Annexe

Installation des packages nécessaires

```
pip install requests pandas numpy matplotlib

Defaulting to user installation because normal site-packages is not
writeable
Requirement already satisfied: requests in c:\programdata\anaconda3\
lib\site-packages (2.31.0)
Requirement already satisfied: pandas in c:\programdata\anaconda3\lib\
site-packages (2.1.4)
Requirement already satisfied: numpy in c:\programdata\anaconda3\lib\
site-packages (1.26.4)
Requirement already satisfied: matplotlib in c:\programdata\anaconda3\
lib\site-packages (3.8.0)
Requirement already satisfied: charset-normalizer<4,>=2 in c:\
programdata\anaconda3\lib\site-packages (from requests) (2.0.4)
Requirement already satisfied: idna<4,>=2.5 in c:\programdata\
anaconda3\lib\site-packages (from requests) (3.4)
Requirement already satisfied: urllib3<3,>=1.21.1 in c:\programdata\
anaconda3\lib\site-packages (from requests) (2.0.7)
Requirement already satisfied: certifi>=2017.4.17 in c:\programdata\
anaconda3\lib\site-packages (from requests) (2024.2.2)
Requirement already satisfied: python-dateutil>=2.8.2 in c:\
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Requirement already satisfied: pytz>=2020.1 in c:\programdata\
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Requirement already satisfied: tzdata>=2022.1 in c:\programdata\
anaconda3\lib\site-packages (from pandas) (2023.3)
Requirement already satisfied: contourpy>=1.0.1 in c:\programdata\
anaconda3\lib\site-packages (from matplotlib) (1.2.0)
Requirement already satisfied: cycler>=0.10 in c:\programdata\
anaconda3\lib\site-packages (from matplotlib) (0.11.0)
Requirement already satisfied: fonttools>=4.22.0 in c:\programdata\
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Requirement already satisfied: kiwisolver>=1.0.1 in c:\programdata\
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Requirement already satisfied: packaging>=20.0 in c:\programdata\
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Requirement already satisfied: pillow>=6.2.0 in c:\programdata\
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Requirement already satisfied: pyparsing>=2.3.1 in c:\programdata\
anaconda3\lib\site-packages (from matplotlib) (3.0.9)
Requirement already satisfied: six>=1.5 in c:\programdata\anaconda3\
lib\site-packages (from python-dateutil>=2.8.2->pandas) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

```
DEPRECATION: Loading egg at c:\programdata\anaconda3\lib\site-
packages\vboxapi-1.0-py3.11.egg is deprecated. pip 24.3 will enforce
this behaviour change. A possible replacement is to use pip for
package installation.. Discussion can be found at
https://github.com/pypa/pip/issues/12330
```

Récupération et nettoyage des données de l'API Scopus

```
import requests
import pandas as pd

def fetch_scopus_data(api_key, query, count=25):
    """Fetch data from the Scopus API."""
    url = 'https://api.elsevier.com/content/search/scopus'
    params = {
        'apiKey': api_key,
        'query': query,
        'count': count
    }

    try:
        # Effectuer la requête GET à l'API Scopus
        response = requests.get(url, params=params)
        response.raise_for_status()  # Vérifier s'il y a eu une erreur
dans la requête

        # Convertir la réponse JSON en dictionnaire
        data = response.json()

        # Vérifier si les données attendues sont présentes dans la
réponse
        if 'search-results' in data and 'entry' in data['search-
results']:
            print("La clé API est valide et fonctionne correctement.")
            print(f"Nombre de résultats obtenus : {len(data['search-
results']['entry'])}")
            return data['search-results']['entry']
        else:
            print("La structure de la réponse JSON ne contient pas les
clés attendues.")
            return None

    except requests.exceptions.HTTPError as http_err:
        print(f'Erreur HTTP {response.status_code}:
{response.reason}')
        print(response.text)
    except requests.exceptions.RequestException as req_err:
        print(f'Erreur de requête: {req_err}')
    except Exception as err:
```

```
        print(f'Erreur: {err}')

def parse_freetoread(value):
    """Transform the 'freetoread.value' column to readable values."""
    if isinstance(value, list):
        return ', '.join([item['$'] for item in value])
    return value

def clean_and_save_data(entries, filename):
    """Clean the data and save it to a CSV file."""
    if entries:
        # Convertir les entrées JSON en DataFrame Pandas
        df = pd.json_normalize(entries)

        # Nettoyer et organiser les données
        if 'freetoread.value' in df.columns:
            df['freetoread.value'] =
df['freetoread.value'].apply(parse_freetoread)

        # Définir les options d'affichage de Pandas pour afficher
toutes les lignes et colonnes
        pd.set_option('display.max_rows', None)
        pd.set_option('display.max_columns', None)
        pd.set_option('display.width', None)
        pd.set_option('display.max_colwidth', None)

        # Afficher le DataFrame nettoyé
        print(df)

        # Sauvegarder le DataFrame dans un fichier CSV
        df.to_csv(filename, index=False)
        print(f"Les données ont été nettoyées et sauvegardées dans le
fichier {filename}")

# Utiliser les fonctions pour récupérer, nettoyer et sauvegarder les
données
api_key = '9aebde1fa88b0b7325c7d8054dd3e754'
query = 'KEY(scopus)'
filename = 'api_scopus_data.csv'

entries = fetch_scopus_data(api_key, query)
clean_and_save_data(entries, filename)
```

```
La clé API est valide et fonctionne correctement.
Nombre de résultats obtenus : 25
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1   true
2   true
3   true
```

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12  true
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3                                          The impact of
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4
75 years’ journey of malaria publications in English: what and where?

5
Sharper vision, steady hands: can robots improve subretinal drug delivery? Systematic review
6
Association of vitamin D receptor genetic polymorphisms with the risk of infertility: a systematic review and meta-analysis
7 Systematic review and meta-analysis of association between plasminogen activator inhibitor-1 4G/5G polymorphism and recurrent pregnancy loss: an update
8 Impact of frailty on mortality, hospitalization, cardiovascular events, and complications in patients with diabetes mellitus: a systematic review and meta-analysis
9
Use of platelet-rich plasma and platelet-rich fibrin in burn wound healing and skin grafting: a systematic review
10 mRNA markers for survival prediction in glioblastoma multiforme patients: a systematic review with bioinformatic analyses
11
Global prevalence of sexual dysfunction in cardiovascular patients: a systematic review and meta-analysis
12 Association of prothrombin time, thrombin time and activated partial thromboplastin time levels with preeclampsia: a systematic review and meta-analysis
13 A systematic review and meta-analysis of randomized controlled trials on the effectiveness of high-intensity laser therapy in the management of neck pain
14
What do we know about Aquafilling tissue filler? – A systematic review

15
Does electrophysical agents work for cellulite treatment? a systematic review of clinical trials
16
Flank versus prone position in percutaneous nephrolithotomy: a meta-analysis of randomized controlled studies
17 Leisure-time and occupational physical activity and risk of cardiovascular disease incidence: a systematic-review and dose-response meta-analysis of prospective cohort studies
18
Protocol for a systematic review and meta-analysis on Janus kinase inhibitors in the management of vitiligo
19
Clinical and ex-vivo effect of LASERs on prevention of early-enamel caries: systematic review & meta-analyses
20 Analyzing global research trends and focal points in the

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utilization of laser techniques for the treatment of urolithiasis from
1978 to 2022: visualization and bibliometric analysis
21
Between artificial intelligence and customer experience: a literature
review on the intersection
22                          Efficacy and safety of cangrelor as
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infarction (STEMI): a systematic review and meta-analysis
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Proportion of cancer cases and deaths attributable to potentially
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Acute spinal cord injury serum biomarkers in human and rat: a scoping
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Les données ont été nettoyées et sauvegardées dans le fichier
api_scopus_data.csv
```

