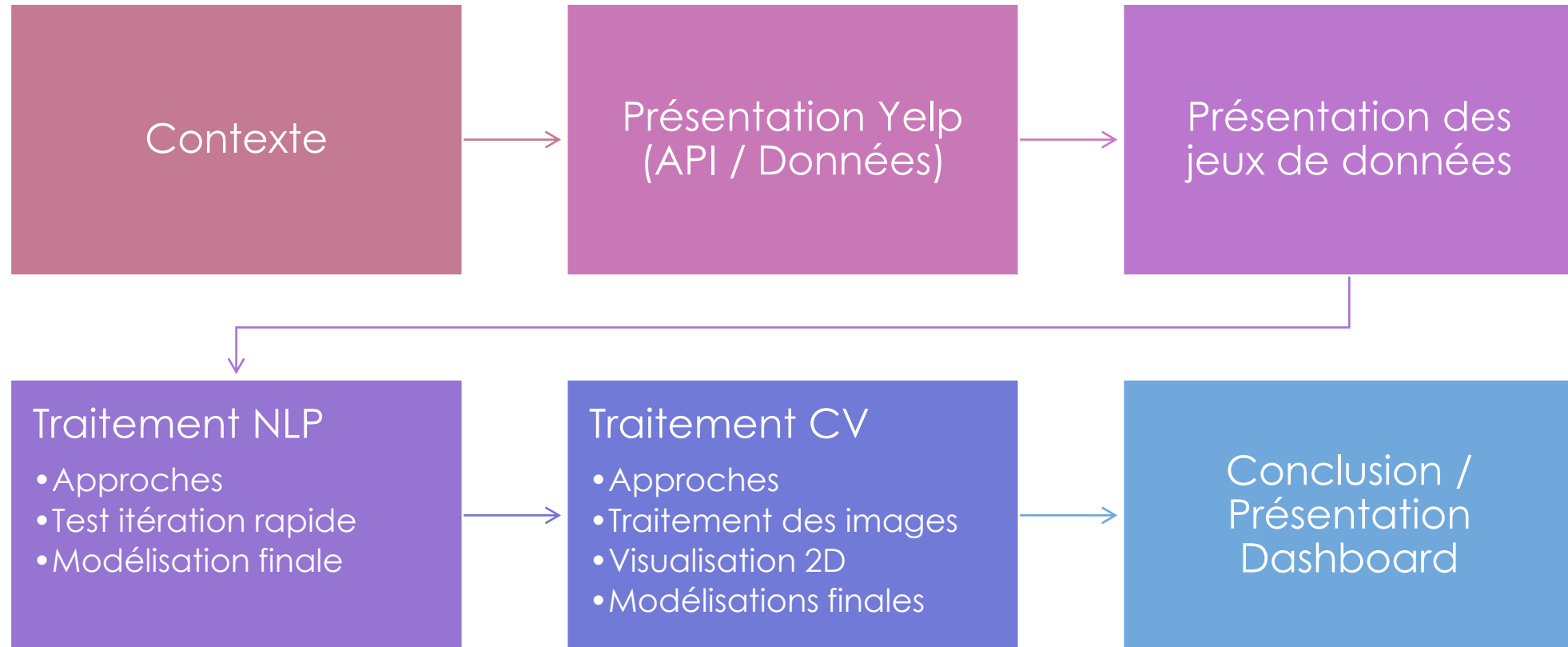


Avis Restau

Amélioration des produits IA
(CV / NLP)



Sommaire





Contexte



Contexte



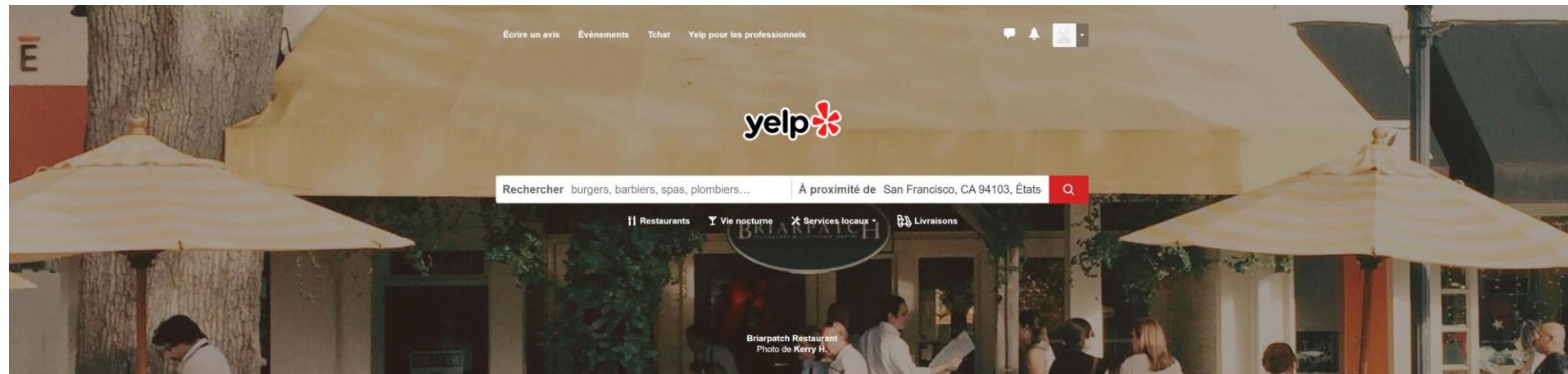
Nouvelle fonctionnalité
de collaboration




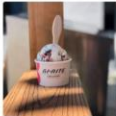




Sujet d'insatisfaction



Labélisation automatique
des images

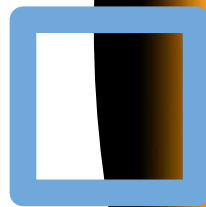


Your Next Review Awaits

	Brenda's French Soul Food Aidez la communauté à faire un choix. ★★★★★		Bi-Rite Creamery Aidez la communauté à faire un choix. ★★★★★
	Saigon Sandwich Aidez la communauté à faire un choix. ★★★★★		Tartine Bakery Aidez la communauté à faire un choix. ★★★★★
	Espetus Churrascaria Aidez la communauté à faire un choix. ★★★★★		Dottie's True Blue Cafe Aidez la communauté à faire un choix. ★★★★★

✓ Afficher plus de suggestions

Présentation Yelp (API / Données)



API Yelp



★★★★★ 8/31/2021

📷 2 photos

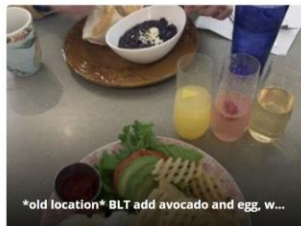
The first time dining with Eggmann's at their original location I ordered the BLT K's way with avocado and an egg. The BLT was good. Waffle fries were solid. I ordered the mimosa flight, which was a really fun addition to my brunch. My boyfriend got the California burrito with black beans. The burrito definitely needed the addition of hot sauce. The coffee was delicious. Overall it was a really good experience.

