nlp_analysis

October 28, 2024

0.1 Data Import

[ ]:
```
pip install googletrans==4.0.0-rc1
```

[ ]:
```

```

[ ]:
```
import re
import locale
from collections import Counter

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
from sklearn.feature_extraction.text import TfidfVectorizer
from sklearn.cluster import KMeans
from sklearn.metrics import silhouette_score
from wordcloud import WordCloud
from nltk.corpus import stopwords
from nltk.tokenize import word_tokenize
from nltk.stem import WordNetLemmatizer
# from googletrans import Translator
from tqdm import tqdm
tqdm.pandas()

import nltk
nltk.download('stopwords')
nltk.download('punkt')
nltk.download('wordnet')
```

```
[nltk_data] Downloading package stopwords to /root/nltk_data…
[nltk_data]   Unzipping corpora/stopwords.zip.
[nltk_data] Downloading package punkt to /root/nltk_data…
[nltk_data]   Unzipping tokenizers/punkt.zip.
[nltk_data] Downloading package wordnet to /root/nltk_data…
```

[ ]:
```
True
```

```
[ ]: df = pd.read_excel("sample_data/hotel_reviews_trianon_rive_gauche.xlsx")
     df.head()
```

```
[ ]:                                          Content     Country  \
     0                                    Rien à redire  La Réunion
     1                                             Bien      France
     2                                         Fabuleux      France
     3                                   Super séjour !      France
     4  mérite d'être bien noté surtout pour l'emplace…     Tunisie

                       Score                                          Positive  \
     0   Avec une note de 10  Propre, l'emplacement, personnel et la literie…
     1  Avec une note de 7,0                           Normal pour un 4 étoiles
     2  Avec une note de 9,0  L'emplacement le prix posé en dernière minute …
     3  Avec une note de 8,0  Chambre confortable et très propre. Petit déje…
     4  Avec une note de 8,0  Très bon emplacement\nBon petit déjeuner en sa…

                                                Negative  \
     0                                              Rien
     1  L'isolation phonique. On entend les voisins, s…
     2                                               NaN
     3                                               NaN
     4                              douche vraiment petite

                                          Date
     0      Commentaire envoyé le 16 août 2024
     1  Commentaire envoyé le 13 septembre 2024
     2  Commentaire envoyé le 10 septembre 2024
     3   Commentaire envoyé le 5 septembre 2024
     4      Commentaire envoyé le 29 août 2024
```

0.2 Data Cleaning

I first convert the content of 'Date' column into a valid date format.

```
[ ]: months_map = {
         'janvier': '01', 'février': '02', 'mars': '03', 'avril': '04',
         'mai': '05', 'juin': '06', 'juillet': '07', 'août': '08',
         'septembre': '09', 'octobre': '10', 'novembre': '11', 'décembre': '12'
     }

     def replace_french_month(date_str):
         for french_month, month_num in months_map.items():
             if french_month in date_str:
                 return date_str.replace(french_month, month_num)
         return date_str
     date_value_example = df["Date"][1]
     df['Date'] = df['Date'].apply(replace_french_month)
```

```
df['Date'] = df['Date'].str.extract(r'envoyé le (\d{1,2} \w+ \d{4})')[0]
df['Date'] = pd.to_datetime(df['Date'], format='%d %m %Y', errors='coerce')

commentary = f"Previous Date value : {date_value_example} \
 \nBecomes : {df['Date'][1].strftime('%Y-%m-%d')}"
print(commentary)
```

```
Previous Date value : Commentaire envoyé le 13 septembre 2024
Becomes : 2024-09-13
```

