INFO 6210 Ski Resort Recommend

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Abstract

People like ski but select a good ski resort is a very struggling thing because there are too many factors for customers to decide. This project gathers all information about ski resort including ticket price, ski facility, weather of its city, number of customers per year and so on from 3 social medias to create a database and then we write a function. When customer insert their requirement on our database, we can extract useful information to recommend fitful ski resorts to them.

Keywords
Ski resort, database, function, social media, recommend

I. Introduction

Skiing is a popular sport in the United States. Most people would like to the ski resort to spending vacations with their families. However, there are many choices for them to choose a good ski resort, like weather, location, hill heights, and so on, that all these factors will affect their skiing time.

Besides, people go to vacation may not only for skiing purpose, they maybe still interested in different scenes and views in the same city. Looking for a good vacation place including ski resorts seems to be a task which involve bunch of research works. People even need to check the weather forecast for each of dream resort.

As a result, we want to build a database about all information about ski resorts and other kind of information for the cities, weather forecast, scenes and so on. The database will help people evaluate the comprehensive

destination that satisfies ski purpose. It helps people to make a better choice.

II. Data Resource

1. Ski resort information from Kaggle

We get ski resort information from Kaggle, but it includes other countries' ski resort information excepted to the America. So we need classify ski resorts those in the USA.

- ski_resort_usa

Resort_Name	google_search_name	Resort_INS_has...	twitter_account_name	twitter_screen_...	Continent	Coun...	State
49-degrees-north-m...	49-degrees-north-mountain-...	49degreesnorth	NULL	NULL	North Amer...	USA	Washington State
abenaki	abenaki skiresort	abenaki	NULL	NULL	North Amer...	USA	New Hampshire
afton-alps	afton-alps skiresort	aftonalps	Afton Alps	aftonalpsmn	North Amer...	USA	Minnesota
al-quaal	al-quaal skiresort	alquaal	Al Quaal	AlQuaal	North Amer...	USA	Michigan
aldis-hill-park-st-alb...	aldis-hill-park-st-albans skire...	aldishill	NULL	NULL	North Amer...	USA	Vermont
alpenglow-at-arctic-...	alpenglow-at-arctic-valley sk...	alpenglow	Arctic Valley Inc	arcticvalleyinc	North Amer...	USA	Alaska
alpental	alpental skiresort	alpental	Alpental Ski Club	AlpentalSkiClub	North Amer...	USA	Washington State

2. Ski resort information from Twitter

From Kaggle, we can get all the ski resort names, use these names as Twitter names to search location of ski resorts, followers and so on.

Some ski resort name may not have Twitter name, so when we run the code, we need ignore error and continue running.

```
#define a function that can get the account information
def status(i):
    temp = pd.DataFrame()
    try:
        status = api_json.get_user(screen_name = i )
        c = pd.DataFrame(status)
        d = c.drop(['description'] ,axis = 0 )
        e = c.drop(d.index, axis = 0 )
        f = e[['id','name','screen_name','location','description','url','followers_count','friends_count','listed_count','cre
        g = np.array(f)
        h = g.tolist()
        time.sleep(6)
        final.append(h)
    except:
        time.sleep(6)
        pass
    return final;
```

- Resort_twitter(table in mysql)

twitter_id	twitter_na	twitter_sc	location	descriptation	URL	followers_	followings	friends_cc	created_a	favourites_count
89812972	Afton Alps	aftonalpsr	Hastings, I	One of the lar	https://t.cc	3531	473	72	Fri Nov 13	977
7.71E+17	Al Quaal	AlQuaal	The Frozen	Tundra		16	201	0	Thu Sep 0	1508
9.10E+17	Arctic Vall	arcticvalleyinc		"Delivering	Service A Deg	0	0	0	Mon Sep 1	0
3033687667	Alpental S	AlpentalSk	Washingtc	Ski Club	http://t.co,	20	0	0	Sat Feb 21	0
24569387	Squaw Val	squawalpi	Olympic V	Lake Tahoe, C	http://t.co,	40116	337	867	Sun Mar 1	4469
874270242	Alpine Val	AlpineVall	White Lak	Alpine Valley	http://t.co,	455	361	15	Thu Oct 1	0
189981223	Alta Ski Ar	AltaSkiAre	Alta, Utah	Since 1938. C	https://t.cc	28724	457	441	Sun Sep 1	7637
2928931351	Alta Sierra	Altasierra:	At the top	Alta Sierra Ski	http://t.co,	592	1167	2	Sat Dec 13	1270
35872795	Alyeska Re	resortalye	Girdwood	Some have ac	https://t.cc	5980	426	229	Mon Apr 2	85
1566091680	Andes Tov	andestowerhills				77	29	2	Wed Jul 0	7
26343212	Angel Fire	AngelFireF	Angel Fire,	With over 20(	http://t.co,	6444	970	144	Tue Mar 2	2757
3829977073	Antelope I	AntelopeB	Bighorn N	Reopening th	https://t.cc	131	263	1	Thu Oct 0	15
7.94E+17	Anthony L	anthonyla	Baker City	A mountain s	https://t.cc	260	228	2	Thu Nov 0	3
26335230	Ski Apache	SkiApache	Alto, New	Ski Apache of	https://t.cc	3975	148	87	Tue Mar 2	171
62696631	Appalachi	App_Ski_M	Blowing R	Celebrating 5(	http://t.co,	893	32	35	Tue Aug 0	0
15934541	Arizona Sr	AZSnowbc	High abov	The official Tv	https://t.cc	13642	187	282	Thu Aug 2	1233
46828073	Aspen Hig	HighlandB	Aspen, Co	Aspen Highlar	http://t.co,	2915	216	114	Sat Jun 13	7
89988075	Attitash M	AttitashRe	Bartlett, N	In the heart o	https://t.cc	9120	1741	293	Sat Nov 14	3060
19045182	Big Bear M	BigBearMt	Big Bear L	Official Twitte	https://t.cc	21358	1838	378	Thu Jan 15	2587

