

Aspect-level sentiment analysis

dataset - Review of Restaurant

2 words -filter coffee :-)
Not worth the price & hype
You have to try carrot juice
Im in love with it
Total rip off!! They tried to change us more than double service charge on our bill. The small pizza is tiny and up the road you can get a 3 course meal for 15 soles! AVOID THIS PLACE!!!!
The best bar in Hikkaduwa. U can find here everything u want)
Nice authentic tradition South Indian food.. Nice ambience and the lighting is good
#36 with mango juice!
Best food in town! Their steaks are awesome!!! Thumbs up all the way!!!
Pasta tasteless. Mushroom watery and lemon tea need to ask for extra lemon. Super bad! Dun try!
Great South Indian vegetarian fare!
Best soy coffee! They use BonSoy and if you get a mocha they use Belgian chocolate. Delicious!
Surprisingly good bourbon list. Ask Christian.
No fries! Really?!?!
Burgers with extra pickles, onion rings and the chocolate shake are the best ever!!!! :) A must try if in the area. Just remember it's "cash only"! :)
Great spiced apple drink.
Try ice vanilla latte and chic o cheese
Menu is on e readers. Pretty cool!!
A good cafe to rest in after a tiring walk in Mecca Mall
Great food. Excellent service. Great prices
One Double cheeseBK n Nice outdoor atmosphere ^^ #HomeyBali
Get the home made lime/mint lemonade!
Ben here 4 times in last month. Excellent sushi and old fashions. Music is way too loud for dining though! Turn it down a tad for eating please!
Best wings, rolling to a spot near you.
If you're a lover of all things pumpkin, try the pumpkin bagel with the pumpkin cream cheese when they're in season!
Did this..Love it.
Chips and wam salsa. Delicious!
Try the calamari Taco n add some hot sauce..delicious!!
The chocolate babka is amazing- buttery, plenty of chocolate & stays moist (even when left open on a counter)!! If you order coffee at the front register, you have to go to the back to pick it up.
Beers all over the world, cool place
Nice place. Good coffee not bad prices. But the menu could do with a redesign. Doesn't match the aesthetic of the property.
Good food. Parking can be a real pain!
The red beans and rice are DELICIOUS.. better than Pat O'Briens.
This is my fourth time here. Gets better every single time.
Must try shrimp avoid salad and Nutella Tiramissu. Enjoy!
This is Mexican food done right. But If you want tortillas they will charge you for mere 2 tortillas (that is not right)
Waitress wears flip flop. Doesn't know how to properly pour water out of a pitcher. Food was good though.
Such a beautiful place
The guys here will give you a hard time with the check in special.
Puts Moe's and Chipotle to shame
Chicken teriyaki is good, vegetables nicely preppes, good serving portion, price friendly
If you're looking for homemade local food. Thats the address.You should try "keskek" which is a traditional food. Kind of turkish risotto
The Red Velvet Waffles are to die for!
The owner, Whitney, suggested the small pies for client thank you gifts. I tried the Dutch Apple, it was DELICIOUS!!!
Medium coffee + oatmeal for \$3.50 = a great way to start the day.
Really excellent beer selection, solid food choices, and probably the worst music ever.
Soo tasty meze, great balcony overlooking the bay
Plan to wait a while. This McDonald's is slow.
Get the Atticus Finch.
These burgers are the shit! Forget Grill'd , Forget all other burger joints in Melbourne. Danny's Burgers is where its at!
Avoid the butter chicken unless you want a bowl of microwaved stodge with no taste and fatty chicken. Not to mention the stale bread! On the plus side service was lightening fast!
Always great service up in the bar. Love the Chicago 7 calzone.
The chicken wing is the best xD yums. <3
Awesome Chicken Greek Salad
Breakfast was awful. No server came to greet us the whole hour our three person party was there which meant we couldn't order any hot food. Every table was dirty and food that was out was old.