0.2.1 Mapping countries with associated region done with the use of text generative AI

[ ]:
```
regions_mapping = {
    'La Réunion': 'Africa',
    'France': 'Europe',
    'Tunisie': 'Africa',
    'Guadeloupe': 'North America',
    'Belgique': 'Europe',
    'Finlande': 'Europe',
    'Sénégal': 'Africa',
    'Saint-Martin (Antilles françaises)': 'North America',
    'Martinique': 'North America',
    'Canada': 'North America',
    'Algérie': 'Africa',
    'Suisse': 'Europe',
    'Île Maurice': 'Africa',
    'Maroc': 'Africa',
    'Portugal': 'Europe',
    'Luxembourg': 'Europe',
    'Gabon': 'Africa',
    'Allemagne': 'Europe',
    'Polynésie française': 'Oceania',
    'Turquie': 'Asia',
    'Émirats arabes unis': 'Asia',
    'République démocratique du Congo': 'Africa',
    'Espagne': 'Europe',
    'Liban': 'Asia',
    'Brésil': 'South America',
    'Côte-d\'Ivoire': 'Africa',
    'Pays-Bas': 'Europe',
    'Corée du Sud': 'Asia',
    'États-Unis': 'North America',
    'Roumanie': 'Europe',
    'Royaume-Uni': 'Europe',
    'Irlande': 'Europe',
    'Australie': 'Oceania',
    'Afrique du Sud': 'Africa',
    'Hongrie': 'Europe',
    'Estonie': 'Europe',
    'Philippines': 'Asia',
    'Arménie': 'Asia',
    'République tchèque': 'Europe',
    'Italie': 'Europe',
    'Norvège': 'Europe',
    'Autriche': 'Europe',
    'Slovaquie': 'Europe',
    'Pologne': 'Europe',
    'Ukraine': 'Europe',
    'Nouvelle-Zélande': 'Oceania',
    'République dominicaine': 'North America',
    'Argentine': 'South America',
    'Inde': 'Asia',
    'Russie': 'Europe',
    'Albanie': 'Europe',
    'Hong Kong': 'Asia',
    'Israël': 'Asia',
    'Islande': 'Europe',
    'Lettonie': 'Europe',
    'Lituanie': 'Europe',
    'Japon': 'Asia',
    'Chine': 'Asia',
    'Géorgie': 'Asia',
    'Serbie': 'Europe',
    'Malte': 'Europe',
    'Égypte': 'Africa',
    'Singapour': 'Asia',
    'Danemark': 'Europe',
    'Chypre': 'Europe',
    'Bermudes': 'North America',
    'Iran': 'Asia',
    'Taïwan': 'Asia',
    'Croatie': 'Europe',
    'Azerbaïdjan': 'Asia',
    'Qatar': 'Asia',
    'Malaisie': 'Asia',
    'Kenya': 'Africa',
    'Biélorussie': 'Europe',
    'Mexique': 'North America',
    'Irak': 'Asia',
    'Suède': 'Europe',
    'Bahreïn': 'Asia',
    'Monténégro': 'Europe',
    'Bulgarie': 'Europe',
    'Slovénie': 'Europe',
    'Nigeria': 'Africa',
    'Paraguay': 'South America',
    'Pakistan': 'Asia',
    'Grèce': 'Europe',
    'Arabie Saoudite': 'Asia',
    'Colombie': 'South America',
    'Guatemala': 'North America',
    'Indonésie': 'Asia',
    'Oman': 'Asia',
    'Koweït': 'Asia',
    'Fidji': 'Oceania',
    'Kazakhstan': 'Asia',
    'Uruguay': 'South America',
    'Pérou': 'South America',
    'Chili': 'South America',
    'Équateur': 'South America',
    'Bolivie': 'South America',
    'Ouzbékistan': 'Asia',
    'Vénézuela': 'South America',
    'Thaïlande': 'Asia',
    'Costa Rica': 'North America',
    'Groenland': 'North America',
    'Cameroun': 'Africa',
    'Gambie': 'Africa',
    'Nouvelle-Calédonie': 'Oceania',
    'Kirghizistan': 'Asia',
    'Mongolie': 'Asia',
    'Jordanie': 'Asia',
    'Bosnie-Herzégovine': 'Europe',
    'Porto Rico': 'North America',
    'Panama': 'North America',
    'Bangladesh': 'Asia',
    'Soudan': 'Africa',
    'Turkmenistan': 'Asia',
    'Moldavie': 'Europe',
    'Îles Féroé': 'Europe',
    'Andorre': 'Europe'
}
```