3. Consumer information from Instagram

We use ski resort name got from Kaggle as hashtag and we use instaloader to get users' information those post posts in specific hashtags. In order to simplify data, we just extract those who posts during 24 hours and get posts likes, post comments and so on.

Some ski resort name may not have hashtag, when we run the code, we need ignore error and continue running. Some ski resort as hashtags may not have posts during 24 hours, so we will get empty list in our table, we need drop it and finally create a whole table.

```
#final = []
post_info_list = []
L = instaloader.Instaloader()
for x in ins_hashtag:
    final = []
    try:
        posts = L.get_hashtag_posts(x)
        #resort = pd.DataFrame()
        #ar = np.array(resort)
        #temp = ar.tolist()
        temp =[]
        SINCE = datetime.now()
        UNTIL = datetime.now()- timedelta(days = 1)
        for post in takewhile(lambda p: p.date > UNTIL, dropwhile(lambda p: p.date > SINCE, posts)):
            tt = [x,post.owner_id,post.owner_username,post.date,post.caption,post.likes,post.comments]
            temp.append(tt)
        final.append(temp)
    except:
        pass
    a_list=[]
    for i in range(len(final)):
        a_list.extend(final[i])
    for i in range(len(a_list)):
        a_list[i][3]=str(a_list[i][3])
    for i in range(len(a_list)):
        query = 'insert into inshashtag(hashtag, owner_id, owner_username, post_date, post_caption, post_likes,post_com
        hashtag = a_list[i][0]
        owner_id = a_list[i][1]
        owner_username = a_list[i][2]
        post_date = a_list[i][3]
        post_caption = a_list[i][4]
        post_likes = a_list[i][5]
```

- Inshashtag

record_id	hashtag	owner_id	owner_username	post_date	post_caption	post_likes	post_comments
1	49degreesnorth	3845136	whitneyleew	4/16/2019 4:44	Made it out to 49 degr	28	4
2	alpenglow	5755593588	amagillphoto	4/16/2019 14:58	Spring sunset in	58	2
3	alpenglow	12558447465	berganbeterin	4/16/2019 14:57	#Beautiful Schlern â˜€ï	7	0
4	alpenglow	1697052423	mountaingaia	4/16/2019 14:46	Good-morrow,	14	2
5	alpenglow	3655780094	ferdigraph	4/16/2019 14:37	One of the best	60	1
6	alpenglow	3163388866	allencoke	4/16/2019 14:31	ðŸŒðŸŒ™ Darkness	197	22
7	alpenglow	1935811608	nakatography	4/16/2019 14:14	Good Morning! #bythe	32	4
8	alpenglow	3435848416	rivryan_photography	4/16/2019 14:03	Great park-and-shoot	191	10
9	alpenglow	7892001484	_favorite_place_	4/16/2019 13:35	â€¢ Time's flying so	23	1
10	alpenglow	10570381185	my_view_of_mt_baker	4/16/2019 13:26	Not only did #mtbaker	33	0
11	alpenglow	6212305001	wildlifeexpeditions	4/16/2019 13:15	ðŸŽ¶Sunshine on my	60	1
12	alpenglow	280215439	laurabostonthek	4/16/2019 11:42	Week 12 of his life. #BÁ	85	4
13	alpenglow	2246279869	miraclecacao	4/16/2019 10:02	Juste Moi et les Alpes	52	3
14	alpenglow	2334129639	david_pesek_	4/16/2019 7:47	Small austrian giant	133	4
15	alpenglow	4121888979	mnf_pictures	4/16/2019 6:09	#naturelovers #frÃ¼hli	55	4
16	alpenglow	454633466	krysti_37	4/16/2019 5:17	Evening walk to the ma	29	0
17	alpenglow	3090832344	randysmallphotography	4/16/2019 4:48	Tonight's #alpenglow	55	1
18	alpenglow	234184680	askrause	4/16/2019 4:32	Ze #alpenglow ðŸ”ðŸŒ	41	2
19	alpenglow	11871797342	agapi_horticulture	4/16/2019 3:44	Graptosedum	12	0