Recently, we dined at the new Wyandot golf course location. There are no longer cocktails offered on the menu, but I was told I could go to the golf course's pro shop to order a cocktail and bring it back to my table. The lady working the pro shop was super friendly and fun. She made me a vodka, orange juice, and pineapple juice concoction for only \$5. To eat, I ordered the chicken salad croissant with waffle fries and my boyfriend got the chicken and waffle. The chicken salad is tasty and the croissant is nicely toasted. I forgot to add avocado to the order, which definitely would have been nice! The waffle fries are good. My boyfriend's chicken and waffle was a large portion. The sriracha flavor really came through in the waffle. The mashed potatoes were alright. The addition of hot sauce elevated the meal.

The biggest difference to me is the atmosphere and energy of the new location. It's much quieter with less character. The removal of cocktails from the menu with the ability to go get a cocktail myself from a different location was a little strange. Even just a list of available drinks at the pro shop would have been helpful since it wasn't clear what I could order.



Chicken salad croissant, waffle fries, coffe...



old location BLT add avocado and egg, w...

👍 Useful

😄 Funny

😎 Cool 1

API Usage

Daily API limit	5000
Remaining API Calls	5000
30-Day Hit Total	446
30-Day Daily Mean Hits	14.866666666666667
30-Day Daily Median Hits	0.0

YELP_API

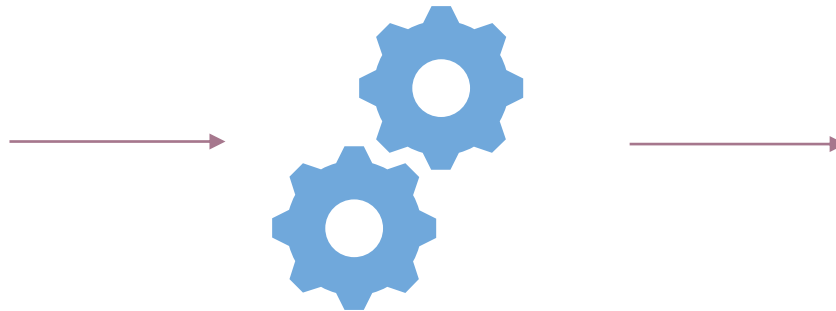
```
"reviews": [
  {
    "id": "9j0LbFTgyIGHvcl60sZ7KQ",
    "url": "https://www.yelp.com/biz/eggmanns-eatery-centerburg?adjust_creative=SV2itapdsF1NSU7I-R7JnA&hrid=9j0LbFTgyIGHvcl60sZ7KQ",
    "text": "The first time dining with Eggmann's at their original location I ordered the BLT K's way with avocado and an egg. The BLT was good. Waffle fries were solid. I ordered the mimosa flight, which was a really fun addition to my brunch. My boyfriend got the California burrito with black beans. The burrito definitely needed the addition of hot sauce. The coffee was delicious. Overall it was a really good experience.",
    "rating": 4,
    "time_created": "2021-08-31 09:44:14",
    "user": {
      "id": "yeXq5FwtQjxAhQj00G1Z1g",
      "profile_url": "https://www.yelp.com/user_details?userid=yeXq5FwtQjxAhQj00G1Z1g",
      "image_url": "https://s3-media3.fl.yelpcdn.com/photo/G1qo8Br7-BbRipcFBN-1Lw/o.jpg",
      "name": "Lauren E."
    }
  },
  {
    "id": "P3jS-ZCKa1BXN72TEcbkUw",
    "url": "https://www.yelp.com/biz/eggmanns-eatery-centerburg?adjust_creative=SV2itapdsF1NSU7I-R7JnA&hrid=P3jS-ZCKa1BXN72TEcbkUw",
    "text": "OMG... This place is Awesome...\n\nIt is really in a not easy to find location but it is worth finding.",
    "rating": 5,
    "time_created": "2021-05-30 09:27:09",
    "user": {
      "id": "_NpzT8PeNBFTln8FGape9Q",
      "profile_url": "https://www.yelp.com/user_details?userid=_NpzT8PeNBFTln8FGape9Q",
      "image_url": "https://s3-media2.fl.yelpcdn.com/photo/vI-MYmWmPKDvNniRoE51w/o.jpg",
      "name": "Mike K."
    }
  },
  {
    "id": "zRQWfMRTBk20xfubPxrpiw",
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    "rating": 5,
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    "user": {
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      "image_url": "https://s3-media2.fl.yelpcdn.com/photo/1LhN30Fr615jv_ijk9wf2Q/o.jpg",
      "name": "Brett B."
    }
  }
],
```

ETL (« Extract Transform and Load »)

« EXTRACT »

```
"reviews": [
  {
    "id": "9j0LbFTgyIGHvc160sZ7KQ",
    "url": "https://www.yelp.com/biz/eggmans-eatery-centerburg?adjust_creative=SV2itapdsF1NSU7I-R7JnA&hrid=9j0LbFTgyIGHvc160sZ7KQ",
    "text": "The first time dining with Eggmann's at their original location I ordered the BLT K's way with avocado.",
    "rating": 4,
    "time_created": "2021-08-31 09:44:14",
    "user": {
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      "image_url": "https://s3-media3.fl.yelpcdn.com/photo/G3q0BbR7-BBRipcfBN-1Lw/o.jpg",
      "name": "Lauren E."
    }
  },
  {
    "id": "Pjjs-ZCKa18XM72TEcbkuw",
    "url": "https://www.yelp.com/biz/eggmans-eatery-centerburg?adjust_creative=SV2itapdsF1NSU7I-R7JnA&hrid=Pjjs-ZCKa18XM72TEcbkuw",
    "text": "OMG... This place is Awesome...\n\nIt is really in a not easy to find location but it is worth finding it.",
    "rating": 5,
    "time_created": "2021-05-30 09:27:09",
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      "image_url": "https://s3-media2.fl.yelpcdn.com/photo/vi-MYmMmpKDVnniRoeS1w/o.jpg",
      "name": "Mike K."
    }
  },
  {
    "id": "zRQWfmRT8k2OxfubPxrpiw",
    "url": "https://www.yelp.com/biz/eggmans-eatery-centerburg?adjust_creative=SV2itapdsF1NSU7I-R7JnA&hrid=zRQWfmRT8k2OxfubPxrpiw",
    "text": "This place is absolutely amazing!!\n\nGreat setting on a country road and part of a golf course.\n\nGreat food and service.",
    "rating": 5,
    "time_created": "2021-05-02 12:05:56",
    "user": {
      "id": "UiyxQ-7APGGMSeZJ0n-oPA",
      "profile_url": "https://www.yelp.com/user_details?userid=UiyxQ-7APGGMSeZJ0n-oPA",
      "image_url": "https://s3-media2.fl.yelpcdn.com/photo/1LhN30Fr615jv_ijk9wf2Q/o.jpg",
      "name": "Brett B."
    }
  }
],
```