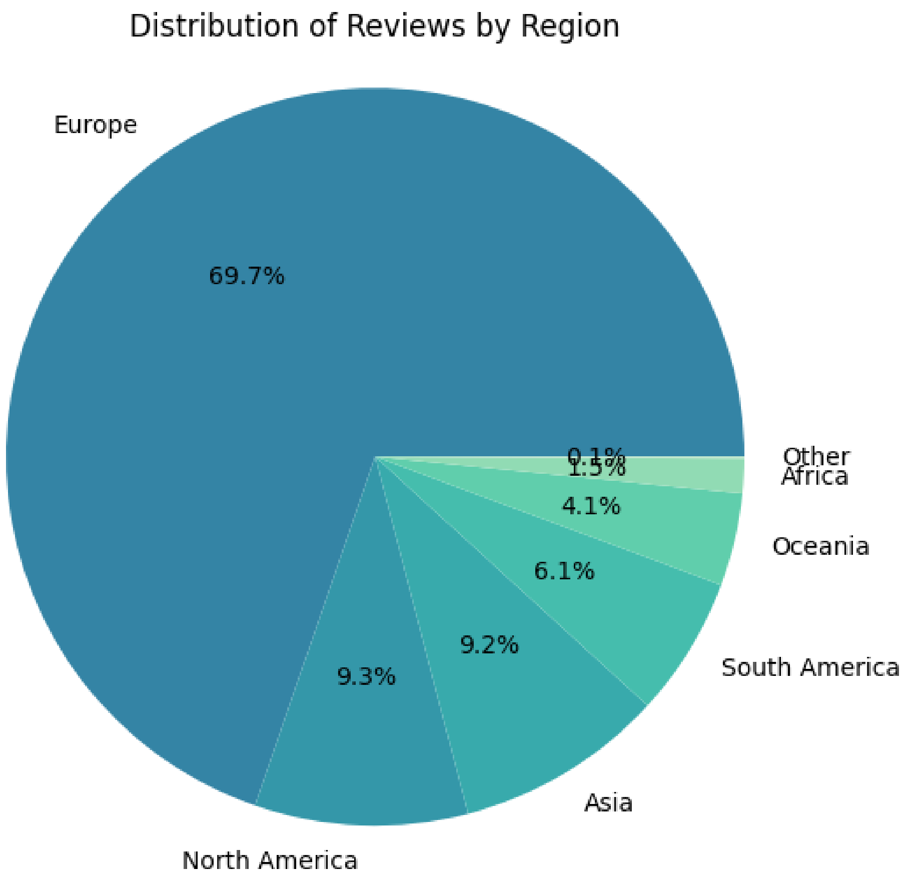
0.2.2 Figures to visualize data

[ ]:
```
df["Country"].nunique()
```

[ ]:
```
118
```

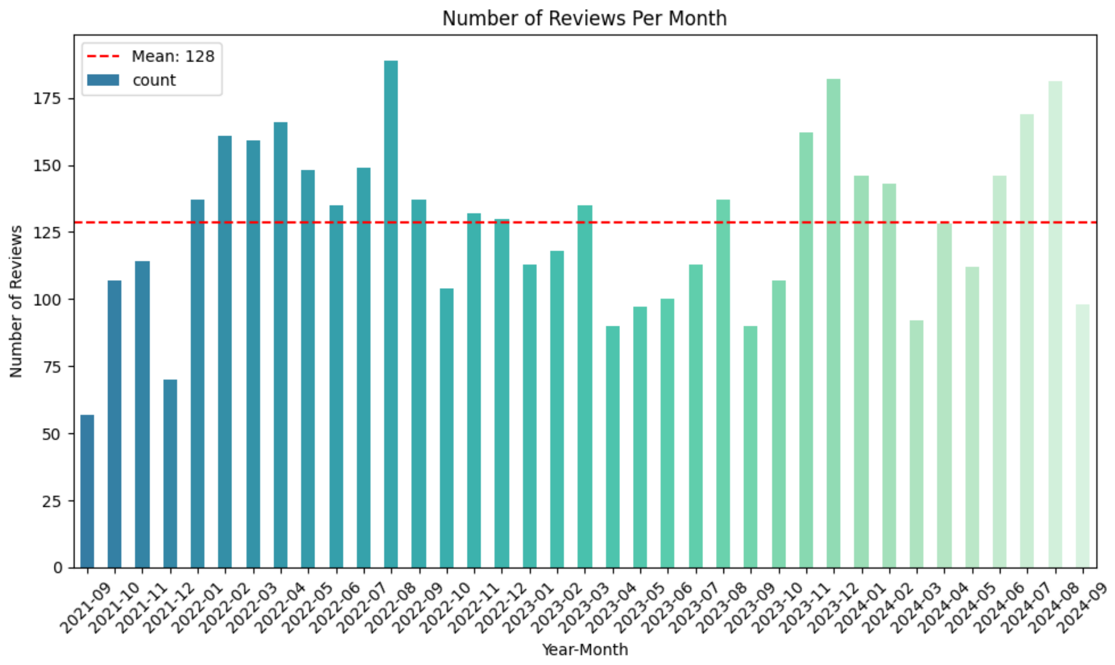
[ ]:
```
df['Region'] = df['Country'].map(regions_mapping)
df['Region'].fillna('Other', inplace=True)
```

```
region_counts = df['Region'].value_counts()

palette = sns.color_palette("mako",␣
↪n_colors=len(region_counts)*2)[len(region_counts):]

plt.figure(figsize=(8, 6))
plt.pie(region_counts, labels=region_counts.index, autopct='%1.1f%%',␣
↪colors=palette)
plt.title('Distribution of Reviews by Region')
plt.axis('equal')
plt.show()
```



```
[ ]: df['YearMonth'] = df['Date'].dt.strftime('%Y-%m')
reviews_per_month = df['YearMonth'].value_counts().sort_index()

palette = sns.color_palette("mako",␣
↪n_colors=len(reviews_per_month)*2)[len(reviews_per_month):]

plt.figure(figsize=(10, 6))
```

```
reviews_per_month.plot(kind='bar', color=palette)

mean_reviews_per_month = reviews_per_month.mean()
plt.axhline(y=mean_reviews_per_month, color='red', linestyle='--', label=f'Mean:
 ↪ {mean_reviews_per_month:.0f}')

plt.title('Number of Reviews Per Month')
plt.xlabel('Year-Month')
plt.ylabel('Number of Reviews')
plt.xticks(rotation=45)
plt.legend()
plt.tight_layout()
plt.show()
```



Then I do the same for 'Score' column.

```
[ ]: score_value_example = df['Score'][1]
     df['Score'] = df['Score'].str.extract(r'(\d+)')[0]
     df['Score'] = pd.to_numeric(df['Score'], errors='coerce')
     df['Score'] = df['Score'].astype('Int64')

     commentary = f"Previous Score value : {score_value_example} \
      \nBecomes : {df['Score'][1]}"
     print(commentary)
```

```
Previous Score value : Avec une note de 7,0
```

```
Becomes : 7
```

The values that will be parsed are in ‘Negative’ column. This is why I need to translate all the rows in a same language. Here, we will chose English.

```
[ ]: import pandas as pd
     from googletrans import Translator
     from time import sleep

     df.dropna(subset=['Negative'], inplace=True)
     df = df[~df['Negative'].str.lower().isin(['rien', 'ras'])]

     translator = Translator()

     def translate_text(text, dest='en'):
         sleep(1) # 1-second delay to deal with the limited amount of requests of␣
      ↪Translator() object.
         try:
             translation = translator.translate(text, dest=dest)
             return translation.text
         except Exception as e:
             print(f"Erreur lors de la traduction : {e}")
             return text

     df['Translated_Neg'] = df['Negative'].progress_apply(lambda x:␣
      ↪translate_text(x, dest='en'))
```

```
100%|      | 2052/2052 [36:28<00:00,  1.07s/it]
```

In a second term, I clean the text to remove unnecessary punctuation in order to simplify the analysis.