4. Ski resort information from google map

When we get ski resort name, we need input these names to google map, but these ski resort name may not the accurate name in google map. Therefore, the first step, we need add *ski resort* after every ski resort name. Then we use these names to get longitude and latitude.

The result of format we get from google map API is string, we need exchange it to list.

```
resort_loc_state = resort_loc_sz[:]
resort_loc_zipcode = resort_loc_sz[:]
```

```
for i in range(len(resort_loc_zipcode)):
    resort_loc_zipcode[i] = str(resort_loc_zipcode[i]).split(' ')[2]
```

```
for i in range(len(resort_loc_state)):
    resort_loc_state[i] = str(resort_loc_state[i]).split(' ')[1]
```

```
test_df = pd.DataFrame({"resort_ggid":resort_ggid,"resort_name":resort_name,"resort_ggsearch_name":resort_ggsearch_name
```

- resorts_googleinfo

resort_ggid	resort_name	resort_ggsearch_name	resort_geo_lat	resort_geo_lng	resort_loc_stree
a06216f0dc734ac7f19…	49° North Mountain Resort	49-degrees-north-mountain-resort skiresort	48.3010972	-117.5629161	3311 Flowery Tra
efdc4393a9008170e1…	Wolfeboro Abenaki Ski Area	abenaki skiresort	43.611548	-71.229107	390 Pine Hill Rd
24b0dd83beeaba956…	Afton Alps	afton-alps skiresort	44.8576608	-92.78780619999…	6600 Peller Ave S
4b09b61472cd7d3ac2…	Al Quaal Recreation Area	al-quaal skiresort	46.5128663	-87.6603544	501 Poplar St
8881d3f45e0c8e0ba7…	Aldis Hill Park	aldis-hill-park-st-albans skiresort	44.8194721	-73.0697422	St Albans City
ea8a431e81a4066b7…	Arctic Valley	alpenglow-at-arctic-valley skiresort	61.24672229999…	-149.53491	Arctic Valley Rd

5. Ski resort information from Dark Sky website

When we get all the longitude and latitude from Google map API, we put it to the Dark Sky website. Then we will get all information like cloud cover, humidity, pressure and so on.

However, in order to do normalization, we need divide all information to 8 tables.

```
In [17]: all_data=[]
         for i in range(len(test2)):
             temp=request_data(test2[i][0],test2[i][1])
             all_data.append(temp)
```

```
In [18]: all_data[1]["daily"]["data"][7]['humidity']
```

```
Out[18]: 0.53
```

```
In [19]: temperature_min=[]
         temperature_max=[]
         humidity=[]
         pressure=[]
         windspeed=[]
         cloudcover=[]
         visibility=[]
         for i in range(len(all_data)):
             temp_min=[]
             temp_max=[]
             temp_hum=[]
             temp_pre=[]
             temp_wind=[]
             temp_cc=[]
             temp_vis=[]
             for x in [0,1,2,3,4,5,6,7]:
                 temperaturemin=all_data[i]["daily"]["data"][x]['temperatureMin']
                 temperaturemax=all_data[i]["daily"]["data"][x]['temperatureMax']
                 humidity_test=all_data[i]["daily"]["data"][x]['humidity']
                 pressure_test=all_data[i]["daily"]["data"][x]['pressure']
                 windspeed_test=all_data[i]["daily"]["data"][x]['windSpeed']
                 cloudcover_test=all_data[i]["daily"]["data"][x]['cloudCover']
                 visibility_test=all_data[i]["daily"]["data"][x]['visibility']
```