Récupération et parsing des données de DOI depuis l'API Elsevier

```python
import requests
import pandas as pd
import xml.etree.ElementTree as ET

# Liste de DOI à récupérer depuis l'API Elsevier
dois = [
    '10.1016/j.cplett.2020.137481',
    '10.1016/j.joule.2020.11.010',
    '10.1016/j.jacc.2020.11.012'
]

# Clé API Elsevier
api_key = '9aebde1fa88b0b7325c7d8054dd3e754'

# Fonction pour récupérer et parser les données d'un DOI spécifique
depuis l'API Elsevier
```

```
def get_data_from_doi(doi):
    url = f'https://api.elsevier.com/content/article/doi/{doi}'
    headers = {'X-ELS-APIKey': api_key, 'Accept': 'application/xml'}

    try:
        response = requests.get(url, headers=headers)
        response.raise_for_status()

        print(f'Statut pour DOI {doi}: {response.status_code}')

        root = ET.fromstring(response.content)
        return parse_xml(root)

    except requests.exceptions.HTTPError as err:
        print(f'Erreur HTTP lors de la récupération du DOI {doi}:
{err}')
        return None

    except ET.ParseError as e:
        print(f'Erreur de parsing XML pour le DOI {doi}: {e}')
        return None

    except Exception as err:
        print(f'Erreur lors de la récupération du DOI {doi}: {err}')
        return None

# Fonction pour parser les données XML et extraire les informations
pertinentes
def parse_xml(root):
    namespaces = {
        'dtd': 'http://www.elsevier.com/xml/svapi/article/dtd',
        'dc': 'http://purl.org/dc/elements/1.1/',
        'prism': 'http://prismstandard.org/namespaces/basic/2.0/',
        'xocs': 'http://www.elsevier.com/xml/xocs/dtd'
    }

    data = {
        'doi': root.findtext('.//xocs:doi', namespaces=namespaces),
        'title': root.findtext('.//dc:title', namespaces=namespaces),
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namespaces=namespaces),
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        'coverDate': root.findtext('.//prism:coverDate',
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        'citedby_count': root.findtext('.//xocs:citedby-count',
namespaces=namespaces)
    }

    link_elements = root.findall('.//xocs:link',
namespaces=namespaces)
    for link in link_elements:
        if link.get('rel') == 'scidir':
            data['doiLink'] = link.get('href')
            break

    return data

# Liste pour stocker les données récupérées depuis les DOI
data_list = []

try:
    # Parcourir la liste des DOI et récupérer les données pour chaque
DOI
    for doi in dois:
        data = get_data_from_doi(doi)
        if data:
            data_list.append(data)

    if data_list:
        # Créer un DataFrame à partir des données récupérées
        df_xml = pd.DataFrame(data_list)

        # Convertir le DataFrame en JSON
        df_xml_json = df_xml.to_json(orient='records')

        # Afficher le JSON
        print("\nDataFrame JSON à partir des DOI de l'API Elsevier:")
        print(df_xml_json)

        # Sauvegarder le JSON dans un fichier
        with open('scopus_data_from_dois.json', 'w', encoding='utf-8')
as f:
            f.write(df_xml_json)
    else:
        print("Aucune donnée valide n'a été récupérée depuis les
DOI.")

except requests.exceptions.HTTPError as err:
    print(f'Erreur HTTP lors de la requête à l\'API Elsevier: {err}')
except Exception as err:
    print(f'Erreur: {err}')
```

```
Statut pour DOI 10.1016/j.cplett.2020.137481: 200
Statut pour DOI 10.1016/j.joule.2020.11.010: 200
Statut pour DOI 10.1016/j.jacc.2020.11.012: 200

DataFrame JSON à partir des DOI de l'API Elsevier:
[{"doi":"10.1016\/j.cplett.2020.137481","title":"Effect of Ni2+ ions
concentration on the local crystal field of Zn1-\n               \n
x\n               Ni\n                  x\n               Te
nanocrystals ","creator":"Silva, Alessandra
S.","publicationName":"Chemical Physics
Letters","volume":"750","issue":null,"pageRange":"137481","coverDate":
"2020-07-31","citedby_count":null},{"doi":"10.1016\/
j.joule.2020.11.010","title":"Design and Manufacture of 3D-Printed
Batteries ","creator":"Lyu,
Zhiyang","publicationName":"Joule","volume":"5","issue":"1","pageRange
":"89-114","coverDate":"2021-01-20","citedby_count":null},
{"doi":"10.1016\/j.jacc.2020.11.012","title":"2021 ACC\/AHA Key Data
Elements and Definitions for Heart Failure A Report of the American
College of Cardiology\/American Heart Association Task Force on
Clinical Data Standards (Writing Committee to Develop Clinical Data
Standards for Heart Failure)","creator":"Bozkurt,
Biykem","publicationName":"Journal of the American College of
Cardiology","volume":"77","issue":"16","pageRange":"2053-
2150","coverDate":"2021-04-27","citedby_count":null}]
```

Affichage des colonnes du DataFrame

```
df.columns
```

```
Index(['@_fa', 'link', 'prism:url', 'dc:identifier', 'eid',
'dc:title',
       'dc:creator', 'prism:publicationName', 'prism:eIssn',
'prism:volume',
       'prism:issueIdentifier', 'prism:pageRange', 'prism:coverDate',
       'prism:coverDisplayDate', 'prism:doi', 'citedby-count',
'affiliation',
       'prism:aggregationType', 'subtype', 'subtypeDescription',
       'article-number', 'source-id', 'openaccess', 'openaccessFlag',
       'freetoread.value', 'freetoreadLabel.value', 'prism:issn',
'pubmed-id',
       'coverYear'],
      dtype='object')
```

Affichage des premières lignes du DataFrame

```
df.head()
```

```
   @_fa                                                  link  \
0  True  [{'@_fa': 'true', '@ref': 'self', '@href': 'ht...
```

```
1  True  [{'@_fa': 'true', '@ref': 'self', '@href': 'ht...
2  True  [{'@_fa': 'true', '@ref': 'self', '@href': 'ht...
3  True  [{'@_fa': 'true', '@ref': 'self', '@href': 'ht...
4  True  [{'@_fa': 'true', '@ref': 'self', '@href': 'ht...

                                              prism:url
dc:identifier  \
0  https://api.elsevier.com/content/abstract/scop...
SCOPUS_ID:85196156602
1  https://api.elsevier.com/content/abstract/scop...
SCOPUS_ID:85196115487
2  https://api.elsevier.com/content/abstract/scop...
SCOPUS_ID:85196086633
3  https://api.elsevier.com/content/abstract/scop...
SCOPUS_ID:85195598662
4  https://api.elsevier.com/content/abstract/scop...
SCOPUS_ID:85195533502

                   eid
dc:title  \
0  2-s2.0-85196156602  Efficacy and safety of omega-3 fatty acids
sup...
1  2-s2.0-85196115487  A systematic review on the efficacy of
adjunct...
2  2-s2.0-85196086633  Influence of elastomeric and steel ligatures
o...
3  2-s2.0-85195598662  Effect of zinc supplementation on glycemic
bio...
4  2-s2.0-85195533502  Barriers and facilitators to implementing
work...

     dc:creator                prism:publicationName prism:eIssn
prism:volume  \
0     Bafkar N.                        BMC Psychiatry    1471244X
24
1    Montano N.                 Neurosurgical Review    14372320
47
2    Hussain U.             Progress in Orthodontics    21961042
25
3  Daneshvar M.  Diabetology and Metabolic Syndrome    17585996
16
4   Paterson C.                   Systematic Reviews    20464053
13

   ...  subtypeDescription  article-number    source-id openaccess  \
0  ...             Article             455        14260          1
1  ...              Review             276        22097          0
2  ...              Review              24        91796          1
3  ...              Review             124  19700174930          1
4  ...             Article             152  21100237425          1
```

```
  openaccessFlag         freetoread.value  \
0           True  all, publisherfullgold
1          False                     NaN
2           True  all, publisherfullgold
3           True  all, publisherfullgold
4           True  all, publisherfullgold

                         freetoreadLabel.value prism:issn   pubmed-id
coverYear
0  [{'$': 'All Open Access'}, {'$': 'Gold'}]        NaN         NaN
2024
1                                          NaN   03445607  38884812.0
2024
2  [{'$': 'All Open Access'}, {'$': 'Gold'}]   17237785  38880839.0
2024
3  [{'$': 'All Open Access'}, {'$': 'Gold'}]        NaN         NaN
2024
4  [{'$': 'All Open Access'}, {'$': 'Gold'}]        NaN  38849924.0
2024

[5 rows x 29 columns]
```