Goal

rid	id	text	target	category	polarity	from	to
0	0:0	2 words -filter coffee :-)	coffee	DRINKS#QUALITY	negative	16	22
1	1:0	Not worth the price & hype	hype	AMBIENCE#GENERAL	negative	22	26
1	1:0	Not worth the price & hype	NULL	RESTAURANT#PRICES	negative	0	0
2	2:0	You have to try carrot juice	carrot juice	DRINKS#QUALITY	positive	16	28
3	3:0	Im in love with it	NULL	RESTAURANT#GENERAL	positive	0	0
4	4:0	Total rip off!!	NULL	RESTAURANT#GENERAL	negative	0	0
4	4:1	They tried to change us more than double service charge on our bill.	NULL	SERVICE#GENERAL	negative	0	0
4	4:2	The small pizza is tiny and up the road you can get a 3 course meal for 15 soles!	small pizza	FOOD#STYLE_OPTIONS	negative	4	15
4	4:3	AVOID THIS PLACE!!!!	NULL	RESTAURANT#GENERAL	negative	0	0
5	5:0	The best bar in Hikkaduwa.	bar	RESTAURANT#GENERAL	positive	9	12
5	5:1	U can find here everything u want)	NULL	RESTAURANT#GENERAL	positive	0	0
6	6:0	Nice authentic tradition South Indian food..	food	FOOD#QUALITY	positive	38	42
6	6:1	Nice ambience and the lighting is good	ambience	AMBIENCE#GENERAL	positive	5	13
6	6:1	Nice ambience and the lighting is good	lighting	AMBIENCE#GENERAL	positive	22	30
7	7:0	#36 with mango juice!	mango juice	DRINKS#QUALITY	positive	9	20
8	8:0	Best food in town!	food	FOOD#QUALITY	positive	5	9
8	8:1	Their steaks are awesome!!!	steaks	FOOD#QUALITY	positive	6	12
8	8:2	Thumbs up all the way!!!	NULL	RESTAURANT#GENERAL	positive	0	0
9	9:0	Pasta tasteless.	Pasta	FOOD#QUALITY	negative	0	5
9	9:1	Mushroom watery and lemon tea need to ask for extra lemon.	Mushroom	FOOD#QUALITY	negative	0	8
9	9:1	Mushroom watery and lemon tea need to ask for extra lemon.	lemon tea	DRINKS#QUALITY	negative	20	29
9	9:2	Super bad!	NULL	FOOD#QUALITY	negative	0	0
9	9:3	Dun try!	NULL	RESTAURANT#GENERAL	negative	0	0
10	10:0	Great South Indian vegetarian fare!	vegetarian fare	FOOD#QUALITY	positive	19	34
11	11:0	Best soy coffee!	soy coffee	DRINKS#QUALITY	positive	5	15
11	11:1	They use BonSoy and if you get a mocha they use Belgian chocolate.					
11	11:2	Delicious!	NULL	FOOD#QUALITY	positive	0	0

新library — spaCy

>> a.similarity(b) 可以計算a與b兩個詞之間的相似度。
此計算是基於spaCy使用glove內建的詞向量資料。

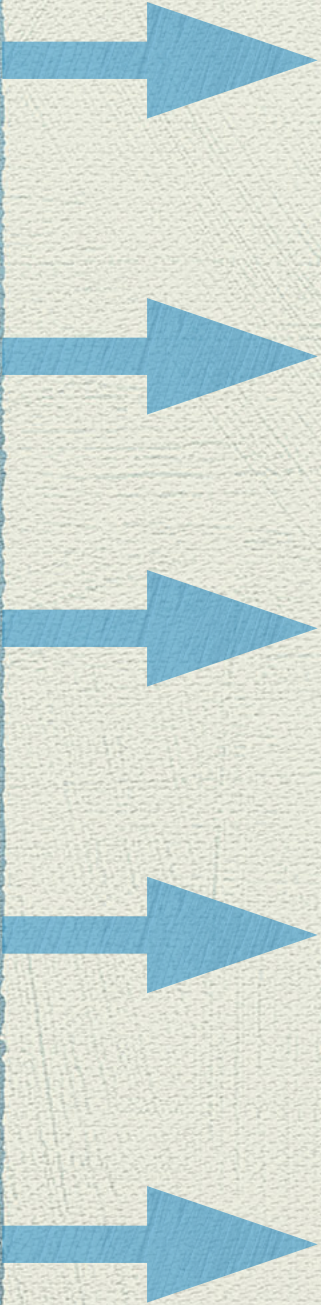
```
In [24]: apples.similarity(orange)
```

```
Out[24]: 0.77809414836023805
```

```
In [25]: boots.similarity(hippos)
```

```
Out[25]: 0.038474555379008429
```


流程

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1. 將訓練文檔去雜訊、POS tagging取出名詞、tokenize完畢。即將文檔整理成一個個target的list of list。
 2. 形容詞則作為optional word被整理為list of list。
 3. 將target一個個和所有決定好的aspect做similarity比較，相似度最高代表該feature屬於該aspect。
 4. 從字庫中找出optional word的正負屬性，如果無法直接在字庫中找到該字的話，則計算與字庫中所有字的similarity並賦予他相同的正負屬性。
 5. 統計與summary。

統計演算法

1. 先找出評論中的target, 並標出target在評論中的位置。

```
<text>2 words -filter coffee :-)</text>  
<Opinions>  
  <Opinion target="coffee" category="DRINKS#QUALITY" polarity="negative" from="16" to="22"/>  
</Opinions>
```

2. 取出距離target最近的optional word。
3. 在字庫當中查詢optional word的正負，若是不能直接在字庫中找到，則計算similarity來賦予該字正負屬性，並將他加入字庫中。
4. 若是附近有語意轉折詞，則正負分相反，其餘情況遇到正面字就+1分，負面字就-1分。