I additionnaly remove reviews that contain ‘Nothing’ word because they are useless.

```
[ ]: df = df[~df['Translated_Neg'].str.contains('nothing', case=False, na=False)]

     def clean_text(text):
         text = text.lower()
         text = text.replace("’", " ")
         text = re.sub(r'[^\w\s]', ' ', text)
         text = re.sub(r'\d+', ' ', text)
         return text

     df['Translated_Neg'] = df['Translated_Neg'].astype(str)

     df['Clean_Neg'] = df['Translated_Neg'].apply(clean_text)
```

Here, I apply tokenization and lemmatization. A lemmatization is the process of reducing words to their base form so that variations of a word are grouped in a single word (ex: ‘rooms’ will become ‘room’).

```
[ ]: stop_words = set(stopwords.words('english'))
     lemmatizer = WordNetLemmatizer()

     def preprocess_text(text):
         tokens = word_tokenize(text)
         tokens = [lemmatizer.lemmatize(word) for word in tokens if word not in␣
      ↪stop_words]
         return ' '.join(tokens)

     df['Clean_Neg'] = df['Clean_Neg'].apply(preprocess_text)

     df['Clean_Neg'] = df['Clean_Neg'].replace("nan", np.nan)
     df.dropna(subset=['Clean_Neg'], inplace=True)
```

0.3 Data Analysis

```
[ ]: df = pd.read_excel("sample_data/hotel_reviews_trianon_rive_gauche_cleaned.xlsx")
     df_raw = pd.read_excel("sample_data/hotel_reviews_trianon_rive_gauche.xlsx")
     df.dropna(subset=['Clean_Neg'], inplace=True)
```

0.3.1 Most frequent words

```
[ ]: tfidf_vectorizer = TfidfVectorizer(max_df=0.8, min_df=5, max_features=1000)
     tfidf_matrix = tfidf_vectorizer.fit_transform(df['Clean_Neg'])

     terms = tfidf_vectorizer.get_feature_names_out()

     sum_tfidf = tfidf_matrix.sum(axis=0)
     words_freq = [(word, sum_tfidf[0, idx]) for word, idx in tfidf_vectorizer.
      ↪vocabulary_.items()]
     words_freq = sorted(words_freq, key=lambda x: x[1], reverse=True)

     top_words = pd.DataFrame(words_freq[:20], columns=['word', 'frequency'])
     top_words.head(20)
```

```
[ ]:           word   frequency
     0          room  170.423305
     1         small  138.753593
     2      bathroom  101.248501
     3     breakfast   58.220401
     4        little   52.689142
     5         hotel   50.220417
     6        shower   46.133373
     7      elevator   39.899833
     8           old   38.469276
     9           bit   37.293957
     10        staff   36.628069
```

```
11       could   36.108449
12         bed   35.496090
13  everything   34.552757
14       water   29.176973
15        size   27.677994
16         one   26.408752
17        good   25.668851
18       noise   25.463540
19        tiny   24.660084
```

0.3.2 Clustering reviews using k-means algorithm

[ ]:
```
num_clusters = 10
kmeans = KMeans(n_clusters=num_clusters, random_state=42)
kmeans.fit(tfidf_matrix)

df['cluster'] = kmeans.labels_

for i in range(num_clusters):
    print(f"Cluster {i}:")
    print(df[df['cluster'] == i]['Clean_Neg'].head(5))
```

```
/usr/local/lib/python3.10/dist-packages/sklearn/cluster/_kmeans.py:1416:
FutureWarning: The default value of `n_init` will change from 10 to 'auto' in
1.4. Set the value of `n_init` explicitly to suppress the warning
  super()._check_params_vs_input(X, default_n_init=10)
```