Informations sur le DataFrame

```
df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 25 entries, 0 to 24
Data columns (total 29 columns):
 #   Column                  Non-Null Count  Dtype
---  ------                  --------------  -----
 0   @_fa                    25 non-null     bool
 1   link                    25 non-null     object
 2   prism:url               25 non-null     object
 3   dc:identifier           25 non-null     object
 4   eid                     25 non-null     object
 5   dc:title                25 non-null     object
 6   dc:creator              25 non-null     object
 7   prism:publicationName   25 non-null     object
 8   prism:eIssn             25 non-null     object
 9   prism:volume            25 non-null     int64
 10  prism:issueIdentifier   25 non-null     int64
 11  prism:pageRange         0 non-null      float64
 12  prism:coverDate         25 non-null     object
 13  prism:coverDisplayDate  25 non-null     object
 14  prism:doi               25 non-null     object
 15  citedby-count           25 non-null     int32
 16  affiliation             25 non-null     object
 17  prism:aggregationType   25 non-null     object
```

```
 18  subtype                  25 non-null     object
 19  subtypeDescription       25 non-null     object
 20  article-number           25 non-null     int64
 21  source-id                25 non-null     int64
 22  openaccess               25 non-null     int64
 23  openaccessFlag           25 non-null     bool
 24  freetoread.value         17 non-null     object
 25  freetoreadLabel.value    17 non-null     object
 26  prism:issn               11 non-null     object
 27  pubmed-id                18 non-null     float64
 28  coverYear                25 non-null     int32
dtypes: bool(2), float64(2), int32(2), int64(5), object(18)
memory usage: 5.3+ KB
```

Analyse des données de citations par année

```
import pandas as pd
import matplotlib.pyplot as plt

def analyze_data(df):
    """Analyze the data and provide insights."""
    if df is not None:
        # Calculer le nombre total de citations
        if 'citedby-count' in df.columns:
            df['citedby-count'] = pd.to_numeric(df['citedby-count'],
errors='coerce').fillna(0).astype(int)
            total_citations = df['citedby-count'].sum()
            print(f"\nNombre total de citations pour toutes les
publications: {total_citations}")

        # Répartition des citations par année de publication
        if 'prism:coverDate' in df.columns:
            df['coverYear'] = pd.to_datetime(df['prism:coverDate'],
errors='coerce').dt.year
            citations_per_year = df.groupby('coverYear')['citedby-
count'].sum()

            # Affichage des citations par année de publication
détaillé
            print("\nCitations par année de publication :")
            for year, citations in citations_per_year.items():
                print(f"Année {year} : {citations} citations")

# Charger le DataFrame sauvegardé depuis le fichier CSV
df = pd.read_csv('api_scopus_data.csv')

# Analyser les données
analyze_data(df)
```

```
Nombre total de citations pour toutes les publications: 17

Citations par année de publication :
Année 2024 : 17 citations
Année 2025 : 0 citations
```

Calcul du nombre total de publications dans le dataset

```python
def total_publications(df):
    """Calculates the total number of publications."""
    if df is not None:
        total = len(df)
        print(f"\nNombre total de publications dans le dataset :
{total}")
    else:
        print("Aucune donnée à analyser.")

# Appel de la fonction
total_publications(df)
```

```
Nombre total de publications dans le dataset : 25
```

Calcul du nombre total de citations pour toutes les publications

```python
def total_citations(df):
    """Calculates the total number of citations."""
    if 'citedby-count' in df.columns:
        total_citations = df['citedby-count'].sum()
        print(f"\nNombre total de citations pour toutes les
publications : {total_citations}")
    else:
        print("La colonne 'citedby-count' n'est pas présente dans le
DataFrame.")

# Appel de la fonction
total_citations(df)
```

```
Nombre total de citations pour toutes les publications : 17
```

Calcul de la moyenne des citations par publication

```python
def average_citations(df):
    """Calculates the average citations per publication."""
    if 'citedby-count' in df.columns:
        average_citations = df['citedby-count'].mean()
```

```
        print(f"\nCitations moyennes par publication :
{average_citations:.2f}")
    else:
        print("La colonne 'citedby-count' n'est pas présente dans le
DataFrame.")

# Appel de la fonction
average_citations(df)
```

```
Citations moyennes par publication : 0.68
```

Identification des publications avec le plus de citations

```
def publications_most_citations(df, top_n=5):
    """Identifie les publications avec le plus de citations."""
    if 'citedby-count' in df.columns:
        top_publications = df.nlargest(top_n, 'citedby-count')
[['dc:title', 'citedby-count']]
        print(f"\nPublications avec le plus de citations (Top {top_n})
:")
        print(top_publications)
    else:
        print("La colonne 'citedby-count' n'est pas présente dans le
DataFrame.")

# Charger le DataFrame sauvegardé depuis le fichier CSV
df = pd.read_csv('api_scopus_data.csv')

# Appel de la fonction
publications_most_citations(df)
```

```
Publications avec le plus de citations (Top 5) :

dc:title  \
16
Beyond playing 20 questions with nature: Integrative experiment design
in the social and behavioral sciences
20
A practical guide to adopting Bayesian analyses in clinical research

0
Influence of phytoplankton, bacteria and viruses on nutrient supply in
tropical waters
1   Safety and efficacy of low-power pure-cut hot snare polypectomy
for small nonpedunculated colorectal polyps compared with conventional
resection methods: A propensity score matching analysis
2
Relationship between Self-regulated Learning with Academic Buoyancy: A
```

```
Case Study among Malaysia FELDA Secondary School Students

    citedby-count
16             16
20              1
0               0
1               0
2               0
```

Calcul de la corrélation entre le nombre de citations et les années de publication

```
def correlation_citations_annees(df):
    """Calcule la corrélation entre le nombre de citations et les
années de publication."""
    if 'citedby-count' in df.columns and ('prism:coverDate' in
df.columns or 'prism:coverDisplayDate' in df.columns):
        if 'prism:coverDate' in df.columns:
            df['coverYear'] = pd.to_datetime(df['prism:coverDate'],
errors='coerce').dt.year
        elif 'prism:coverDisplayDate' in df.columns:
            df['coverYear'] =
pd.to_datetime(df['prism:coverDisplayDate'], errors='coerce').dt.year

        correlation = df[['coverYear', 'citedby-
count']].corr().iloc[0, 1]
        print(f"\nCorrélation entre le nombre de citations et les
années de publication : {correlation:.2f}")
    else:
        print("Les colonnes nécessaires ('citedby-count' et
'prism:coverDate' ou 'prism:coverDisplayDate') ne sont pas présentes
dans le DataFrame.")

# Appel de la fonction pour calculer la corrélation entre le nombre de
citations et les années de publication
correlation_citations_annees(df)
```

```
Corrélation entre le nombre de citations et les années de
publication : -0.24
```

Analyse de la répartition des publications en accès libre

```
def publications_acces_libre(df):
    """Analyse la répartition des publications en accès libre."""
    if 'openaccessFlag' in df.columns:
        publications_open_access = df['openaccessFlag'].value_counts()
        print("\nRépartition des publications par statut d'accès libre
:")
```

```
        print(publications_open_access)
    else:
        print("La colonne 'openaccessFlag' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
en accès libre
publications_acces_libre(df)
```

```
Répartition des publications par statut d'accès libre :
openaccessFlag
True     19
False     6
Name: count, dtype: int64
```