« TRANSFORM »



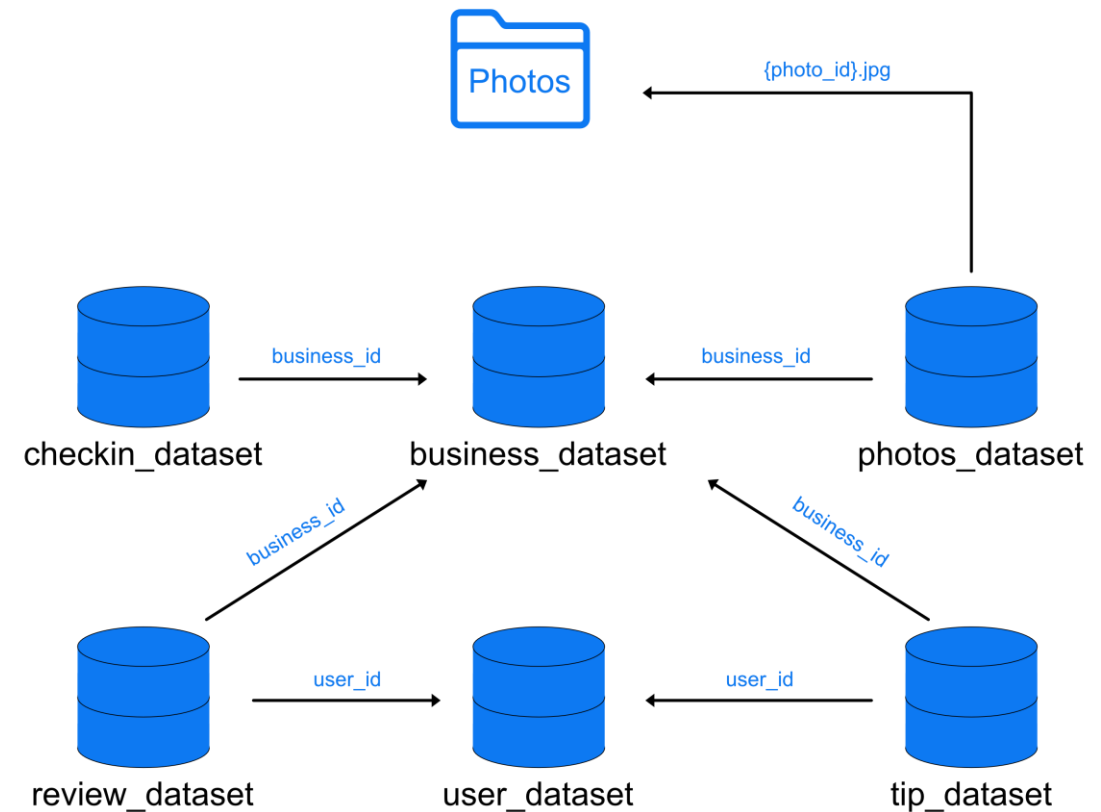
« LOAD »

```
yelp_academic_dataset_business_1632329699.csv
yelp_academic_dataset_review_1632329699.csv
yelp_academic_dataset_user_1632329699.csv
```