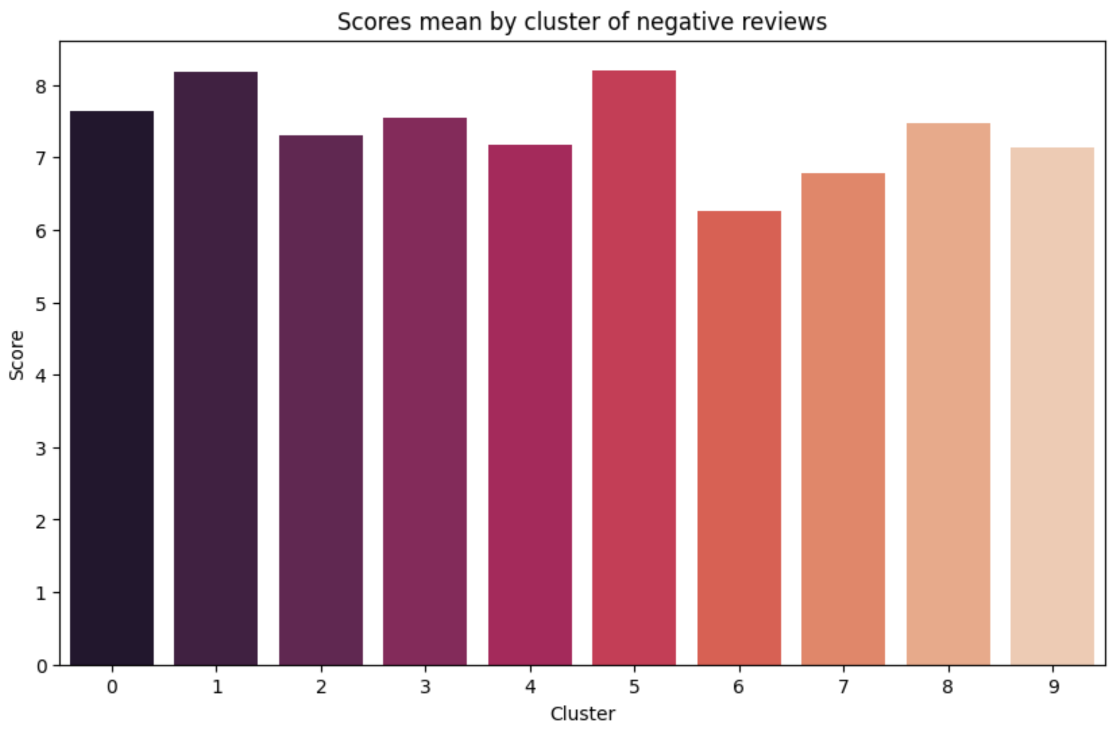
```
Cluster 0:
0     sound insulation hear neighbor especially step…
5                          bottle water made available
7     blocked sink therefore limited use shower paro…
11    small bathroom replace old bathtub shoe shower…
13                                        lighting low
Name: Clean_Neg, dtype: object
Cluster 1:
8                                 shower little narrow
37                                 shower little small
56        bathroom little poorly arranged hey detail
71               bad shower shower read little small
93    egg morning little calf otherwise rest perfect
Name: Clean_Neg, dtype: object
Cluster 2:
21     dilapidated bathroom
34      narrowness bathroom
50    dilapidation bathroom
82          small bathroom
85          small bathroom
Name: Clean_Neg, dtype: object
```

```
Cluster 3:
1            really small shower
19    shower small remains paris
30             small shower cabin
36                   small shower
41                     small room
Name: Clean_Neg, dtype: object
Cluster 4:
4                          fruit breakfast example melon
10    dimension bathroom small decoration overall bi…
24    everything good except cleaning woman manager …
39                              deterrent breakfast price
40    breakfast little choice poorly arranged room t…
Name: Clean_Neg, dtype: object
Cluster 5:
3      enjoyed everything happy try place disappointm…
142                                everything went well
153    small work soundproofing cool wait everything …
232                                     everything else
240    kind hotel chosen default everything else full…
Name: Clean_Neg, dtype: object
Cluster 6:
15    slight problem took possession room soap showe…
16                                                staff
28    regret however concerning service announced pr…
46    staff aware administrative paper made u pay ca…
65    sometimes friendly listening staff staff somet…
Name: Clean_Neg, dtype: object
Cluster 7:
2     room cleanliness hair bathroom wiper toilet di…
6                   tiny room impossible enter suitcase
12    completely deficient soundproofing tranquility…
17                                            room size
20                                 room furniture dated
Name: Clean_Neg, dtype: object
Cluster 8:
9     right part hotel person elevator really narrow…
14                    broken elevator balcony furniture
25    one elevator clean room old fashioned decorati…
35                                       elevator small
45    elevator ridiculous size room person coat hook…
Name: Clean_Neg, dtype: object
Cluster 9:
27             awake noise drill deactivating entry card
81     room overlooking course impossible open window…
105                             woke neighbor shower noise
106    room overlook interior courtyard ventilation s…
126    noise adjoining room mine tv placed adjoining …
```

```
Name: Clean_Neg, dtype: object
```

[ ]:
```
cluster_scores = df.groupby('cluster')['Score'].mean().reset_index()
palette = sns.color_palette("rocket", 10)
plt.figure(figsize=(10, 6))
sns.barplot(x='cluster', y='Score', data=cluster_scores, palette=palette)
plt.title("Scores mean by cluster of negative reviews")
plt.xlabel("Cluster")
plt.ylabel("Score")
plt.show()

word_scores = []
for word, freq in words_freq[:20]:
    word_in_reviews = df['Clean_Neg'].str.contains(word)
    avg_score = df[word_in_reviews]['Score'].mean()
    word_scores.append((word, avg_score))

word_scores_df = pd.DataFrame(word_scores, columns=['word', 'avg_score'])
word_scored_df = word_scores_df.sort_values(by='avg_score', ascending=False)
word_scores_df.head(len(word_scores_df))
```