Analyse de la répartition des publications par année

```
import pandas as pd
import matplotlib.pyplot as plt

def analyze_data(df):
    """Analyze the data and provide insights."""
    if df is not None:
        # Ajouter une colonne pour l'année de publication
        if 'prism:coverDate' in df.columns:
            df['coverYear'] = pd.to_datetime(df['prism:coverDate'],
errors='coerce').dt.year

        # Répartition des publications par année
        if 'coverYear' in df.columns:
            publications_per_year = df.groupby('coverYear')
['dc:title'].count().reset_index(name='Publications')
            print("\nRépartition des publications par année :")
            print(publications_per_year)

# Charger le DataFrame sauvegardé depuis le fichier CSV
df = pd.read_csv('api_scopus_data.csv')

# Analyser les données
analyze_data(df)
```

```
Répartition des publications par année :
   coverYear  Publications
0       2024            25
```

Analyse de la répartition des publications par source

```
def publications_par_source(df):
    """Analyse la répartition des publications par source."""
    if 'prism:publicationName' in df.columns:
        publications_by_source =
df['prism:publicationName'].value_counts().head(10)
        print("\nRépartition des publications par source (Top 10) :")
        print(publications_by_source)
    else:
        print("La colonne 'prism:publicationName' n'est pas présente
dans le DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
par source
publications_par_source(df)
```

```
Répartition des publications par source (Top 10) :
prism:publicationName
Journal of Advanced Research in Applied Sciences and Engineering
Technology    3
Dados
3
International Journal of Religion and Spirituality in Society
2
Journal of Environmental Sciences (China)
1
Behavioral and Brain Sciences
1
Substance Abuse: Treatment, Prevention, and Policy
1
Sports Medicine - Open
1
Experimental Hematology and Oncology
1
Journal of Clinical and Translational Science
1
Chinese Journal of Tissue Engineering Research
1
Name: count, dtype: int64
```

Analyse de la présence des identifiants PubMed dans les publications

```
def publications_pubmed_id(df):
    """Analyse la présence des identifiants PubMed dans les
publications."""
    if 'pubmed-id' in df.columns:
```

```
        publications_with_pubmed_id = df['pubmed-id'].notna().sum()
        total_publications = len(df)
        print(f"\nNombre de publications avec identifiant PubMed : 
{publications_with_pubmed_id} sur {total_publications} publications au 
total.")
    else:
        print("La colonne 'pubmed-id' n'est pas présente dans le 
DataFrame.")

# Appel de la fonction pour analyser la présence des identifiants 
PubMed dans les publications
publications_pubmed_id(df)
```

```
Nombre de publications avec identifiant PubMed : 3 sur 25 publications 
au total.
```

Analyse de la répartition des publications par type de sous-catégorie

```
def publications_par_sous_categorie(df):
    """Analyse la répartition des publications par type de sous-
catégorie."""
    if 'subtypeDescription' in df.columns:
        publications_by_subtype = 
df['subtypeDescription'].value_counts().head(10)
        print("\nRépartition des publications par type de sous-
catégorie (Top 10) :")
        print(publications_by_subtype)
    else:
        print("La colonne 'subtypeDescription' n'est pas présente dans 
le DataFrame.")

# Appel de la fonction pour analyser la répartition des publications 
par type de sous-catégorie
publications_par_sous_categorie(df)
```

```
Répartition des publications par type de sous-catégorie (Top 10) :
subtypeDescription
Article    20
Review      4
Book        1
Name: count, dtype: int64
```

Analyse de la répartition des publications par type de source (aggregation type)

```
def publications_par_type_source(df):
    """Analyse la répartition des publications par type de source
(aggregation type)."""
    if 'prism:aggregationType' in df.columns:
        publications_by_aggregation_type =
df['prism:aggregationType'].value_counts()
        print("\nRépartition des publications par type de source
(Aggregation Type) :")
        print(publications_by_aggregation_type)
    else:
        print("La colonne 'prism:aggregationType' n'est pas présente
dans le DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
par type de source
publications_par_type_source(df)
```

```
Répartition des publications par type de source (Aggregation Type) :
prism:aggregationType
Journal    24
Book        1
Name: count, dtype: int64
```

Analyse de la répartition des publications par ISSN

```
def publications_par_issn(df):
    """Analyse la répartition des publications par ISSN."""
    if 'prism:issn' in df.columns:
        publications_by_issn =
df['prism:issn'].value_counts().head(10)
        print("\nRépartition des publications par ISSN (Top 10) :")
        print(publications_by_issn)
    else:
        print("La colonne 'prism:issn' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
par ISSN
publications_par_issn(df)
```

```
Répartition des publications par ISSN (Top 10) :
prism:issn
02688921    3
0930343X    2
```

```
21947228    2
01790358    1
18632483    1
11102608    1
Name: count, dtype: int64
```

Analyse de la répartition des publications par type de volume

```
def publications_par_volume(df):
    """Analyse la répartition des publications par type de volume."""
    if 'prism:volume' in df.columns:
        publications_by_volume =
df['prism:volume'].value_counts().head(10)
        print("\nRépartition des publications par type de volume (Top
10) :")
        print(publications_by_volume)
    else:
        print("La colonne 'prism:volume' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
par type de volume
publications_par_volume(df)
```

```
Répartition des publications par type de volume (Top 10) :
prism:volume
68.0    3
19.0    2
43.0    2
27.0    1
10.0    1
13.0    1
8.0     1
28.0    1
77.0    1
14.0    1
Name: count, dtype: int64
```

Analyse de la répartition des publications par numéro d'article

```
def publications_par_article_number(df):
    """Analyse la répartition des publications par numéro
d'article."""
    if 'article-number' in df.columns:
        publications_by_article_number = df['article-
```

```
number'].value_counts().head(10)
        print("\nRépartition des publications par numéro d'article
(Top 10) :")
        print(publications_by_article_number)
    else:
        print("La colonne 'article-number' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
par numéro d'article
publications_par_article_number(df)
```

```
Répartition des publications par numéro d'article (Top 10) :
article-number
e378          1
011005        1
e20220116     1
e20220091     1
e20220167     1
12            1
e42           1
e33           1
103587        1
e3            1
Name: count, dtype: int64
```

Analyse de la répartition des publications par type de sous-type

```
def publications_par_subtype(df):
    """Analyse la répartition des publications par type de sous-
type."""
    if 'subtype' in df.columns:
        publications_by_subtype =
df['subtype'].value_counts().head(10)
        print("\nRépartition des publications par type de sous-type
(Top 10) :")
        print(publications_by_subtype)
    else:
        print("La colonne 'subtype' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
par type de sous-type
publications_par_subtype(df)
```

```
Répartition des publications par type de sous-type (Top 10) :
```

```
subtype
ar    20
re     4
bk     1
Name: count, dtype: int64
```

Analyse de la répartition des publications par type de description de sous-type

```
def publications_par_subtype_description(df):
    """Analyse la répartition des publications par type de description
de sous-type."""
    if 'subtypeDescription' in df.columns:
        publications_by_subtype_desc =
df['subtypeDescription'].value_counts().head(10)
        print("\nRépartition des publications par type de description
de sous-type (Top 10) :")
        print(publications_by_subtype_desc)
    else:
        print("La colonne 'subtypeDescription' n'est pas présente dans
le DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
par type de description de sous-type
publications_par_subtype_description(df)
```

