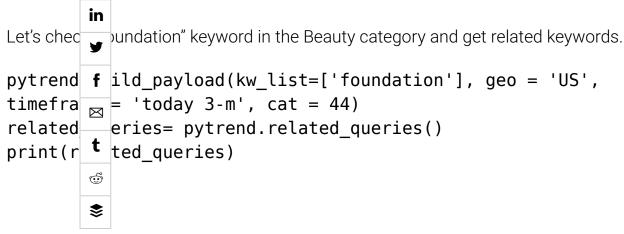
[{'mid': '/m/Olyrx', 'title': 'Cat', 'type': 'Animal'), {'mid': '/m/Olfhl_', 'title': 'Geelong Football Club', 'type': 'Football club'), {'mid': '/m/Ohf80', 'title': 'Ketchup', 'type': 'Sauce'}]

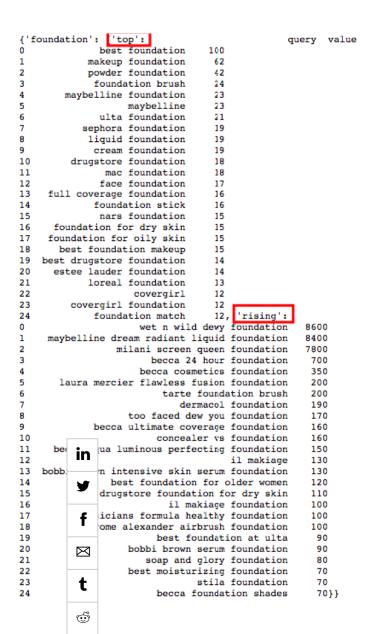
[{'mid': '/m/O9tzfp', 'title': 'Apple MacBook Pro', 'type': 'Laptop'), {'mid': '/g/Ilbydjm_78', 'title': 'MacBook Pro 13-inch', 'type': 'Laptop'), {'mid': '/g/Ilb8lq9vs9, 'title': 'Apple MacBook Pro (13", 2017, Two Thunderbolt 3 Port s)', 'type': 'Laptop'}, {'mid': '/g/Ilb8lf16m3', 'title': 'Apple MacBook Pro (Retina, 15", Mid 2015)', 'type': 'Laptop'}, {'mid': '/m/01599', 'title': 'Beer', 'type': 'Alcoholic drink'), {'mid': '/m/068fpk', 'title': 'Drink coaster', 'type': 'Topic'}, {'mid': '/m/075_gvg', 'title': 'Beer', 'type': 'Beer'}, {'mid': '/g/1153_5hs9d', 'title': 'Craft beer', 'type': 'Topic'}, {'mid': '/m/015ws', 'title': 'IKEA', 'type': 'Animal'}]

[{'mid': '/m/03tbl', 'title': 'IKEA', 'type': 'Furniture retail company'} {'mid': '/g/1153_5hs9d', 'title': 'IKEA', 'type': 'Topic'}, {'mid': '/g/1256fp4', 'title': 'IKEA', 'type': 'Topic'}, {'mid': '/g/1262b6fp4', 'title': 'IKEA', 'type': 'Topic'}, {'mid': '/g/1262b6fp4', 'title': 'IKEA', 'type': 'Home goods store in Amsterdam, Netherlands'}, {'mid': '/g/1262b6fp4', 'title': 'IKEA', 'type': 'Home goods store in Amsterdam, Netherlands'}, {'mid': '/g/1262b6fp4', 'title': 'IKEA', 'type': 'Furniture store in Croatia'}]
```

Related queries

This is my favorite! Especially because it can be really helpful in Google Ads, keyword research and content creation.





You will see you parts in the output; top keywords and rising keywords. The value of top keywords was Google Trends score from 0 to 100. However, the value of rising keywords shows how much interest in the keywords have increased in percentage.