- cloudcover

resort_geo_lat	resort_geo_lng	curr...	day_1	day_2	day_3	day_4	day_5	day_6	day_7
28.6028623	-81.311967	0.28	0.65	0.21	0.04	0.02	0.08	0.53	0.8
32.4474562	-110.7816719	0.01	0.01	0.04	0.22	0.43	0	0.27	0.7
32.9525296	-105.7089861	0.14	0.14	0.08	0.27	0.62	0.11	0.07	0.89
33.3973802	-105.7887037	0.08	0.23	0.13	0.2	0.54	0.01	0.09	0.75

- humidity

resort_geo_...	resort_geo_l...	curr...	day_1	day_2	day_3	day_4	day_5	day_6	day_7
28.6028623	-81.311967	0.63	0.71	0.52	0.55	0.6	0.66	0.69	0.7
32.4474562	-110.7816719	0.33	0.28	0.25	0.27	0.29	0.38	0.37	0.25
32.9525296	-105.7089861	0.52	0.49	0.29	0.25	0.25	0.29	0.3	0.27
33.3973802	-105.7887037	0.51	0.53	0.32	0.26	0.25	0.32	0.32	0.29
33.9737977	-109.564314	0.57	0.48	0.37	0.37	0.5	0.63	0.44	0.37

- pressure

resort_geo_...	resort_geo_l...	current	day_1	day_2	day_3	day_4	day_5	day_6	day_7
28.6028623	-81.311967	1015.17	1012	1016.3	1018.15	1020.92	1022.78	1022.46	1022.39
32.4474562	-110.7816719	1012.7	1012.97	1011.67	1010.45	1008.99	1011.9	1011.59	1012
32.9525296	-105.7089861	1013.16	1016.45	1011.36	1009.6	1007.96	1009.11	1008.98	1011.14
33.3973802	-105.7887037	1013.29	1016.1	1011.05	1009.37	1008.02	1009.1	1008.95	1011.29
33.9737977	-109.564314	1015.04	1016	1013.91	1011.39	1008.97	1010.77	1011.18	1012.2

- temperature_max

resort_geo_lat	resort_geo_lng	curr...	day_1	day_2	day_3	day_4	day_5	day_6	day_7
28.6028623	-81.311967	30.73	28.93	28.19	29.67	30.05	30.6	31.09	30.41
32.4474562	-110.7816719	26.51	28.64	26.89	23.99	23.93	20.89	24.39	24.97
32.9525296	-105.7089861	18.1	19.71	20.15	18.63	20.15	17.37	18.73	18.14
33.3973802	-105.7887037	19.87	19.99	19.6	18.99	20.96	17.48	19.17	19.92
33.9737977	-109.564314	14.17	14.71	14.42	11.41	11.8	9.46	12.99	13.41

- temperature_min

resort_geo_...	resort_geo_l...	curr...	day_1	day_2	day_3	day_4	day_5	day_6	day_7
28.6028623	-81.311967	17.11	19.66	16.06	17.05	17.34	20.62	20.79	20.62
32.4474562	-110.7816719	8.7	12.29	11.39	9.47	9.81	7.33	7.1	8.74
32.9525296	-105.7089861	4.14	6.41	9.15	8.19	7.41	6.62	4.26	6.48
33.3973802	-105.7887037	3.18	5.95	8.56	7.13	6.97	5.63	3.74	5.37
33.9737977	-109.564314	0.51	3.47	3.38	4.05	1.32	0.63	1.86	-0.22