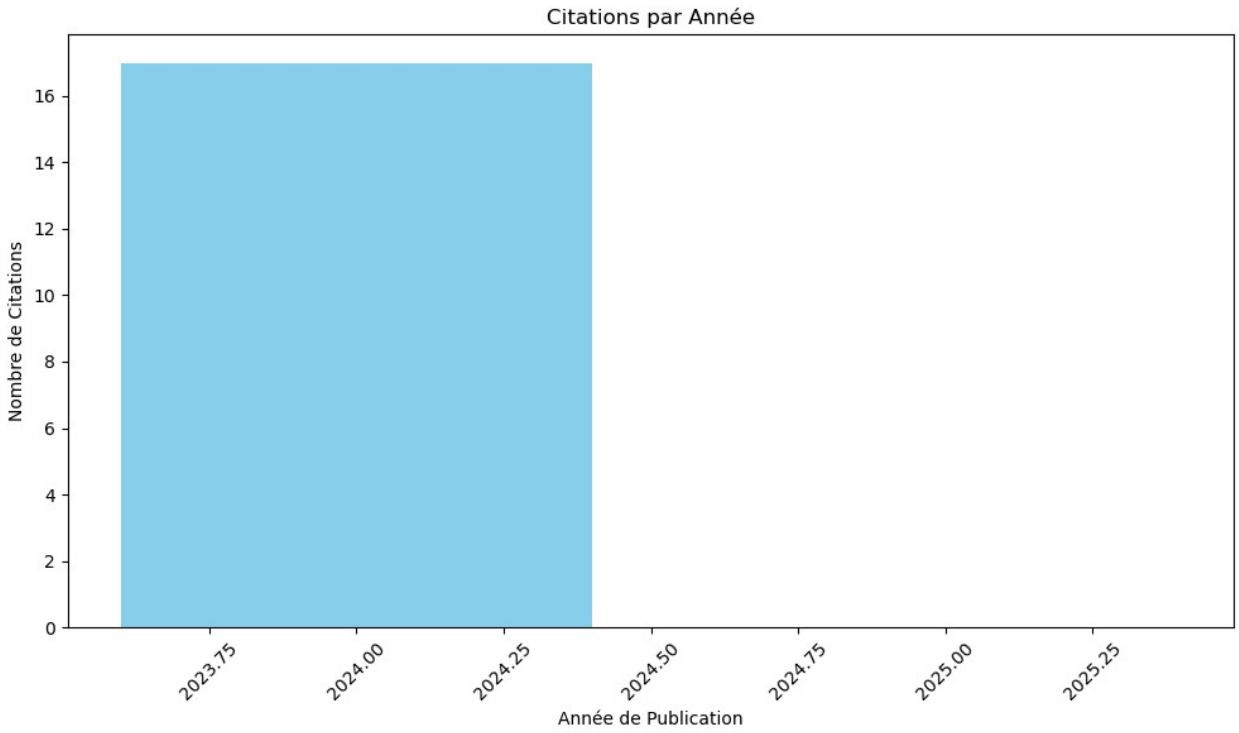
```
Répartition des publications par type de description de sous-type (Top
10) :
subtypeDescription
Review     14
Article    11
Name: count, dtype: int64
```

Analyse et visualisation des citations par année

```
import pandas as pd
import matplotlib.pyplot as plt

# Charger le DataFrame sauvegardé depuis le fichier CSV
df = pd.read_csv('api_scopus_data.csv')

def citations_per_year(df):
    """Analyse les citations par année."""
    if 'citedby-count' in df.columns and 'prism:coverDate' in
df.columns:
        # Convertir prism:coverDate en année
        df['coverYear'] = pd.to_datetime(df['prism:coverDate'],
errors='coerce').dt.year
```

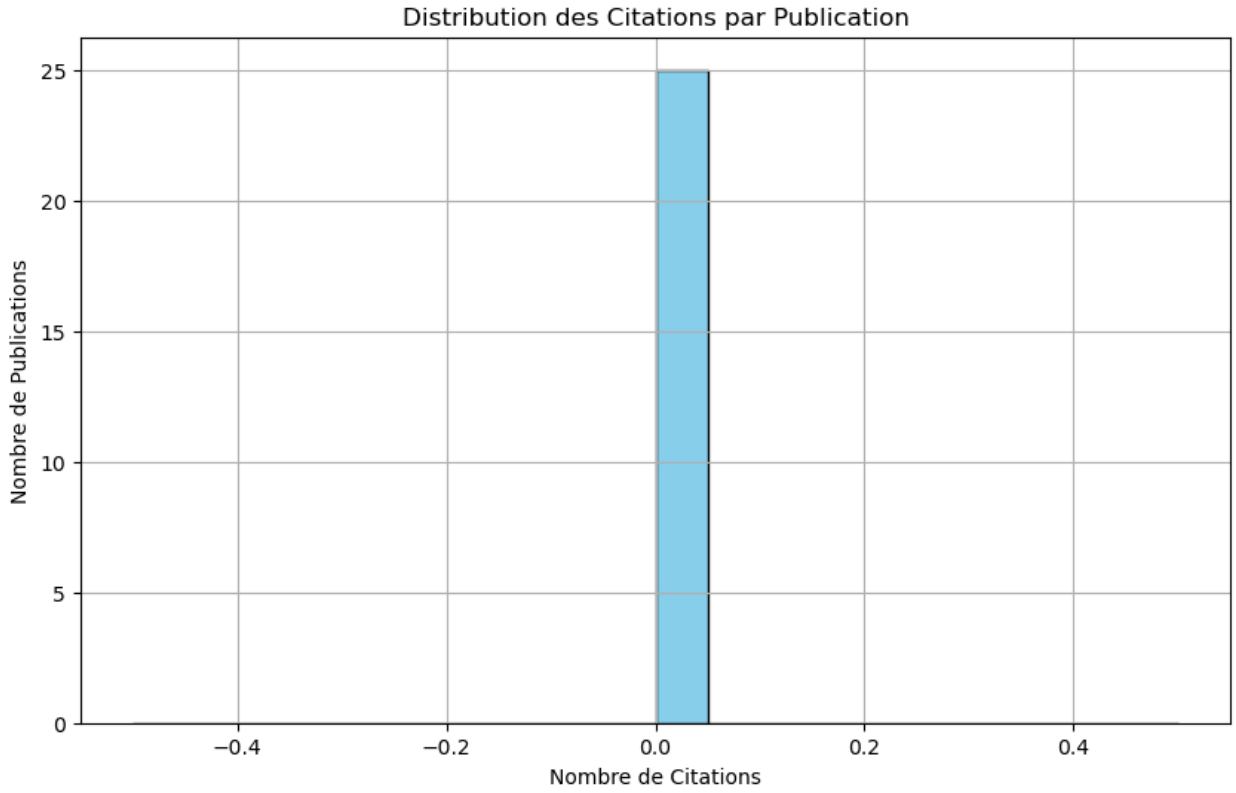
```
        citations_by_year = df.groupby('coverYear')['citedby-
count'].sum()
        print("\nCitations par année :")
        print(citations_by_year)
        return citations_by_year  # Retourne les citations par année
    else:
        print("Les colonnes nécessaires ('citedby-count' et
'prism:coverDate') ne sont pas présentes dans le DataFrame.")
        return None

# Appel de la fonction pour obtenir les citations par année
citations_by_year = citations_per_year(df)

# Vérification si les données ont été correctement chargées
if citations_by_year is not None:
    # Visualisation des citations par année
    plt.figure(figsize=(10, 6))
    plt.bar(citations_by_year.index, citations_by_year.values,
color='skyblue')
    plt.xlabel('Année de Publication')
    plt.ylabel('Nombre de Citations')
    plt.title('Citations par Année')
    plt.xticks(rotation=45)
    plt.tight_layout()
    plt.show()
else:
    print("Impossible de visualiser les données car les citations par
année n'ont pas été calculées correctement.")
```

```
Citations par année :
coverYear
2024    17
2025     0
Name: citedby-count, dtype: int64
```



Visualisation de la distribution des citations par publication

```
import matplotlib.pyplot as plt

def citations_distribution(df):
    """Visualizes the distribution of citations."""
    if 'citedby-count' in df.columns:
        plt.figure(figsize=(10, 6))
        plt.hist(df['citedby-count'], bins=20, color='skyblue',
edgecolor='black')
        plt.title('Distribution des Citations par Publication')
        plt.xlabel('Nombre de Citations')
        plt.ylabel('Nombre de Publications')
        plt.grid(True)
        plt.show()
    else:
        print("La colonne 'citedby-count' n'est pas présente dans le
DataFrame.")

# Appel de la fonction
citations_distribution(df)
```