If a website sells foundations, it would be great to follow what people are searching for lately, right? These products might be getting popular or reverse, they might have a bad reputation lately and that's why people might search for them. For instance, noticing this as soon as possible in Google Ads may prevent you from spending excessive amounts of money with no conversion.

Tracking lots of keywords

Now, I will write a group of random keywords here and get their data. You can also read keywords from a csv or excel file but make sure that its type must be a "list."

```
searches = ['detox', 'water fasting', 'benefits of fasting',
'fasting benefits',
'acidic', 'water diet', 'ozone therapy', 'colon hydrotherapy',
'water fast',
'reflexology', 'balance', 'deep tissue massage', 'cryo', 'healthy
body', 'what is detox',
'the truth about cancer', 'dieta', 'reverse diabetes', 'how to
reverse diabetes',
'water cleanse', 'can you drink water when fasting', 'water
fasting benefits', 'glycemic load', 'anti ageing', 'how to water
fast', 'ozone treatment', 'healthy mind', 'can you reverse
diabetes', 'anti aging', 'health benefits of fasting',
'hydrocolonic', 'shiatsu massage', 'seaweed wrap', 'shiatsu',
'can you get rid of diabetes', 'how to get rid of diabetes',
'healthy body healthy mind', 'colonic hydrotherapy', 'green
detox', 'what is water fasting', '21 day water fast', 'benefits
of water fasting', 'cellulite', 'ty bollinger', 'detox diet',
'detox in gram', 'anti aging treatments', 'ketogenic', 'glycemic
index', ater fasting weight loss', 'keto diet plan', 'acidic
          'alkaline diet', 'water fasting diet', 'laser
therapy f 'anti cellulite massage', 'swedish massage', 'benefit
of fast ☑', 'detox your body', 'colon therapy', 'reversing
diabete 'detoxing', 'truth about cancer', 'how to remove
acidity tom body', '21 day water fast results', 'colon cleanse',
'fastin @ ealth benefits', 'antiaging', 'aromatheraphy massage']
groupke rds = list(zip(*[iter(searches)]*1))
groupkeywords = [list(x) for x in groupkeywords]
dicti = {}
i = 1
for trending in groupkeywords:
pytrend.build payload(trending, timeframe = 'today 3-m', geo =
'GB')
dicti[i] = pytrend.interest over time()
i+=1
result = pd.concat(dicti, axis=1)
result.columns = result.columns.droplevel(0)
result = result.drop('isPartial', axis = 1)
```

result

Out[229]:

	detox	water fasting	benefits of fasting	fasting benefits	acidic	water diet	ozone therapy	colon hydrotherapy	water fast	reflexology	 benefit of fasting	detox your body	colon therapy	
2019- 10-31	35	30	27	31	48	25	0	99	15	50	 0	0	0	
2019- 11-01	49	29	26	56	59	19	0	47	53	37	 0	32	0	
2019- 11-02	36	32	27	46	45	34	35	48	46	64	 0	32	89	
2019- 11-03	51	44	0	47	48	30	35	50	48	100	 0	0	91	
2019- 11-04	42	81	38	64	58	28	66	45	54	70	 0	30	0	
								***		•••	 			
2020- 01-25	61	44	27	93	69	30	0	48	62	81	 0	0	90	
2020- 01-26	61	56	0	33	59	71	33	0	76	66	 0	61	0	
2020- 01-27	60	46	24	48	62	58	31	44	46	62	 77	29	0	
2020- 01-28	53	71	75	57	74	37	0	45	64	55	 0	30	0	
2020- 01-29	51	54	0	86	64	55	33	0	47	71	 0	61	0	

× 66 columns

with Searce for onsole.