Données Yelp

9 Go fichiers compressés.

16,5 Go décompressés
=> 10,5 Go Users / Reviews / Business
=> 6 Go Photos

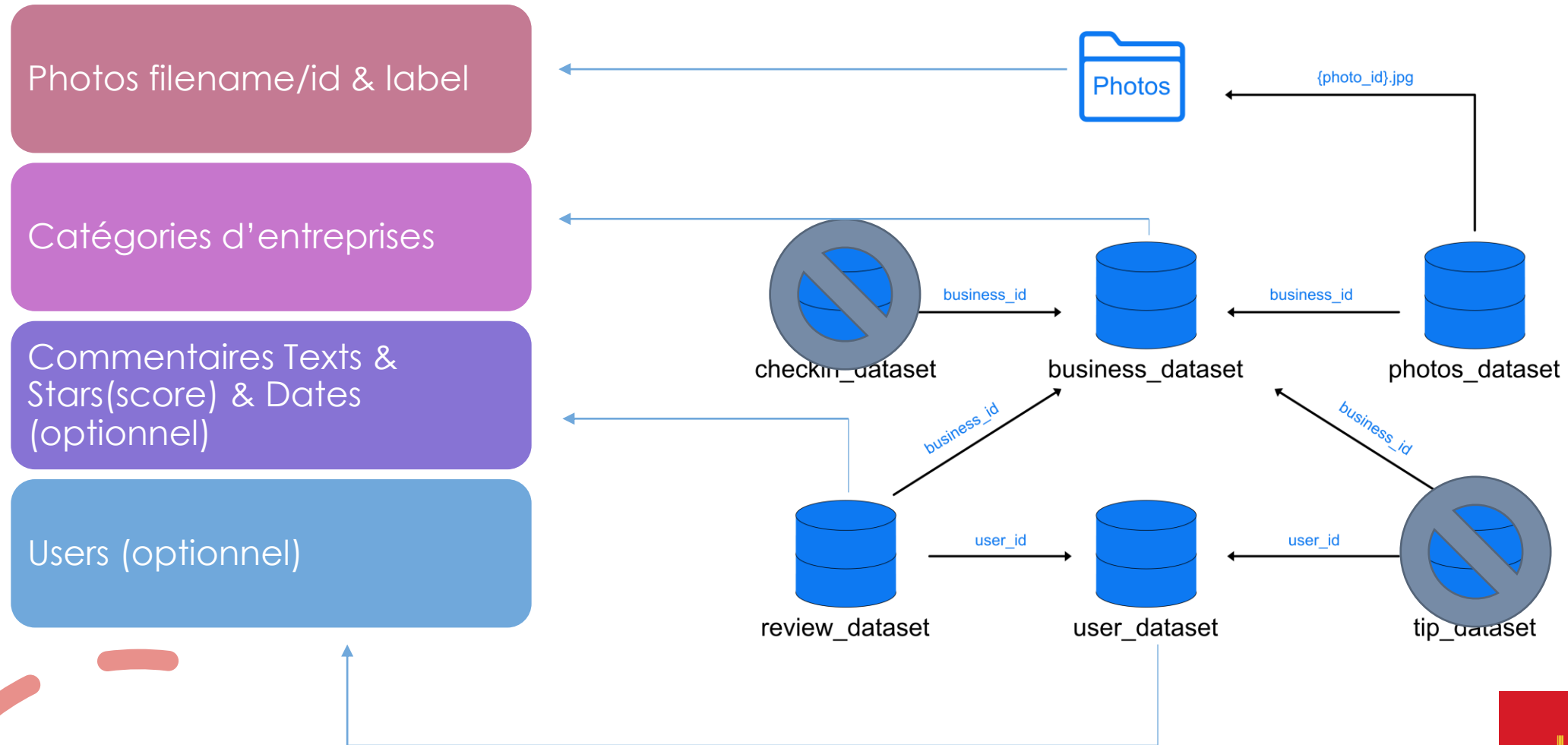


Présentation / Traitement du jeu de données



```
mirror_mod = modifier_ob.  
#set mirror object to mirror  
mirror_mod.mirror_object =  
operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
#selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier_ob.  
mirror_ob.select = 0  
= bpy.context.selected_object  
data.objects[one.name].select  
  
print("please select exactly  
  
-- OPERATOR CLASSES --  
  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```

Sélection des fichiers pertinents



Traitement business_dataset



1331 catégories d'entreprises et 160585 entreprises