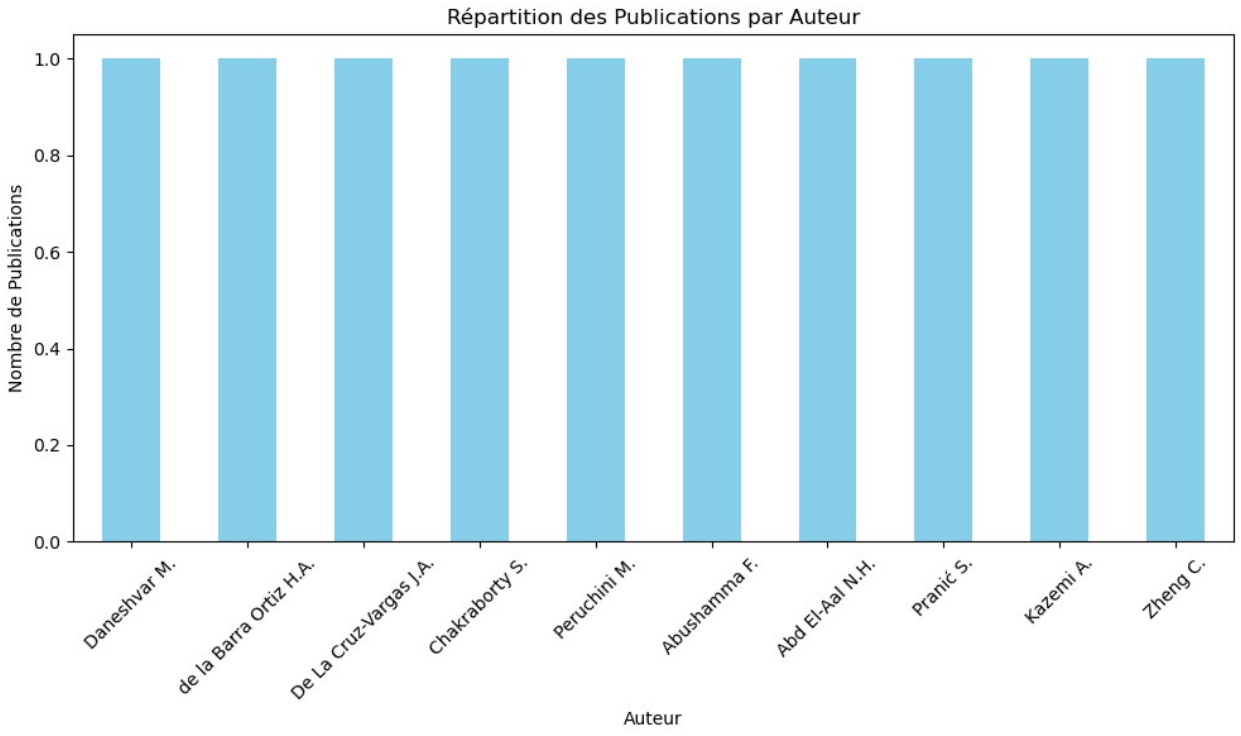


Analyse et visualisation de la répartition des publications par auteur

```
def publications_per_author(df):
    """Analyse la répartition des publications par auteur."""
    if 'dc:creator' in df.columns:
        publications_by_author = df['dc:creator'].value_counts()

        print("\nRépartition des publications par auteur :")
        print(publications_by_author.head(10))  # Afficher les 10
premiers auteurs par nombre de publications

        # Visualisation des publications par auteur (10 premiers
auteurs)
        plt.figure(figsize=(10, 6))
        publications_by_author.head(10).plot(kind='bar',
color='skyblue')
        plt.xlabel('Auteur')
        plt.ylabel('Nombre de Publications')
        plt.title('Répartition des Publications par Auteur')
        plt.xticks(rotation=45)
        plt.tight_layout()
        plt.show()
    else:
        print("La colonne 'dc:creator' n'est pas présente dans le
```

```
DataFrame.")

# Appel de la fonction pour analyser la répartition des publications
par auteur
publications_per_author(df)
```

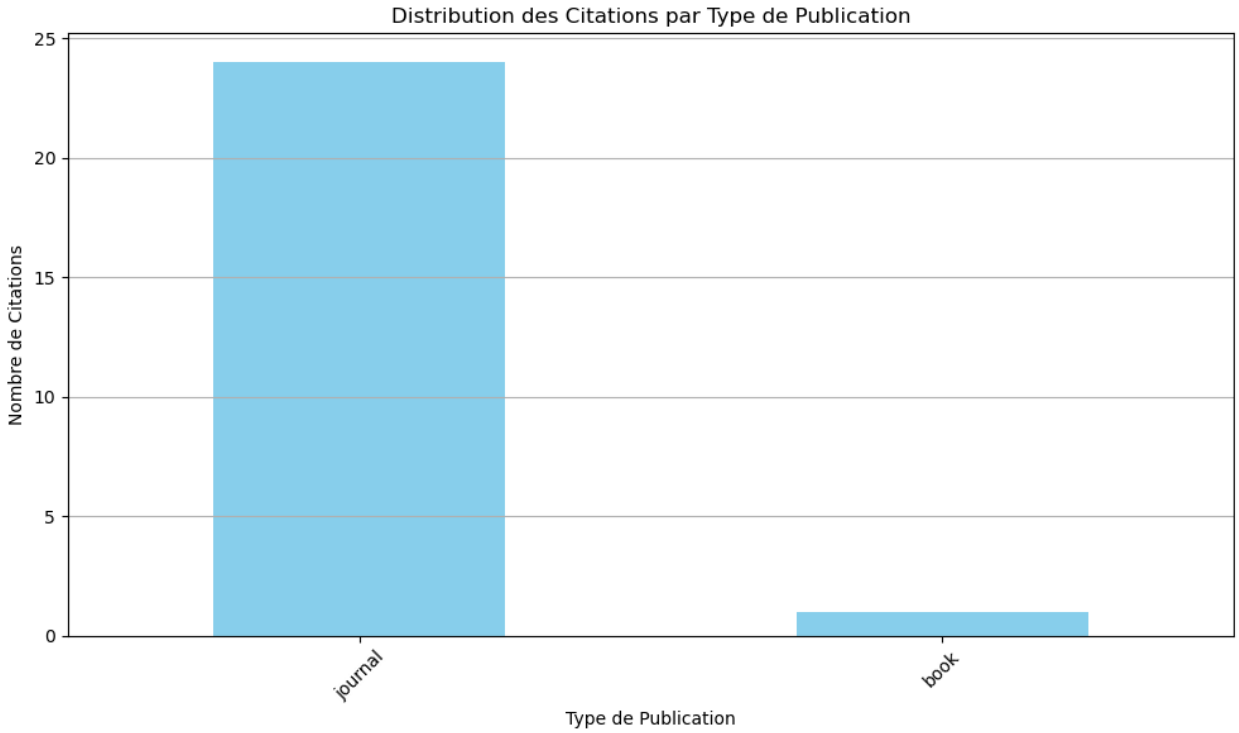
```
Répartition des publications par auteur :
dc:creator
Daneshvar M.                1
de la Barra Ortiz H.A.      1
De La Cruz-Vargas J.A.      1
Chakraborty S.              1
Peruchini M.                1
Abushamma F.                1
Abd El-Aal N.H.             1
Pranić S.                   1
Kazemi A.                   1
Zheng C.                    1
Name: count, dtype: int64
```