Yes! I hav of them, but I need to reshape my data frame in case of merging this data

result. et_index(level=0, inplace=True) pd.melt t sult, id_vars='date', value_vars=searches)

Out[172]:

\$	date	variable	value
~	2019-10-31	detox	35
1	2019-11-01	detox	30
2	2019-11-02	detox	35
3	2019-11-03	detox	52
4	2019-11-04	detox	41
6295	2020-01-24	aromatheraphy massage	0
6296	2020-01-25	aromatheraphy massage	0
6297	2020-01-26	aromatheraphy massage	0
6298	2020-01-27	aromatheraphy massage	0
6299	2020-01-28	aromatheraphy massage	0

6300 rows x 3 columns

result.to_excel('trends.xlsx')

Google Trends data is ready to go!

Connecting Jupyter Notebook to Google Spreadsheets with gspread library

First of all, you need to enable some APIs and create a secret client JSON file in order to authorize Google Sheets access. I will not explain this in this article, but here is a great guide explaining how to do that step by step.

Then you can just use these codes below:

```
import gspread
from oauth2client.service account import
ServiceAccountCredentials
links = ['https://spreadsheets.google.com/feeds',
'https://www.googleapis.com/auth/drive']
credentials =
ServiceAccountCredentials.from json keyfile name('ENTER-YOUR-
JSON-FILE-NAME-HERE.json', links)
gc = gs in ad.authorize(credentials)
Creating a spreadsheet:
sh = gc eate('My cool spreadsheet')
wks = g pen("My cool spreadsheet").sheet1
# check t lab documents here for more examples →
https:/ 🚳 lab.research.google.com/notebooks/io.ipynb
Creating a stom formula to send data frames into sheets:
#https://www.danielecook.com/from-pandas-to-google-sheets/
def iter pd(df):
for val in list(df.columns):
vield val
for row in df.values:
for val in list(row):
if pd.isna(val):
yield ""
else:
yield val
```

```
def pandas_to_sheets(pandas_df, sheet, clear = True):
# Updates all values in a workbook to match a pandas dataframe if
clear:
sheet.clear()
(row, col) = pandas_df.shape
cells = sheet.range("A1:
{}".format(gspread.utils.rowcol_to_a1(row + 1, col)))
for cell, val in zip(cells, iter_pd(df)):
cell.value = val
sheet.update_cells(cells)
```

An example to see how it works:

```
df = pd.read_csv("train.csv")
pandas_to_sheets(df, wks)
```

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.		ın												
	Α		В	С	D	E	F	G	Н	1	J	K	L	М
	sengerid	Y	ď	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked	
)	3 Braund, Mr. Owe		22	1		0 A/5 21171	7.25		S	
		_		1	1 Cumings, Mrs. J	female	38			0 PC 17599	71.2833	C85	C	
		f	1	1	3 Heikkinen, Miss.	female	26	0		0 STON/02. 31012	7.925	5	S	
		_	1	1	1 Futrelle, Mrs. Jac	female	35	1		0 113803	53.1	C123	S	
				0	3 Allen, Mr. William	male	35	0		0 373450	8.05	5	S	