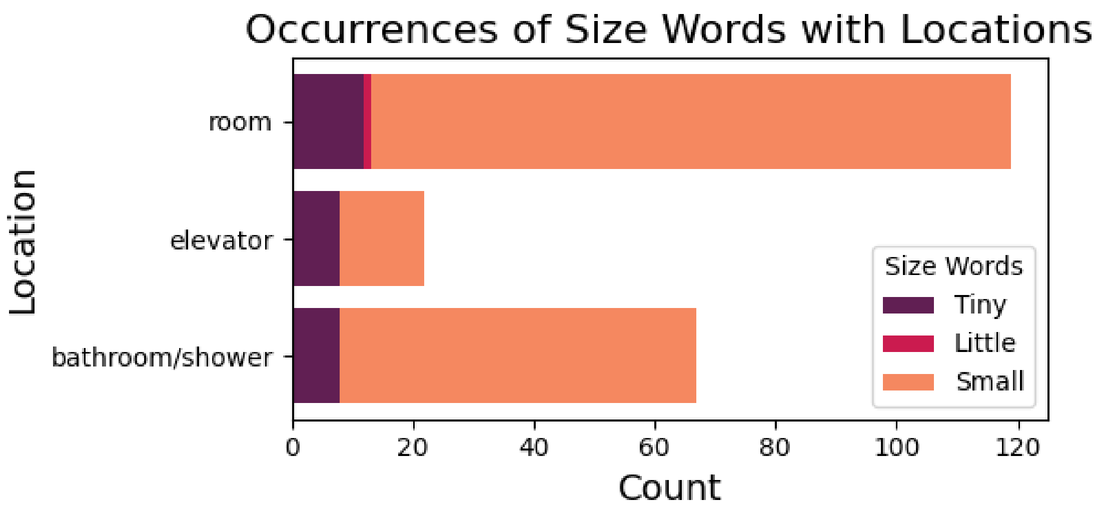
```
<ipython-input-25-924f5abb71af>:4: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in
v0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same
effect.

  sns.barplot(x='cluster', y='Score', data=cluster_scores, palette=palette)
```



[ ]:
```
          word  avg_score
0         room   6.925522
1        small   7.041431
2     bathroom   6.793970
3    breakfast   6.680556
4       little   7.976190
5        hotel   6.261044
6       shower   7.016760
7     elevator   7.284615
8          old   6.098291
9          bit   7.967742
10       staff   6.064516
11       could   7.121795
12         bed   6.406977
13  everything   7.583333
14       water   6.732759
15        size   7.072464
16         one   6.519824
17        good   7.131579
18       noise   6.654762
19        tiny   6.140845
```

0.3.3 In-depth Analysis: Why Do the Words ‘Tiny,’ ‘Little,’ and ‘Small’ Appear So Frequently?

```
[ ]: size_words = ['tiny', 'little', 'small']
     location_words = ['elevator', 'bathroom', 'shower', 'room']

     def count_word_combinations(text, size_word, location_word):
         pattern = re.compile(r'\b' + size_word + r'\s+' + location_word + r'\b', re.
       ↪IGNORECASE)
         return len(pattern.findall(text))

     word_counts = {size_word: {'bathroom/shower': 0, 'elevator': 0, 'room': 0} for␣
       ↪size_word in size_words}

     for review in df['Clean_Neg']:
         for size_word in size_words:
             for location_word in location_words:
                 if location_word in ['bathroom', 'shower']:
                     word_counts[size_word]['bathroom/shower'] +=␣
       ↪count_word_combinations(review, size_word, location_word)
                 else:
                     word_counts[size_word][location_word] +=␣
       ↪count_word_combinations(review, size_word, location_word)

     word_counts_df = pd.DataFrame(word_counts)

     palette = sns.color_palette("rocket", 3)

     locations = word_counts_df.index
     tiny_counts = word_counts_df['tiny']
     little_counts = word_counts_df['little']
     small_counts = word_counts_df['small']

     plt.figure(figsize=(6, 3))

     plt.barh(locations, tiny_counts, color=palette[0], label='Tiny')
     plt.barh(locations, little_counts, left=tiny_counts, color=palette[1],␣
       ↪label='Little')
     plt.barh(locations, small_counts, left=tiny_counts + little_counts,␣
       ↪color=palette[2], label='Small')

     plt.title('Occurrences of Size Words with Locations', fontsize=16)
     plt.xlabel('Count', fontsize=14)
     plt.ylabel('Location', fontsize=14)
     plt.legend(title='Size Words')
     plt.tight_layout()
plt.show()
```



We observe that the amount of reviews complaining on the smallness concern essentially the room, then the bathroom and we have finally some complains about the elevator.

```
[ ]: word_counts_df_t = word_counts_df.T
     total_bathroom = word_counts_df_t['bathroom/shower'].sum()
     total_elevator = word_counts_df_t['elevator'].sum()
     total_room = word_counts_df_t['room'].sum()

     total_list = pd.Series([total_bathroom, total_elevator, total_room],␣
      ↪index=word_counts_df_t.columns)
     word_counts_df_t.loc['Total'] = total_list
     word_counts_df_t.head()
```

```
[ ]:         bathroom/shower  elevator  room
     tiny                  8         8    12
     little                0         0     1
     small                59        14   106
     Total                67        22   119
```

```
[ ]: size_words = ['tiny', 'little', 'small']
     location_word = 'room'
     pattern = r'\b(?:' + '|'.join(size_words) + r')\b.*\b' + location_word + r'\b'
     matching_reviews = df[df['Translated_Neg'].str.contains(pattern, case=False,␣
      ↪na=False)]
```

```
[ ]: review_examples = f"Here are 3 examples of reviews that complain on the size of␣
      ↪the room : \
     \n\t- '{matching_reviews['Translated_Neg'][6]}' \
     \n\t- '{matching_reviews['Translated_Neg'][215]}' \
     \n\t- '{matching_reviews['Translated_Neg'][97]}' \
     "
     print(review_examples)
```

```
Here are 3 examples of reviews that complain on the size of the room :
        - 'The tiny room !!!!Impossible to enter 2 suitcases!'
        - 'The very small room despite the choice of a superior room.The
dilapidated air conditioning which does not cool'
        - 'Very small room, 140cm bed and bathroom too and a little dated for a
fairly high price'
```