Visualisation de la distribution des citations par type de publication

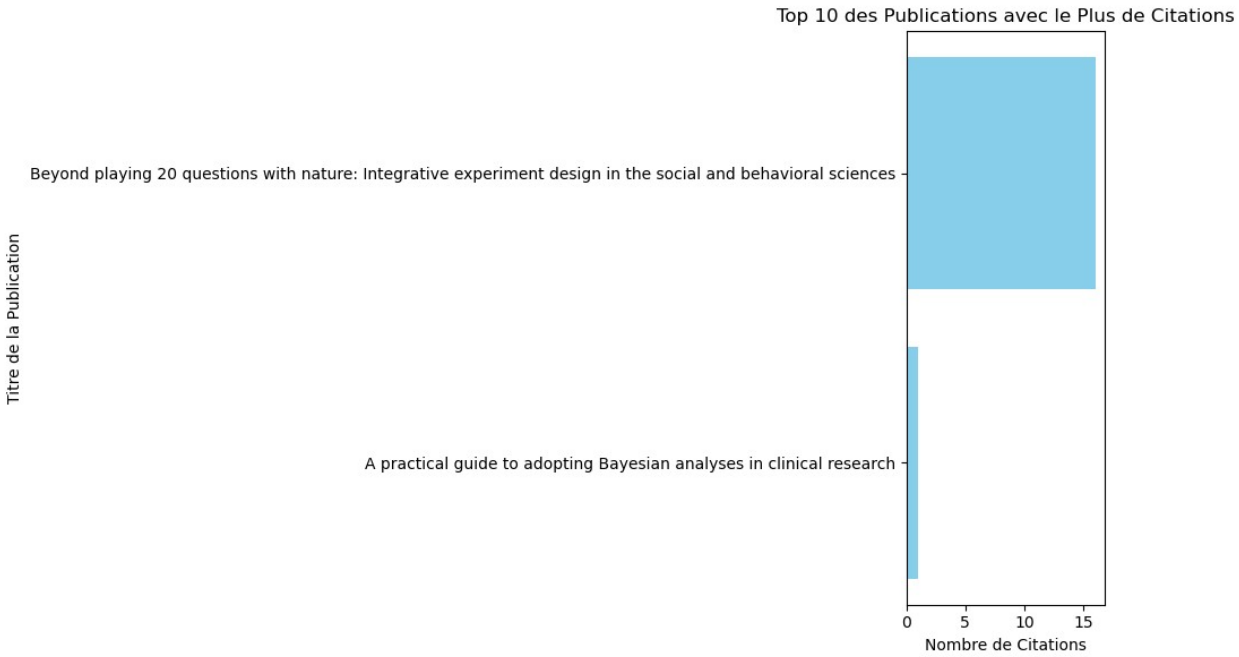
```
def distribution_citations_par_type(df):
    """Visualise la distribution des citations par type de
```

```
publication."""
    if 'citedby-count' in df.columns and 'prism:aggregationType' in
df.columns:
        plt.figure(figsize=(10, 6))
        df_filtered = df[df['prism:aggregationType'].notna()]
        df_filtered['prism:aggregationType'] =
df_filtered['prism:aggregationType'].str.lower()

df_filtered['prism:aggregationType'].value_counts().plot(kind='bar',
color='skyblue')
        plt.xlabel('Type de Publication')
        plt.ylabel('Nombre de Citations')
        plt.title('Distribution des Citations par Type de
Publication')
        plt.grid(axis='y')
        plt.xticks(rotation=45)
        plt.tight_layout()
        plt.show()
    else:
        print("Les colonnes nécessaires ('citedby-count' et
'prism:aggregationType') ne sont pas présentes dans le DataFrame.")

# Appel de la fonction pour visualiser la distribution des citations
par type de publication
distribution_citations_par_type(df)
```



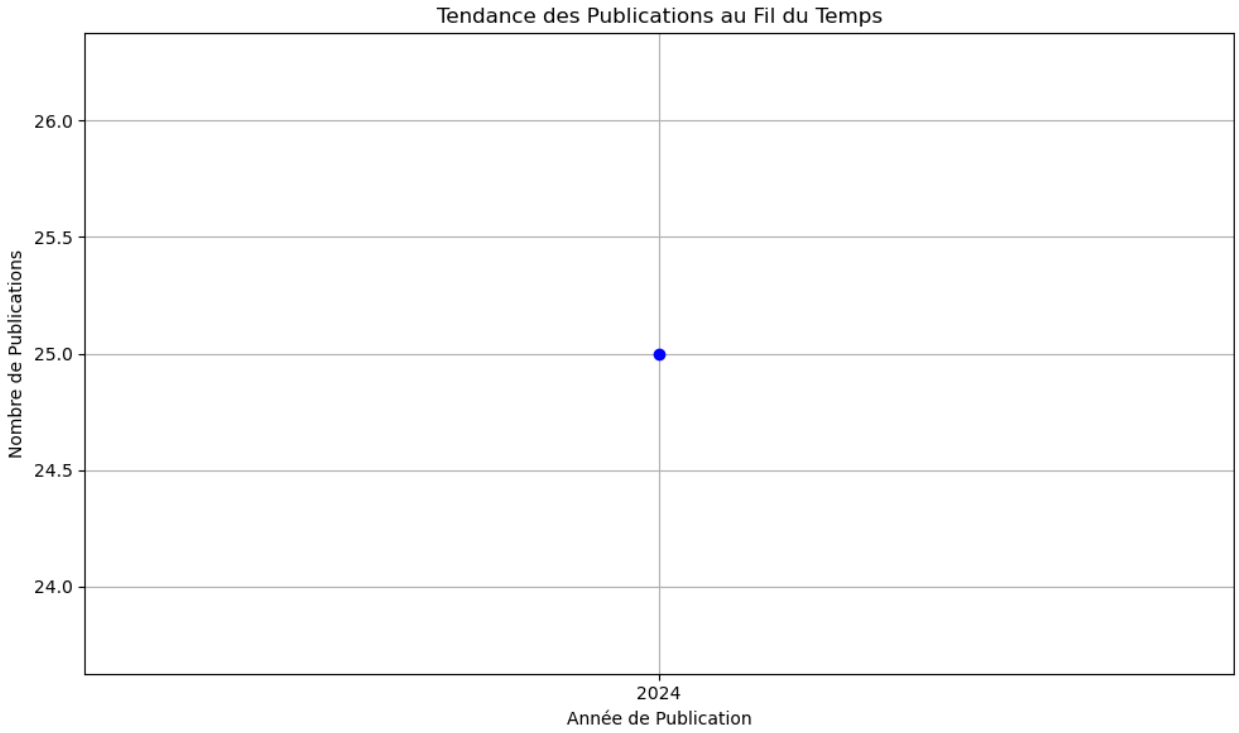
Visualisation du Nombre de Citations par Publication

```
import matplotlib.pyplot as plt

def plot_citations_per_publication(df):
    """Plot the number of citations per publication."""
    if 'citedby-count' in df.columns:
        # Filtrer les publications avec un nombre de citations non nul
        df_filtered = df[df['citedby-count'] > 0]

        # Tri des publications par nombre de citations (top 10)
        top_publications = df_filtered.nlargest(10, 'citedby-count')

        # Création du graphique à barres
        plt.figure(figsize=(10, 6))
        plt.barh(top_publications['dc:title'],
top_publications['citedby-count'], color='skyblue')
        plt.xlabel('Nombre de Citations')
        plt.ylabel('Titre de la Publication')
        plt.title('Top 10 des Publications avec le Plus de Citations')
        plt.gca().invert_yaxis()  # Inverser l'ordre des publications
pour afficher du plus grand au plus petit
        plt.tight_layout()
        plt.show()
    else:
        print("La colonne 'citedby-count' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour visualiser le nombre de citations par
publication
plot_citations_per_publication(df)
```