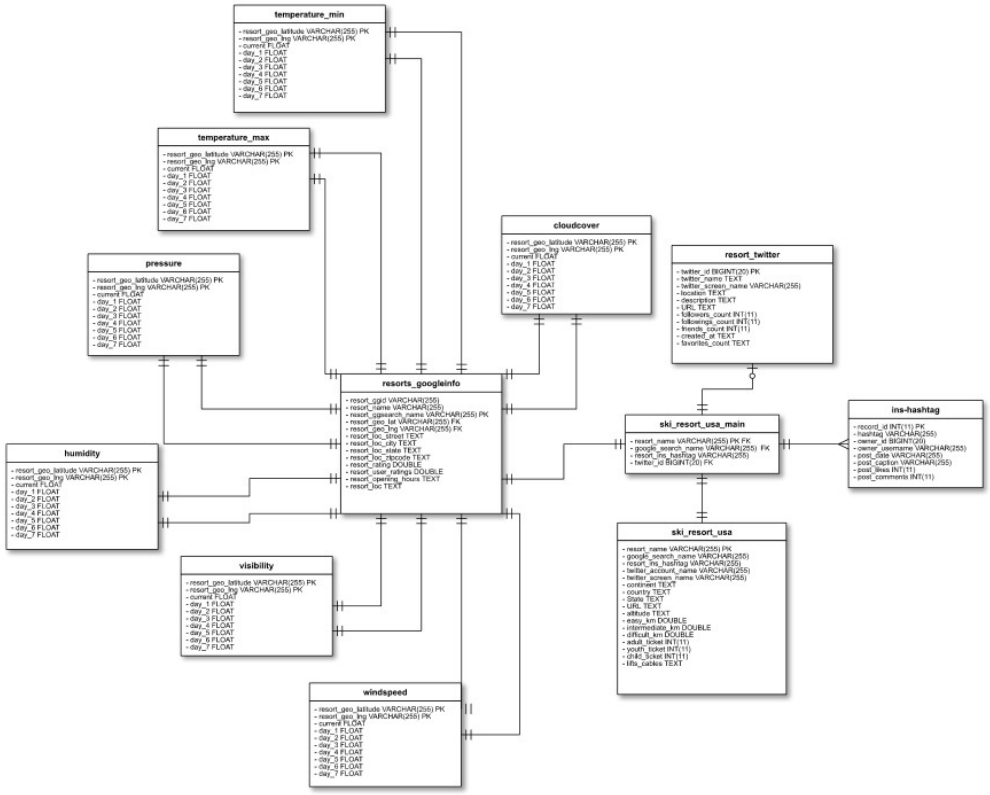
- visibility

resort_geo_...	resort_geo_l...	curr...	day_1	day_2	day_3	day_4	day_5	day_6	day_7
28.6028623	-81.311967	16.09	16.09	16.09	16.09	16.09	16.09	16.09	16.09
32.4474562	-110.7816719	16.08	16.09	16.09	16.09	16.09	16.09	16.09	16.09
32.9525296	-105.7089861	15.84	16.09	16.09	16.09	16.09	16.09	16.09	16.09
33.3973802	-105.7887037	16.09	16.09	16.09	16.09	16.09	16.09	16.09	16.09

- windspeed

resort_geo_...	resort_geo_l...	curr...	day_1	day_2	day_3	day_4	day_5	day_6	day_7
28.6028623	-81.311967	2.41	4.47	2.24	2.61	3.59	4.42	4.13	4.43
32.4474562	-110.7816719	1.41	1.3	2.23	2.87	5.17	2.28	2.34	2.43
32.9525296	-105.7089861	0.51	2.59	2.8	4.34	3.62	4.33	3.56	3.14
33.3973802	-105.7887037	0.8	2.95	2.68	4.52	3.71	4.38	3.51	3.15
33.9737977	-109.564314	1.6	2.98	3.28	4.67	4.61	3.49	3.96	3.16

III. ER Diagram



IV. Code with Documentation

https://github.com/howardxjy/info6210_project_team_Cerberus

V. News and Trend

We just extract those consumers information from Instagram who post posts during 24 hours in 500 hashtags, everyday we will get total about 1000 posts to MySQL and we have get 5000 posts till today.

And same situation, we extract weather information from Dark sky website during 7 days. Every 7 days, we will update the information in database.

record_id	hashtag	owner_id	owner_username	post_date	post_caption	post_likes	post_comments
4660	mammothmoun...	961481	brendalex	2019-04-23 13:48:53	Proud moment for all of us. Mateo and Felix (th...	29	0
4661	mammothmoun...	4094907204	__patelasif__	2019-04-23 13:26:33	There's nothing more dangerous than a boy wit...	70	17
4662	mammothmoun...	5887003085	mammothbluejaychalet	2019-04-23 12:51:41	Always... #mammothmountain #mammothlakes...	15	0
4663	mammothmoun...	5887003085	mammothbluejaychalet	2019-04-23 12:46:29	No better place to celebrate Thanksgiving 🙏#...	13	1

record_id	hashtag	owner_id	owner_username	post_date	post_caption	post_likes	post_comments
730	powdermountain	2354235524	maureenmitchell1022	2019-04-19 06:03:41	Hi, from Mary's #PowderMountain #PowMowPh...	12	2
731	powdermountain	198269262	brittanywatkinstapping	2019-04-19 03:39:02	I'm looking at photos of Powder Mountain, Utah...	372	1
732	powdermountain	54063907	thetourofutah	2019-04-18 18:40:09	We are excited to announce your 2019 Tour of ...	440	21
733	powderridge	12666689602	9thgen_el_diablo	2019-04-19 13:05:00	Should I start postin snowboard shit?... 🤷‍♂️...	7	0
734	powderridge	3064415750	fireattheridge	2019-04-18 17:28:08	Half Price Bottles of Wine all day every Thursda...	11	0

record_id	hashtag	owner_id	owner_username	post_date	post_caption	post_likes	post_comments
1	49degreesnorth	3845136	whitneyleew	2019-04-16 04:44:00	Made it out to 49 degrees ski resort to ride the ...	28	4
2	alpenglow	5755593588	amagillphoto	2019-04-16 14:58:56	Spring sunset in Montana. A few scattered rain ...	58	2
3	alpenglow	12558447465	berganbeterin	2019-04-16 14:57:21	#Beautiful Schlern ◌#seiseralm #südtirol #alp...	7	0
4	alpenglow	1697052423	mountaingaia	2019-04-16 14:46:19	Good-morrow, friends! It's a new day! May you...	14	2

VI. Use case to answer those question

- What are people saying about me(somebody)?