The word ‘little’ is used in order to measure the degree of complaint

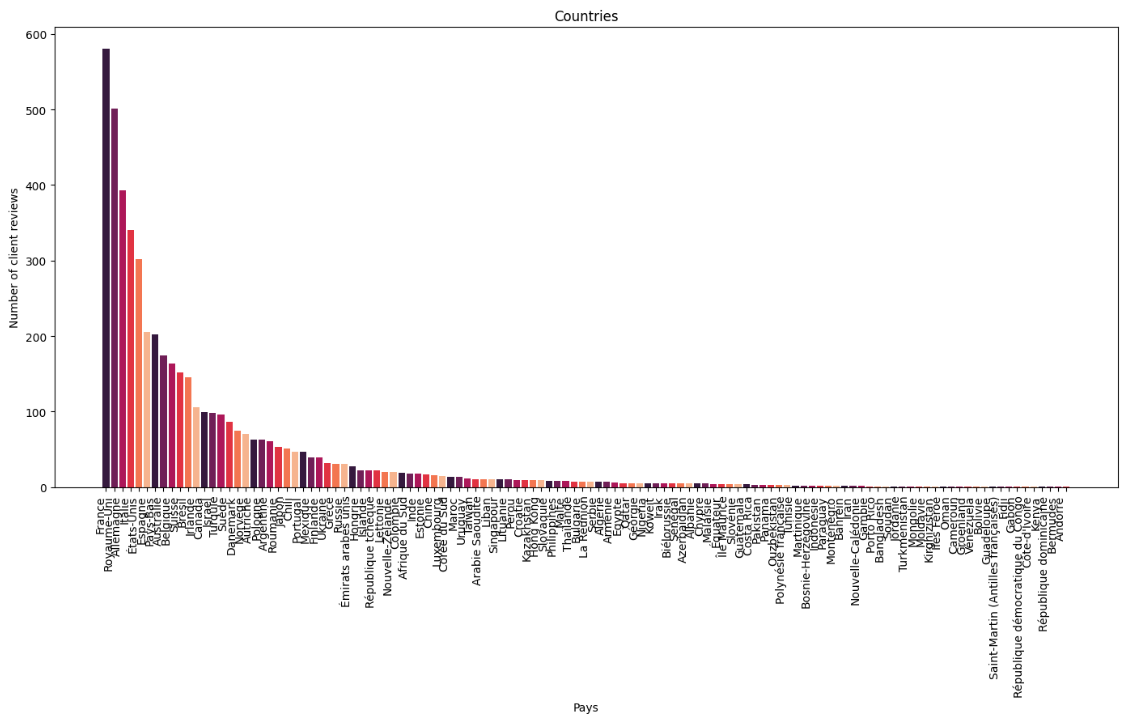
[ ]:
```
pattern = r'\blittle\b \bsmall\b'
df_little_small = df[df['Clean_Neg'].str.contains(pattern, case=False,␣
 ↪na=False)]
print(f"Number of reviews containing 'little' with 'small': {df_little_small.
 ↪shape[0]}")
df_little_small['Translated_Neg'].head()
```

```
Number of reviews containing 'little' with 'small': 29
```

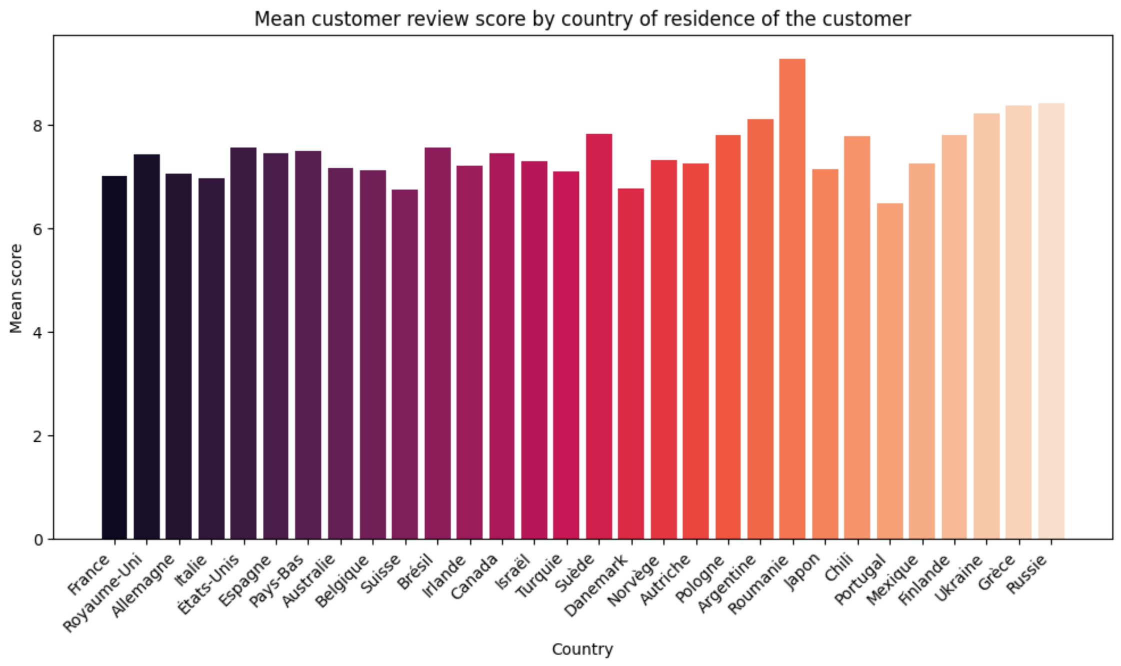
[ ]:
```
37                               The shower a little small
71       Bad shower of the shower and reads a little small
95       Room: a little small\nBathroom: Ditto - Provid…
125      A little small bathroom with toilet in it.\nDi…
134            A little small but very functional bathroom
Name: Translated_Neg, dtype: object
```