		\bowtie)	3 Moran, Mr. Jame	male		0		0 330877	8.4583	3	Q	
)	1 McCarthy, Mr. Tir	male	54	0		0 17463	51.8625	E46	S	
			()	3 Palsson, Master.	male	2	3		1 349909	21.075	5	S	
		t	1	1	3 Johnson, Mrs. O	female	27	0		2 347742	11.1333	3	S	
		•	1	1	2 Nasser, Mrs. Nic	female	14	1		0 237736	30.0708	3	C	
			1	1	3 Sandstrom, Miss	female	4	1		1 PP 9549	16.7	G6	S	
		Ö	1	1	1 Bonnell, Miss. El	female	58	0		0 113783	26.55	C103	s	
		•	()	3 Saundercock, Mr	male	20	0		0 A/5. 2151	8.05	5	S	
			()	3 Andersson, Mr. A	male	39	1		5 347082	31.275	5	S	
		\$	()	3 Vestrom, Miss. H	female	14	0		0 350406	7.8542	2	s	
		~	1	1	2 Howlott, Mrs. (M:	female	55	0		0 248706	16	B	S	
	T	1)	3 Rice, Master, Eu	male	2	4		1 382652	29.125	5	Q	
	1	8		1	2 Williams, Mr. Chi	male		0		0 244373	13	3	S	
	1	9)	3 Vander Planke, 1	female	31	1		0 345763	18	3	S	
	2	20		1	3 Masselmani, Mrs	female		0		0 2649	7.225	5	C	
	2	1	()	2 Fynney, Mr. Jose	male	35	0		0 239865	26	3	S	
	2	2		1	2 Beesley, Mr. Law	male	34	0		0 248698	13	D56	S	
	2	3		1	3 McGowan, Miss.	female	15	0		0 330923	8.0292	2	Q	
	2	4		1	1 Sloper, Mr. Willia	male	28	0		0 113788	35.5	A6	S	
	2	5	()	3 Palsson, Miss. To	female	8	3		1 349909	21.075	5	S	
	2	6		1	3 Asplund, Mrs. Ca	female	38	1		5 347077	31.3875	5	s	
	2	7	()	3 Emir, Mr. Farred	male		0		0 2631	7.225	5	С	
	2	18	()	1 Fortune, Mr. Cha	male	19	3		2 19950	263	C23 C25 C27	S	
	-	in.			2 Cilburer Man F	female				0.220060	7 8 700		0	

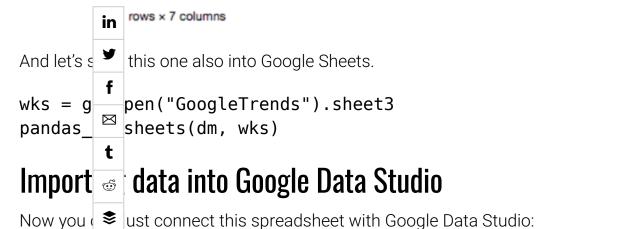
Let's continue with trends data and merge it with Search Console data.

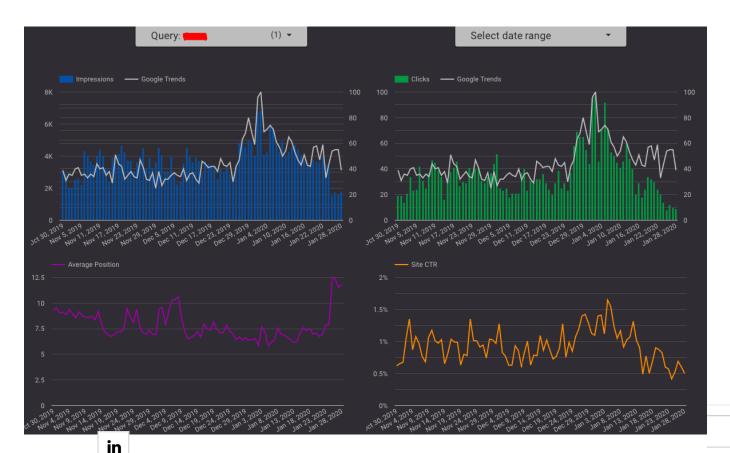
```
sh = gc.create('GoogleTrends')
wks = gc.open("GoogleTrends").sheet1
pandas_to_sheets(result, wks)
```

```
dx = pd.read_excel('Trends.xlsx', sheet_name='Sheet1')
dz = pd.read_excel('Trends.xlsx', sheet_name = 'console') #my
console data is here, make sure where yours is
dm = pd.merge(dx, dz, on = ['Query', 'Date'])
dm
```

Out[222]:

	Date	Query	value	Impressions	Clicks	Site CTR	Average Position
0	2019-10-30	de:ox	39	-		10010	1000
1	2019-10-31	detox	31				
2	2019-11-01	detox	36				
3	2019-11-02	detox	35				
4	2019-11-03	detox	40				
	***			***			***
4916	2020-01-23	how to remove acidity from body	0				
4917	2020-01-24	how to remove acidity from body	0				
4918	2020-01-25	how to remove acidity from body	0				
4919	2020-01-27	how to remove acidity from body	0				
4920	2020-01-28	how to remove acidity from body	0				





```
Trackir rising keywords
```

Out[330]:

	query	value
0	strawberry lipstick state of mind	3200
1	oryza lipstick	2300
2	ogee lipstick	350
3	louis vuitton lipstick case	300
4	doll 10 lipstick	250
5	givenchy black lipstick	200
6	mac lipstick set	200
7	mac sin lipstick	200
8	bellapierre lipstick	200
9	matte lipstick set	190