Usecase_1: Find all the posts with a special hashtag or context?

```
# find all the posts with a special hashtag or context
# also answer the question 1) What are the people talking about me?
SELECT post_caption , post_likes , post_comments FROM inshashtag WHERE post_caption LIKE "%alpenglow%";
```

- How viral are my posts?

Usecase_2: Find the ins user with the most posts' likes?

- Who should I be following?

Usecase_3: Find someone all posts who have the most posts' likes.

```
# find the Instuser with the most posts' likes , and find all his posts
# also answer the question 2) How viral are my posts?
# also answer the question 6) Who should I be following?
SELECT owner_username , SUM(post_likes) FROM inshashtag group by owner_username ORDER BY sum(post_likes) DESC LIM

SELECT post_caption , post_likes , post_comments FROM inshashtag WHERE owner_username LIKE "squawalpine";
```

- What posts are likely to be interesting to me?

Usecase_4: Find all the posts with a particular hashtag and many comments?

```
# find all the posts with a particular hashtag and many comments
# also answer the question 3) What posts are likely interesting to me?
SELECT post_caption , hashtag , post_likes , post_comments FROM inshashtag WHERE hashtag LIKE "bigskyresort" AND
```

- What post are like mine?

Usecase_5: Find all the posts give a positive comment to the ski resort?

```
# find all the posts give a positive comment to the skiresort
# also answer the question 4) What posts are like mine ?
SELECT post_caption , post_likes , post_comments FROM inshashtag WHERE post_caption LIKE "%alpenglow%good%";
```

- What users post like me?

Usecase_6: Find all the user post between 22:00 between 23:00?

```
# find all the user post between 22:00 between 23:00
# also answer the question 5) Who post like me?
SELECT owner_id , owner_username, post_date FROM inshashtag WHERE post_date LIKE "2019-04-__ 22:%";
```

- What topics are trending in my domain?

Usecase_7: Find the most popular resorts' name based on Instagram likes?

```
# find the most popular resorts' name based on Instgram likes
# also answer the question 7) What topics are trending in my domain?

SELECT hashtag , SUM(post_likes) FROM inshashtag group by hashtag ORDER BY sum(post_likes) DESC LIMIT 5;
```

- What keywords/hashtag should I add to my post?

Usecase_8: Add the most likely hashtag to "Abenaki" into my post caption?

```
# add the most likely hashtag to "abenaki" into my post caption
# also answer the question 8) What hashtag should I add to my posts?
SELECT hashtag_1 FROM synonymstag WHERE hashtag LIKE "abenaki" ;
```

- Should I follow somebody back?

Usercase_9: Find the consumer who has the most Instagram posts likes for one particular ski resort

```
138  # Find the consumer who has the most instposts likes for one particular skiresort
139  # also answer the question 9) Should I follow somebody back?
140  SELECT hashtag, owner_id, post_likes
141  FROM inshashtag
142  WHERE hashtag in (SELECT hashtag FROM inshashtag GROUP BY hashtag)
143  and post_likes in (SELECT MAX(post_likes) FROM inshashtag GROUP BY hashtag);
144
```

VII. Fuzzy search

1. Synonyms

When we extract users' posts from Instagram, we will also get many synonyms hashtag cause they are included in those posts. Therefore, we use wordnet library to classify those hashtags and select the most matching hashtag as the synonymous hashtags

hashtag	hashtag_1	hashtag_2
abenaki	chanel_abenaki	A historic day for the Abenaki an…
alpenglow ❤️	alpenglow 🏔️🌄	alpenglow
alpental	Alpental	alpental
AlpineMeadows	alpinemeadows	meadows
alpinevalley	alpinevalley	AlpineValley
altaskiresort	ski	altaskiarea
ArapahoeBas…	arapahoebasin	ArapahoeBasin

2. Mis-spellings

When users search a ski resort name, maybe they have a wrong spelling. We need correct them and create a table to update all possible mis-spelling. We use fuzzywuzzy library to correct it.