```
all_food_cat = ["Restaurants", "Food", "Bars",  
               "Coffee & Tea", "Sandwiches", "Pizza",  
               "Fast Food", "Burgers", "Specialty Food",  
               "Seafood", "Beer", "Wine & Spirits",  
               "Bakeries", "Cafes", "Salad",  
               "Food Trucks", "Ice Cream & Frozen Yogurt", "Cocktail Bars",  
               "Sushi Bars", "Chicken Wings", "Juice Bars & Smoothies",  
               "Barbeque", "Food Stands", "Wine Bars",  
               "Diners", "Steakhouses", "Ramen", "Tapas/Small Plates"]
```

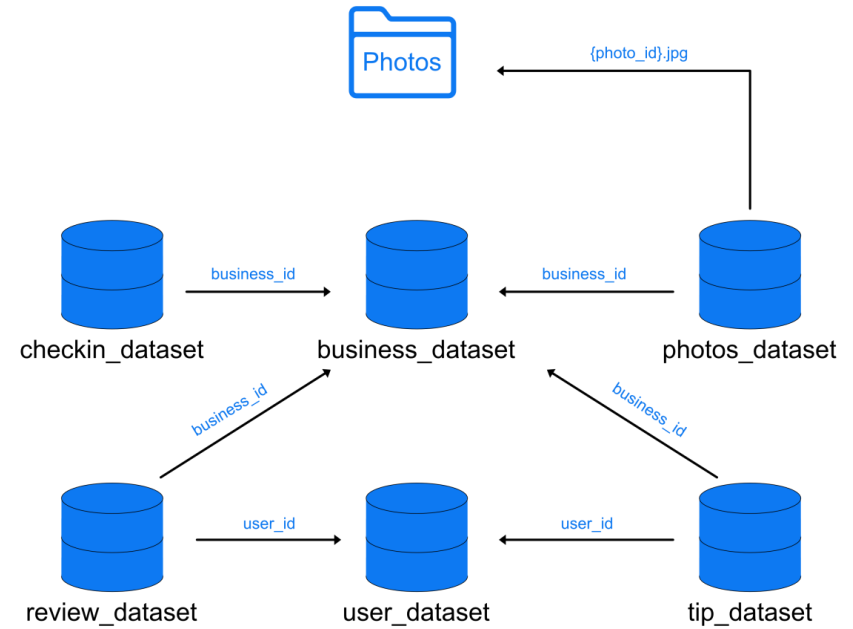


28 catégories d'entreprises et 65927 entreprises restantes

Fichier finaux

Dimensionnalité du nouveau DataFrame : (198979, 3)

	photo_id	label	photo
0	Un_Og6jfhazVn7CxszkKEw	drink	./data/dataset_photo/photos/Un_Og6jfhazVn7Cxsz...
1	BFE1AF0s27scnnfeBf99ZA	drink	./data/dataset_photo/photos/BFE1AF0s27scnnfeBf...




Dimensionnalité du nouveau DataFrame : (6196998, 8)

	review_id	stars	text	date	name_business	complete_address	name_user	user_id
0	IWC-xP3rd6obsecCYsGZRg	4.0	Apparently Prides Osteria had a rough summer a...	2014-10-11 03:34:02	Prides Osteria	MA - (Beverly) :\n240 Rantoul St \nPostal code...	Mel	ak0TdVmGKo4pwqdJSTLwWw
1	8bFej1QE5LXp4O05qjGqXA	4.0	This store is pretty good. Not as great as Wal...	2015-07-03 20:38:25	Target	MA - (Framingham) :\n400 Cochituate Rd \nPosta...	Brandon	YoVfDbnISlW0f7abNQAClg



Traitement NLP (Natural Language Processing)



Approches des recherches

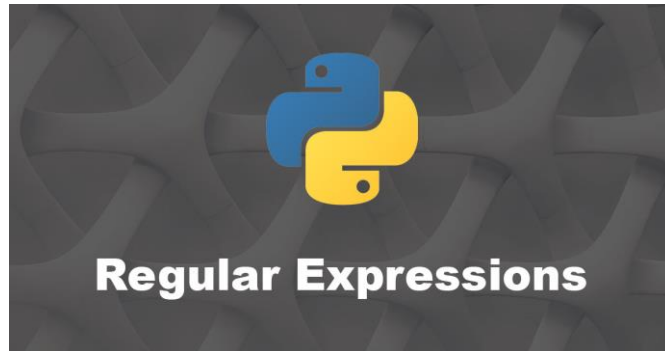
Nettoyage des commentaires

Préparation des données

Recherche LDA

Recherche LSA

Nettoyage des données



- Suppression espace
- Caractère alphabétique uniquement
- Suppression de caractères (so goooooood => so good)

spaCy



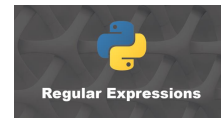
- Tokenization
- Sélection de « tag » (Nom, Adjectif, Adverbe, Verbe)
- Trigramme
- Lemmatization

Préparation des données

« Every time I come to this location I'm always so disappointed and frustrated with how slow the service is. »

&

« It took about 15 minutes to come out. Horrible service I'm waiting 15 minute seating on my chair to get my meal! »



spaCy



« time come location disappointed frustrated slow service »

&

« take minute come horrible service wait minute seating chair meal »

Préparation des données (Bag Of Word)

« time come location disappointed
frustrated slow service »
&
« take minute come horrible service
wait minute seating chair meal »

Mot	Occurrence_1	Occurrence_2
time	1	0
come	1	1
location	1	0
disappointed	1	0
frustrated	1	0
slow	1	0
service	1	1
take	0	1
minute	0	2
horrible	0	1
wait	0	1
seating	0	1
chair	0	1
meal	0	1

Préparation des données (TF-IDF)

- $TF(\text{Time}) = 1$
- $IDF = \log(n+1/df+1) + 1 = \log(3/2)+1$
- $TFIDF = 1 * 1,405 = 1,405$

Mot	Occurrence_1	Occurrence_2	TF-IDF_1	TF-IDF_2
time	1	0	1,405	0
come	1	1	1	1
location	1	0	1,405	0
disappointed	1	0	1,405	0
frustrated	1	0	1,405	0
slow	1	0	1,405	0
service	1	1	1	1
take	0	1	0	1,405
minute	0	2	0	2,81
horrible	0	1	0	1,405
wait	0	1	0	1,405
seating	0	1	0	1,405
chair	0	1	0	1,405
meal	0	1	0	1,405

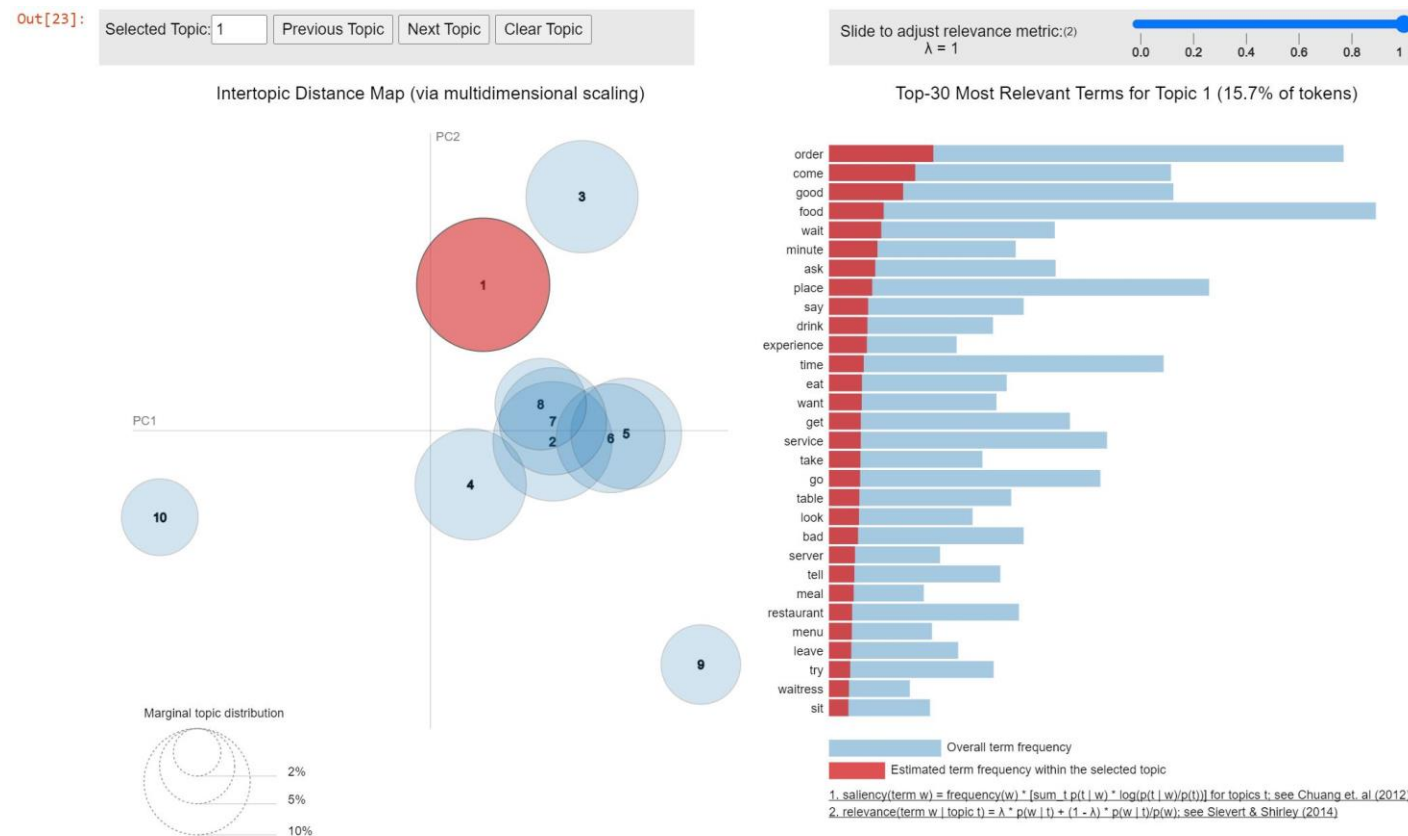
```
tfidf = TfidfVectorizer(norm=None)
```

```
data = tfidf.fit_transform(["time come location disappointed frustrated slow service",  
                           "take minute come horrible service wait minute seating chair meal"])
```

```
for row in data.toarray():  
    print("-----")  
    for k,v in zip(tfidf.get_feature_names_out(),row):  
        print(k,v)
```