10	realher lipstick	170
11	mac kiss of stars lipstick	160
12	drake lipstick alley	160
13	gucci lipstick	150
14	jaclyn hill lipstick drama	120
15	givenchy black magic lipstick	120
16	molly ringwald lipstick	120
17	lipstick sets	120
18	ruby woo lipstick	90
19	lipstick set	90
20	mac ruby woo lipstick	90
in		

Use pand _ o_sheets again. Import these into Data Studio and visualize:

_	ISING KEYWORDS	FOUNDATION RISIN	IG KEYWORDS
query	Rising Percentage	query	Rising Percentage
strawberry lips e of mind	3.2K	maybelline dream radiant liquid foundati	15.5K
oryza lipstick	2.3K	milani screen queen foundation	11.8K
ogee lipstick	350	becca 24 hour foundation	500
louis vuitton lip se	300	becca cosmetics foundation	350
doll 10 lipstick	250	becca ultimate coverage foundation	250
givenchy black	200	dior airflash foundation	250
mac lipstick set	200	bobbi brown serum foundation	200
mac sin lipstick	200	stila hide and chic foundation	190
bellapierre lipstick	200	becca aqua luminous perfecting foundati	170
matte lipstick set	190	il makiage	130
realher lipstick	170	origins foundation	120
mac kiss of stars lipstick	160	becca foundation shades	120
drake lipstick alley	160	bourjois healthy mix foundation	110
gucci lipstick	150	tarte foundation brush	110
jaclyn hill lipstick drama	120	tarte amazonian clay foundation	100
givenchy black magic lipstick	120	how to apply liquid foundation	90

Wrapping up

It seems complicated at first, but just try these codes and create your own dashboards. Because at the end, you will just run the code on Jupyter Notebook and refresh the data on Google Data Studio. It will take only 10-15 seconds to update all of them, I promise!

Here is my Github repository for all Python codes together.

Happy coding!

This year's SMX Advanced will feature a brand-new SEO for Developers track with highly-technical sessions – many in live-coding format – focused on using code libraries and architecture models to develop applications that improve SEO. SMX Advanced will be held June 8-10 in Seattle. Register today.

Opinions expressed in this article are those of the guest author and not necessarily Search Engine Land. Staff authors are listed <u>here</u>.

ABOUT THE AUTHOR



Hülya Çoban 🖂

Follow @hulyacobans

Hülya Çoban is a SEO analyst at Keyphraseology focusing on technical SEO and data-driven marketing. She believes that successful projects derive their strength from data so she always tries to read the story behind numbers. Follow her on Twitter for technical SEO, Python and data science.

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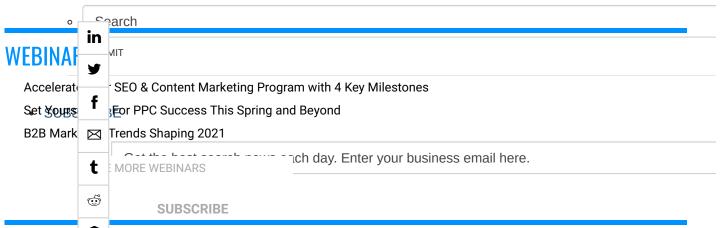
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