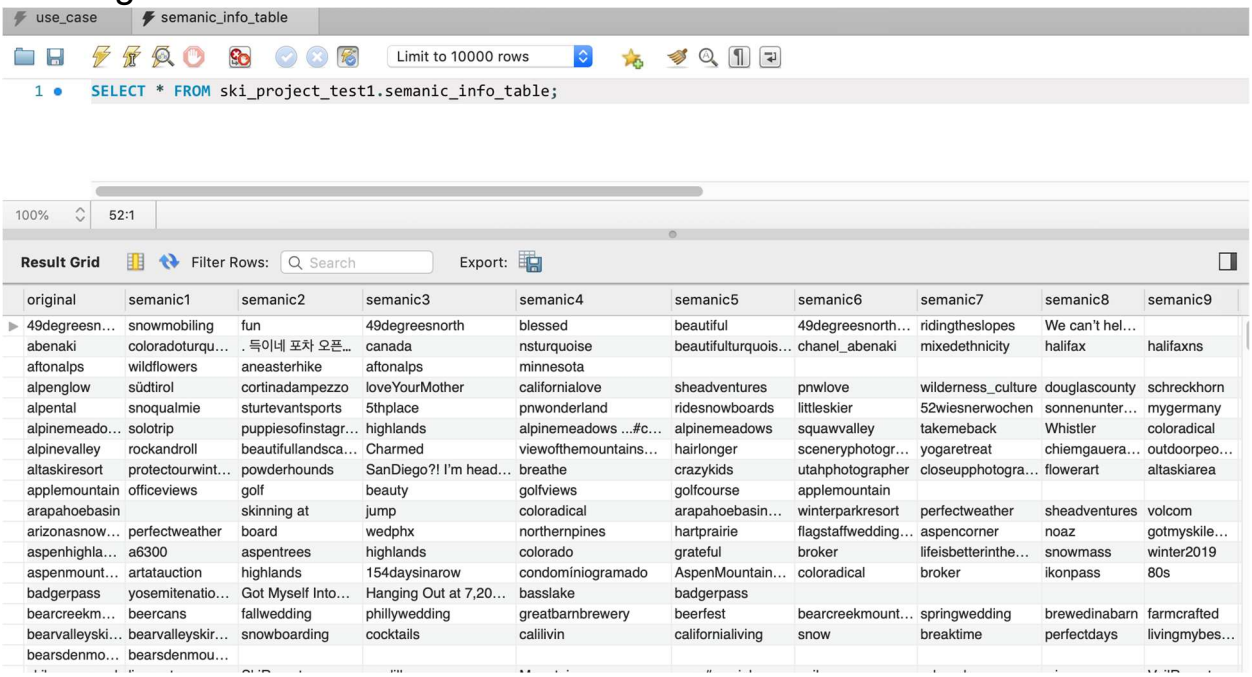
use_case | misspelling_table

Result Grid Filter Rows: Search Export:

original	mis1	mis2	mis3
49-degrees-north-mountain-resort		mousfa	49degree
abenaki	abenak		
afton-alps	afton-al		
al-quaal	al quaa		
aldis-hill-park-st-albans	aldis hill		
alpenglow-at-arctic-valley	ball	alpenglow	
alpental			
alpine-meadows	alpoin	meadow	
alpine-mountain-ski-snow-tubing-c…			
alpine-valley-cleveland	clevela…		
alpine-valley-resort-elkhorn	elkhown		
alpine-valley-white-lake	white l…		
alta			
alta-sierra-shirley-meadows			
alyeska-resort-girdwood			
american-dream-meadowlands-ea…			
andes-tower-hills	andes-…		
angel-fire	angel fire	angel fiire	angel-…

3. Semantic information

When users post posts, they maybe have many hashtags, those irrelevant hashtags are Semantic information.