```
-----  
chair 0.0  
come 1.0  
disappointed 1.4054651081081644  
frustrated 1.4054651081081644  
horrible 0.0  
location 1.4054651081081644  
meal 0.0  
minute 0.0  
seating 0.0  
service 1.0  
slow 1.4054651081081644  
take 0.0  
time 1.4054651081081644  
wait 0.0  
-----  
chair 1.4054651081081644  
come 1.0  
disappointed 0.0  
frustrated 0.0  
horrible 1.4054651081081644  
location 0.0  
meal 1.4054651081081644  
minute 2.8109302162163288  
seating 1.4054651081081644  
service 1.0  
slow 0.0  
take 1.4054651081081644  
time 0.0  
wait 1.4054651081081644
```

Recherches LDA



Recherches LSA

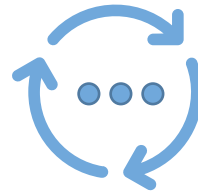
Topic #0
restaurant bad table ask get go minute wait good service come time place order food

Topic #1
min customer take order manager drink sit hour seat say ask tell table minute wait

Topic #2
sauce pick topping hour deliver say tell slice phone crust cheese call delivery order pizza

Topic #3
horrible price well bar great terrible staff good rude customer bad food place service pizza

Test itératif



Topic #0
restaurant bad table ask get go minute wait good service come time place order food

Topic #1
min customer take order manager drink sit seat hour say ask tell table minute wait

Topic #2
sauce pick topping hour deliver say tell slice phone crust cheese call delivery order pizza

Topic #3
take meal say sauce ask come salad get sandwich rice minute burger fry chicken order

Topic #4
min time cold take horrible delivery terrible hour slow minute bad wait order service food

Topic #5
restaurant food waiter bar waitress good sit come server seat drink minute wait table pizza

Topic #6
location people hour good drive coffee long sandwich time line fry minute place wait burger

Topic #7
terrible cheese take waitress bartender server come ask bar beer fry order service drink burger

Topic #8
hour coffee menu time delivery sushi bartender price food good beer bar place drink order

Topic #9
location terrible wait taste customer bartender bad slow minute bar sandwich service coffee drink chicken

Topic #10
ask small bread server service come good cheese breakfast slow location time price sandwich coffee

Topic #11
long bad year waste visit salad night second drink server eat go chicken location time

Topic #12
go egg waitress food water breakfast cold taco get taste eat coffee place come bad

Topic #13
experience wait fish time dish burger rice service restaurant table roll place order bad sushi

Topic #14
dirty sit breakfast server slow restaurant cheese order service bread lunch salad table place sandwich

Topic #15
bartender pay steak eat get salad restaurant experience sandwich price wait drink bar hour bad

Topic #16
well chicken horrible money service time worth ask pay charge wait sushi price place come

Topic #17
place night pretty reservation close pm tell coffee service say call delivery bad hour good

Topic #18
go sauce sit sandwich min good customer sushi bar fish service table cheese

Traitement CV (Computer Vision)



Approches des recherches

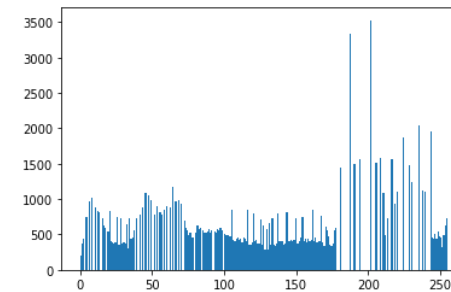
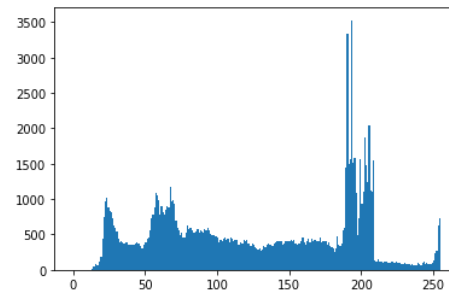
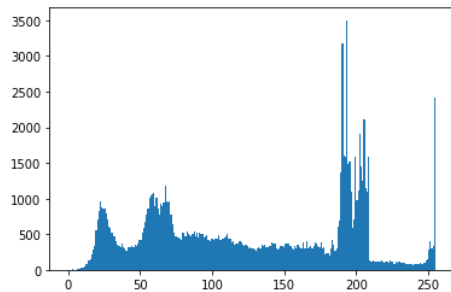
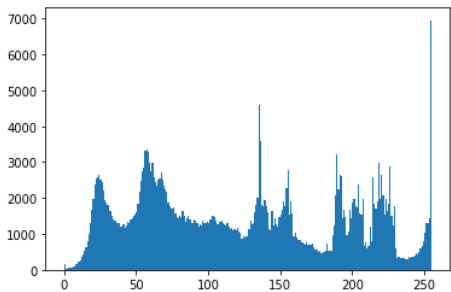
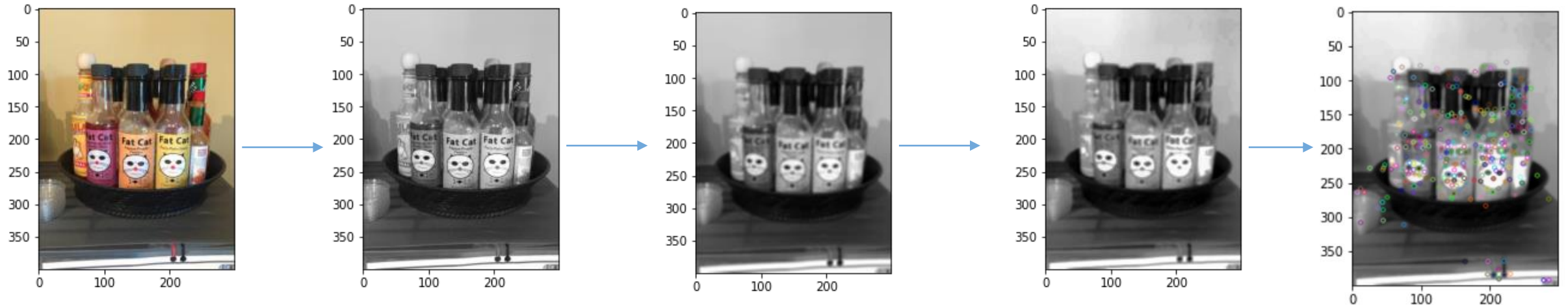
Traitement des images

Visualisation SIFT/Kmeans (2D)

Classification avec SIFT & Bag Of Visual Word

Approches CNN

Traitement des images

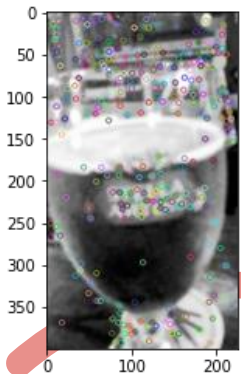
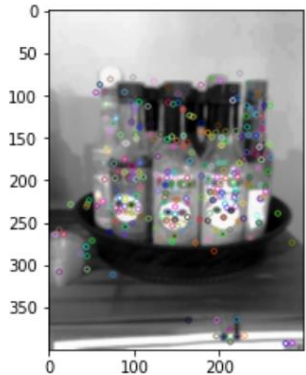


Descripteurs : (321, 128)