0.3.4 Reviews by country

[ ]:
```
country_count = df_raw['Country'].value_counts()
palette = sns.color_palette("rocket")
plt.figure(figsize=(14, 9))
plt.bar(country_count.index, country_count.values, color=palette)
plt.xlabel('Pays')
plt.ylabel('Number of client reviews')
plt.title('Countries')
plt.xticks(rotation=90, ha='right')
plt.tight_layout()
plt.show()
```



[ ]:
```
min_amount_review_country = country_count[country_count > 30].index
df_country = df[df['Country'].isin(min_amount_review_country)]

country_score = df_country.groupby('Country')['Score'].mean()

country_score = country_score.loc[min_amount_review_country.
 ↪intersection(country_score.index)]
palette = sns.color_palette("rocket", len(country_score))

plt.figure(figsize=(10, 6))
plt.bar(country_score.index, country_score.values, color=palette)
plt.xlabel('Country')
plt.ylabel('Mean score')
plt.title('Mean customer review score by country of residence of the customer')
plt.xticks(rotation=45, ha='right')
plt.tight_layout()
plt.show()
```



```
[ ]: country_score_sorted = country_score.sort_values(ascending=True)
     print(f"3 countries with the weakest mean scores : \n{country_score_sorted.
      ↪head(3)}")
```

```
3 countries with the weakest mean scores :
Country
Portugal    6.500000
Suisse      6.746032
Danemark    6.766667
Name: Score, dtype: float64
```

```
[ ]: portuguese_reviews = df[df['Country'] == 'Portugal']['Translated_Neg']
     for review in portuguese_reviews:
       print(review)
```

```
The reception staff is not very professional.
The room is tiny and does not have a storage cabinet.
The bed when we arrive was not very cleaned, with some hair and stains on the
sheets
Difficult to stabilize the shower temperature
We thought the room was a little small yet it didn't interfere our experience as
we walked around the city most of the day.
The air conditioner didn’t work very well and the city was hot in those days.
They have to change all the fridges, terrible, didn’t work too.
Bedroom looked really tired and dated. Bathroom is extremely small and tub
looking dirty and old needing to be replaced. Also super small and view was to a
```

```
wall and airconditioner extractor! Also requested 4 days before my check in and
during my stay and check out for the hotel invoice to be done with my company
details and fiscal number and no one was Trained for that! Still waiting for
that invoice until today! 5 days after and after severall messages through
Booking to the Hotel with NO RESPONSE! Terrible service! Hotel is only good for
the location.
Too small room, small double bed, weak air conditioner.Flattened main elevator
with very insufficient service elevator.
Lack of hot water in one of the nights
Very superficial cleaning, low nursing derived to the age of the building.Tiny
elevator.
The room could have a better lighting.
Dimension of the rooms, bedroom window did not close well and let it get
cold.One day they left the bedroom door open after arranging the room.
The refrigerated air dripping water in the carpet.The closet lamp burned.The
protection of the box was half a glass wall and at bath time the bathroom floor
was very
wet.
the bedroom size and the lack of sympathy of the staff
too small bathroom and need some improvements
Cleaning, bed, room heating
Weak breakfast for 4 -star hotel.
Elevator that can only be transported 1 person and suitcase at a time.
Very small room and even on the 6th floor a lot of outdoor noise.
Bad heating and air conditioning that does not work well.
Obligation to make a deposit, even after the stay paid.
I traveled with the family and the location of the rooms, it was not what was
waiting for the amount charged to us.One of the rooms (100) was on a kind of
basement and without access to the small windows he had.Dark room without light
and near the noise's collaborators, where everything was heard.This was not our
choice and when we arrived there we had to subject ourselves.The extremely small
WCs of both rooms.They didn't fit 2 people at the same time.The value for these
100 and 208 rooms does not correspond to the exaggerated amounts.
Small room without air conditioning
A horror.
a noise all night beside the number of number 111

I changed a hotel.I made the check-out at 4am
I paid and didn't have breakfast.
Extremely small room, ambitious photos compared to reality.
```

[ ]:
```
df.to_excel("sample_data/hotel_reviews_trianon_rive_gauche_cleaned.xlsx")
```