original	semanic1	semanic2	semanic3	semanic4	semanic5	semanic6	semanic7	semanic8	semanic9
49degreesn…	snowmobiling	fun	49degreesnorth	blessed	beautiful	49degreesnorth…	ridingtheslopes	We can't hel…	
abenaki	coloradoturqu…	. 득이네 포차 오픈…	canada	nsturquoise	beautifulturquois…	chanel_abenaki	mixedethnicity	halifax	halifaxns
aftonalps	wildflowers	aneasterhike	aftonalps	minnesota					
alpenglow	südtirol	cortinadampezzo	loveYourMother	californialove	sheadventures	pnwlove	wilderness_culture	douglascounty	schreckhorn
alpental	snoqualmie	sturtevantsports	5thplace	pnwonderland	ridesnowboards	littleskier	52wiesnerwochen	sonnenunter…	mygermany
alpinemeado…	solotrip	puppiesofinstagr…	highlands	alpinemeadows ...#c…	alpinemeadows	squawvalley	takemeback	Whistler	coloradical
alpinevalley	rockandroll	beautifullandsca…	Charmed	viewofthemountains…	hairlonger	sceneryphotogr…	yogaretreat	chiemgauera…	outdoorpeo…
altaskiresort	protectourwint…	powderhounds	SanDiego?! I'm head…	breathe	crazykids	utahphotographer	closeupphotogra…	flowerart	altaskiarea
applemountain	officeviews	golf	beauty	golfviews	golfcourse	applemountain			
arapahoebasin		skinning at	jump	coloradical	arapahoebasin…	winterparkresort	perfectweather	sheadventures	volcom
arizonasnow…	perfectweather	board	wedphx	northernpines	hartprairie	flagstaffwedding…	aspencorner	noaz	gotmyskile…
aspenhighla…	a6300	aspentrees	highlands	colorado	grateful	broker	lifeisbetterinthe…	snowmass	winter2019
aspenmount…	artatauction	highlands	154daysinarow	condomíniogramado	AspenMountain…	coloradical	broker	ikonpass	80s
badgerpass	yosemitenatio…	Got Myself Into…	Hanging Out at 7,20…	basslake	badgerpass				
bearcreekm…	beercans	fallwedding	phillywedding	greatbarnbrewery	beerfest	bearcreekmount…	springwedding	brewedinabarn	farmcrafted
bearvalleyski…	bearvalleyskir…	snowboarding	cocktails	calilivin	californialiving	snow	breaktime	perfectdays	livingmybes…
bearsdenmo…	bearsdenmou…								

VIII. Results

We create a database about all ski resort information and then we write code in python to connect our database. Beside we write function to help users to find ideal ski resort. For example, if customers input location they want to go and the ticket price they can afford, they will find all information from our database to recommend some ski resort and customers can choice one of they like.

Case1 price and location

In [29]:
```
def f5():
    d = input('please input your state : ')
    a = input('please input your expected ticket price : ')
    b = int(a)
    if b >= 120:
        c.execute(sql_6, d)
        for row in c.fetchall():
            print(row,'expensive');
    elif 60 <= b < 120:
        c.execute(sql_7, d)
        for row in c.fetchall():
            print(row,'medium') ;
    elif b < 60:
        c.execute(sql_8, d)
        for row in c.fetchall():
            print(row,'cheap')  ;
```

In [41]:
```
f5()
```

```
please input your state : New York
please input your expected ticket price : 90
('belleayre-mountain', 'New York', 68) medium
('bristol-mountain', 'New York', 72) medium
('gore-mountain', 'New York', 83) medium
('greek-peak', 'New York', 68) medium
('holiday-valley', 'New York', 75) medium
('holimont', 'New York', 70) medium
('hunter-mountain', 'New York', 80) medium
('kissing-bridge', 'New York', 60) medium
('plattekill', 'New York', 61) medium
('whiteface-lake-placid', 'New York', 94) medium
('windham-mountain', 'New York', 85) medium
```

Case2: state and altitude

In [17]:
```
def f2():
    b = input('Please input altitude :')
    d = input('Please input state :')
    c.execute(sql_3, (b,d))
    for row in c.fetchall():
        print(row)
```

In [43]:
```
f2()
```

```
Please input altitude :2500
Please input state :california
('mammoth-mountain', 'California', 3369, 51725)
('bear-mountain-big-bear-lake', 'California', 2684, 21358)
('june-mountain', 'California', 3075, 4425)
('china-peak', 'California', 2654, 2997)
```

IX. Conclusion and Difficulties

We create a database and python as the bottom of the website we connected to the database. Then we write switch case to call database. Therefore, when user search information, we will call function to extract the information they want.

However, the most difficult thing is that we don’t know how to use Django to create a website. There are have not enough time to learn by ourselves this library. So, it’s clearly what we need to do in future. We need use Django to create a website such as search engine and so on.

X. Citation

1. Kaggle: https://www.kaggle.com/beaubellamy/ski-resort
2. Instagram API: https://instaloader.github.io/index.html
3.Twitter API: https://developer.twitter.com/en/docs.html
4. Google map API:
https://developers.google.com/maps/documentation/maps-static/intro
5. Weather API: https://rapidapi.com/darkskyapis/api/dark-sky?utm_source=google&utm_medium=cpc&campaign=1755331082&keyword=dark%20sky%20api&gclid=CjwKCAjwtYXmBRAOEiwAYsyl3E0gIvlOFxfTBLunnM7PgWco4SrEjF8P_3YfVcp60wT77yQoh_zYWxoCRHgQAvD_BwE

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