```
[[53. 13.  0. ...  0.  0.  0.]  
 [12.  5.  1. ...  0.  0.  0.]  
 [20. 14. 11. ...  2.  0.  0.]  
 ...  
 [12. 18.  0. ...  0. 16. 74.]  
 [10. 20. 94. ...  0.  0.  0.]  
 [34. 61. 24. ...  0.  0.  0.]
```


Visualisation SIFT / Kmeans

Descripteur par images



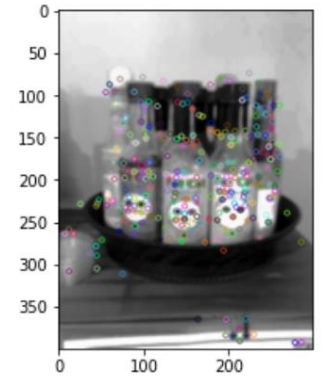
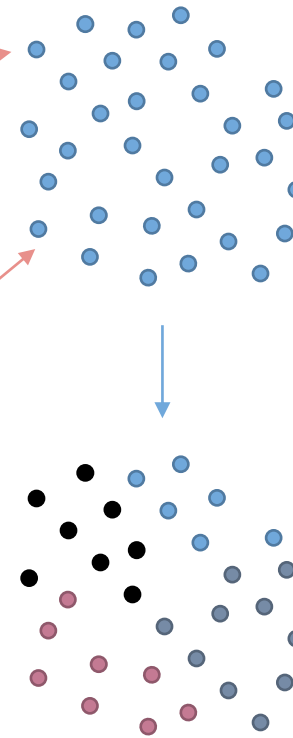
Descripteur de toutes les images

$\{ 53, 13, 0, \dots, 0, 0, 0 \}$
 $\{ 12, 5, 1, \dots, 0, 0, 0 \}$
 $\{ 20, 14, 11, \dots, 2, 0, 0 \}$

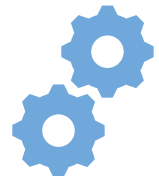


$\{ 0, 0, 0, \dots, 26, 13, 2 \}$
 $\{ 0, 0, 0, \dots, 29, 2, 5 \}$
 $\{ 2, 0, 5, \dots, 2, 1, 0 \}$

Kmeans des descripteurs



$\{ 53, 13, 0, \dots, 0, 0, 0 \}$
 $\{ 12, 5, 1, \dots, 0, 0, 0 \}$
 $\{ 20, 14, 11, \dots, 2, 0, 0 \}$



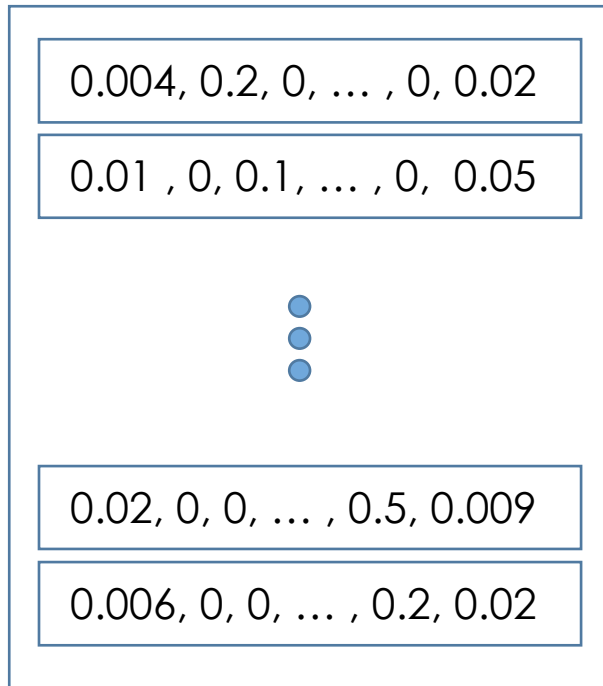
« Prédiction » kmeans

Bag Of Visual Word

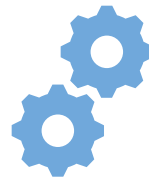
0.004, 0.2, 0, ... , 0, 0.02

Visualisation SIFT / Kmeans

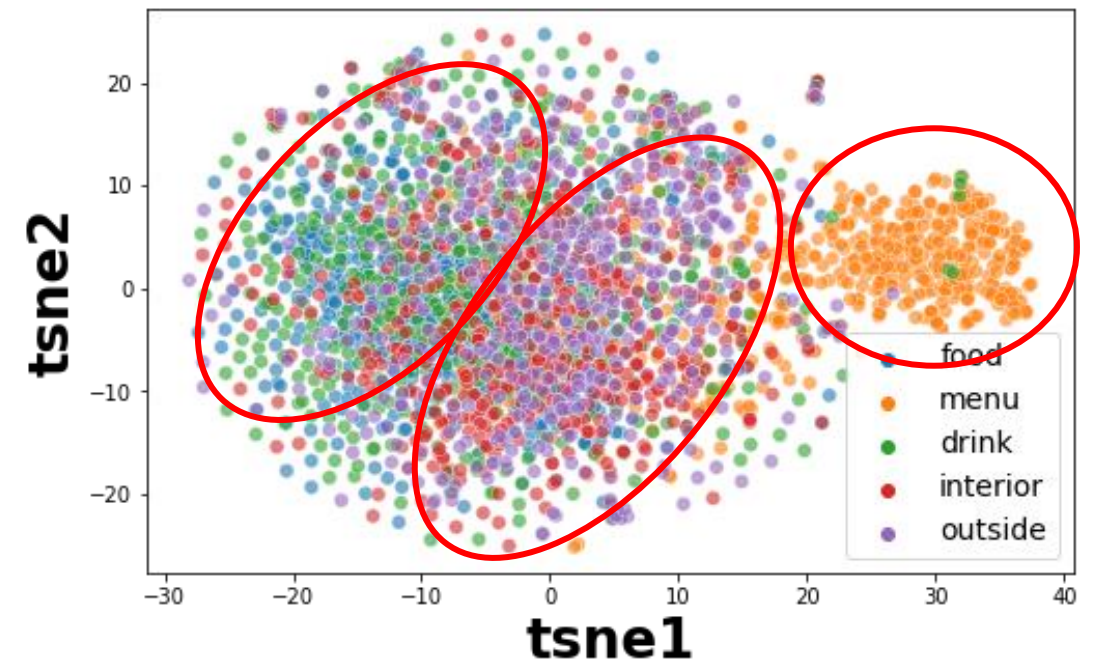
Bag Of Visual Word



PCA + TSNE



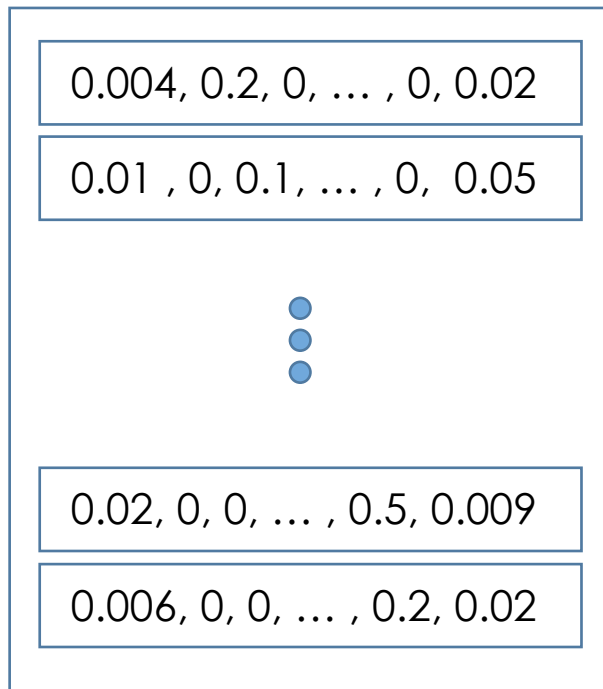
TSNE selon les vraies classes



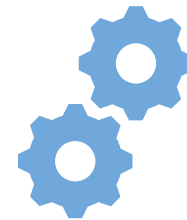
Classification SIFT

12500 images :
=> 10000 train_set
=> 2500 test_set

Bag Of Visual Word



Classifieur Logistic_regression



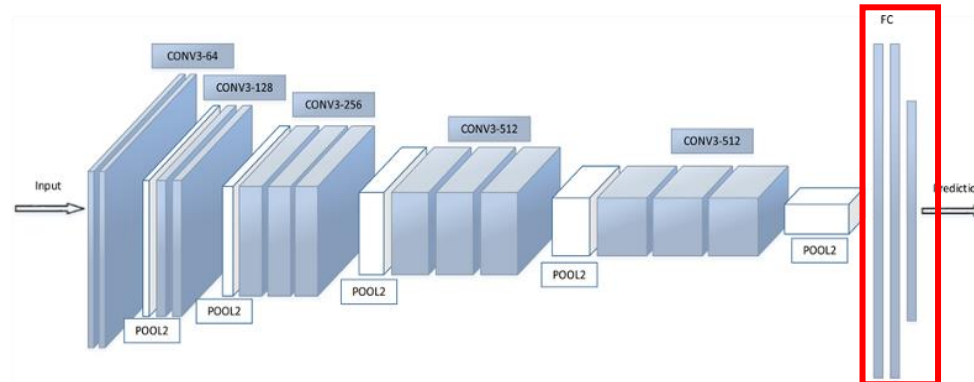
	food	menu	drink	interior	outside
food	363	1	90	39	23
menu	6	432	21	16	26
drink	118	15	254	78	44
interior	57	6	73	253	105
outside	43	17	51	124	245

Classification CNN

Model: "model_8"

Layer (type)	Output Shape	Param #
input_7 (InputLayer)	[(None, 224, 224, 3)]	0
block1_conv1 (Conv2D)	(None, 224, 224, 64)	1792
block1_conv2 (Conv2D)	(None, 224, 224, 64)	36928
block1_pool (MaxPooling2D)	(None, 112, 112, 64)	0
block2_conv1 (Conv2D)	(None, 112, 112, 128)	73856
block2_conv2 (Conv2D)	(None, 112, 112, 128)	147584
block2_pool (MaxPooling2D)	(None, 56, 56, 128)	0
block3_conv1 (Conv2D)	(None, 56, 56, 256)	295168
block3_conv2 (Conv2D)	(None, 56, 56, 256)	590080
block3_conv3 (Conv2D)	(None, 56, 56, 256)	590080
block3_pool (MaxPooling2D)	(None, 28, 28, 256)	0
block4_conv1 (Conv2D)	(None, 28, 28, 512)	1180160
block4_conv2 (Conv2D)	(None, 28, 28, 512)	2359808
block4_conv3 (Conv2D)	(None, 28, 28, 512)	2359808
block4_pool (MaxPooling2D)	(None, 14, 14, 512)	0
block5_conv1 (Conv2D)	(None, 14, 14, 512)	2359808
block5_conv2 (Conv2D)	(None, 14, 14, 512)	2359808
block5_conv3 (Conv2D)	(None, 14, 14, 512)	2359808
block5_pool (MaxPooling2D)	(None, 7, 7, 512)	0
flatten_3 (Flatten)	(None, 25088)	0
fc1 (Dense)	(None, 128)	3211392
dropout_3 (Dropout)	(None, 128)	0
predictions (Dense)	(None, 5)	645

Total params: 17,926,725
 Trainable params: 3,212,037
 Non-trainable params: 14,714,688



Source : <https://www.kaggle.com/shivamb/cnn-architectures-vgg-resnet-inception-ii>

	food	menu	drink	interior	outside
food	87	0	10	2	1
menu	1	83	1	3	0
drink	3	0	102	1	2
interior	2	2	2	97	8
outside	0	1	2	7	83

Conclusion / Dashbord



Conclusion



PREMIER PROJET NLP / CV



LABÉLISATION DES IMAGES FAISABLES
&
TOPIC MODELING POSSIBLE MAIS
DIFFICILE



AMÉLIORATION POSSIBLE DES
SOLUTIONS FINALES



DIFFICULTÉ À TROUVER DES SUJETS
INTÉRESSANTS (NLP)

Merci de votre attention,
avez-vous des questions ?