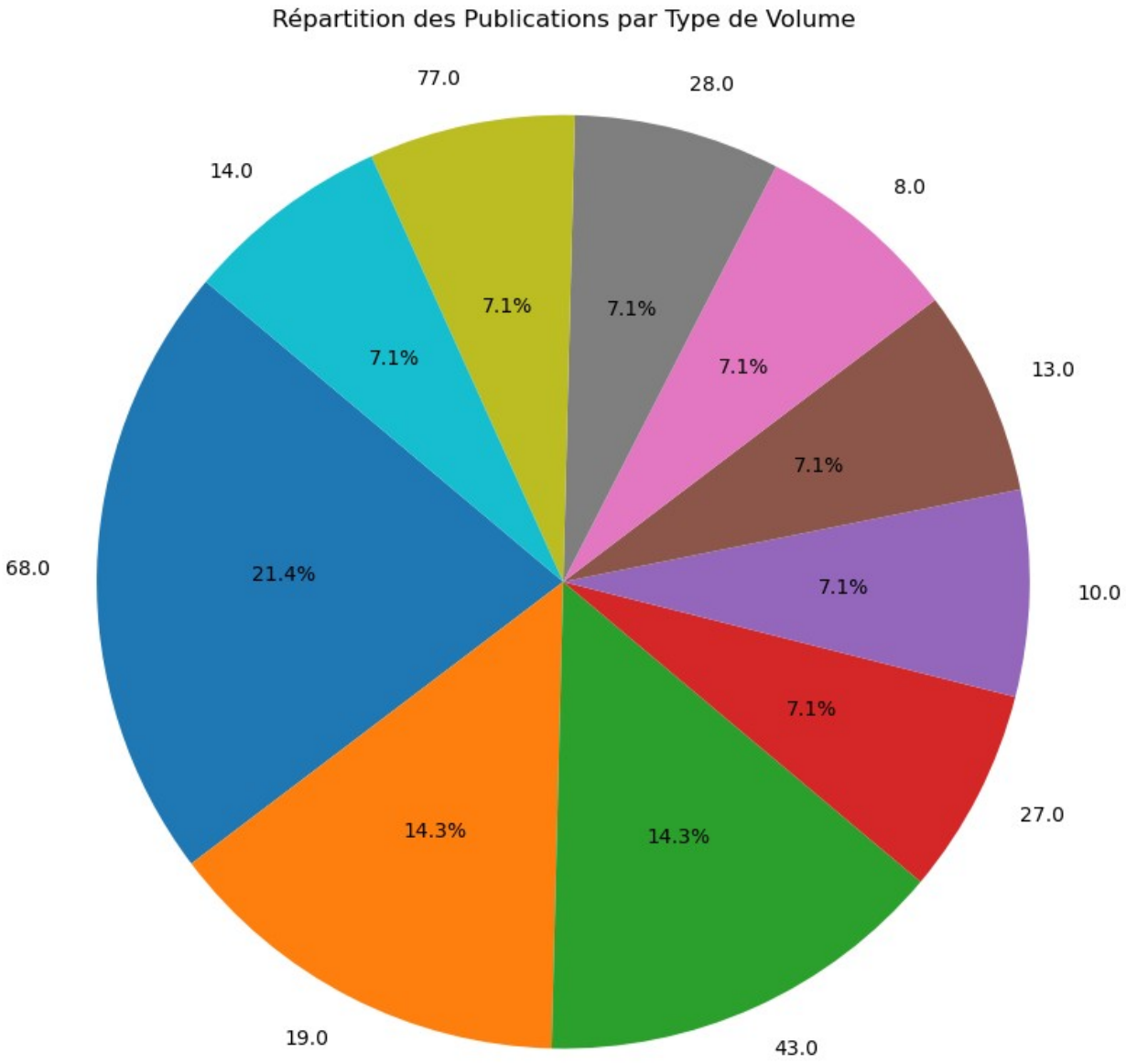
Tendance des Publications au Fil du Temps

```
def plot_publications_trend(df):
    """Plot the trend of publications over time."""
    if 'coverYear' in df.columns:
        # Compter le nombre de publications par année
        publications_per_year =
df['coverYear'].value_counts().sort_index()

        # Création du graphique linéaire
        plt.figure(figsize=(10, 6))
        plt.plot(publications_per_year.index,
publications_per_year.values, marker='o', linestyle='-', color='b')
        plt.xlabel('Année de Publication')
        plt.ylabel('Nombre de Publications')
        plt.title('Tendance des Publications au Fil du Temps')
        plt.grid(True)
        plt.xticks(publications_per_year.index)
        plt.tight_layout()
        plt.show()
    else:
        print("La colonne 'coverYear' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour visualiser la tendance des publications au
fil du temps
plot_publications_trend(df)
```



Répartition des Publications par Type de Volume

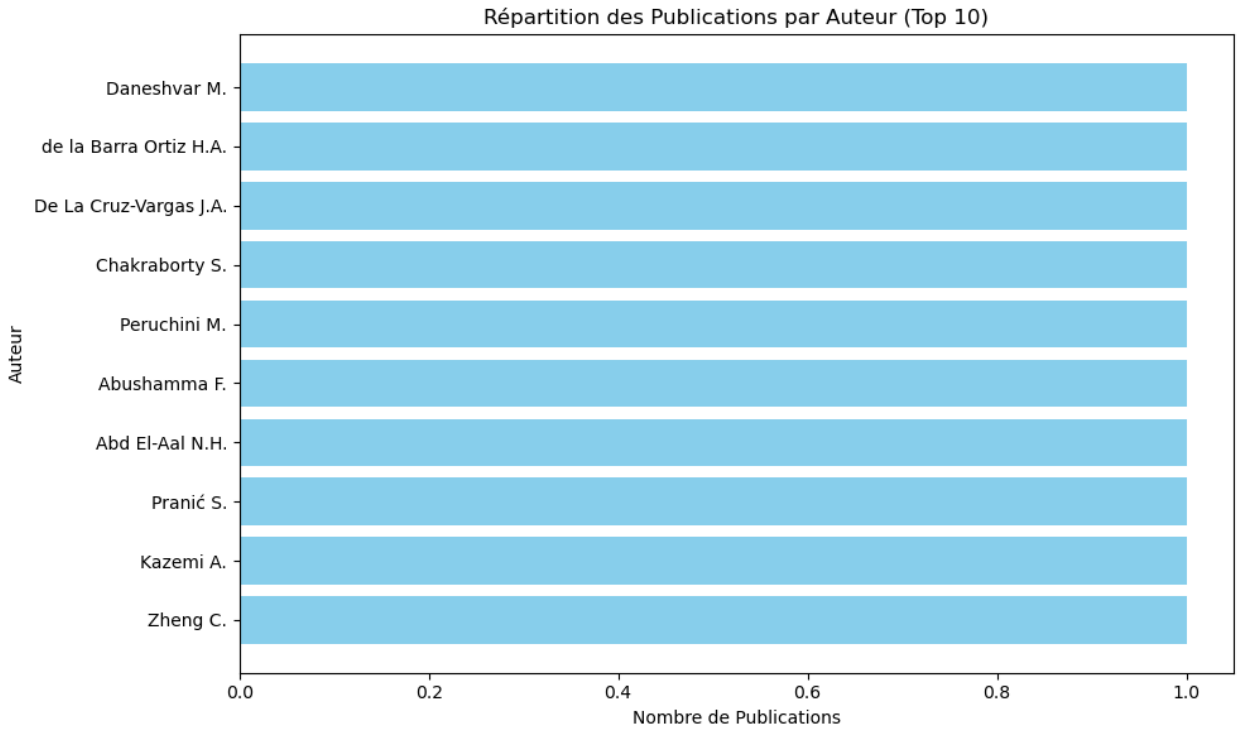
```
def plot_publications_by_volume(df):
    """Plot the distribution of publications by volume type."""
    if 'prism:volume' in df.columns:
        # Compter le nombre de publications par type de volume (top
10)
        publications_by_volume =
df['prism:volume'].value_counts().head(10)

        # Création du graphique à secteurs
        plt.figure(figsize=(8, 8))
        plt.pie(publications_by_volume.values,
labels=publications_by_volume.index, autopct='%1.1f%%',
startangle=140)
        plt.title('Répartition des Publications par Type de Volume')
        plt.axis('equal')
        plt.tight_layout()
        plt.show()
    else:
        print("La colonne 'prism:volume' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour visualiser la répartition des publications
par type de volume
plot_publications_by_volume(df)
```



Répartition des Publications par Auteur (Top 10)

```
def plot_publications_by_author(df):
    """Plot the distribution of publications by author."""
    if 'dc:creator' in df.columns:
        # Compter le nombre de publications par auteur (top 10)
        publications_by_author =
df['dc:creator'].value_counts().head(10)

        # Création du graphique à barres horizontales
        plt.figure(figsize=(10, 6))
        plt.barh(publications_by_author.index,
```

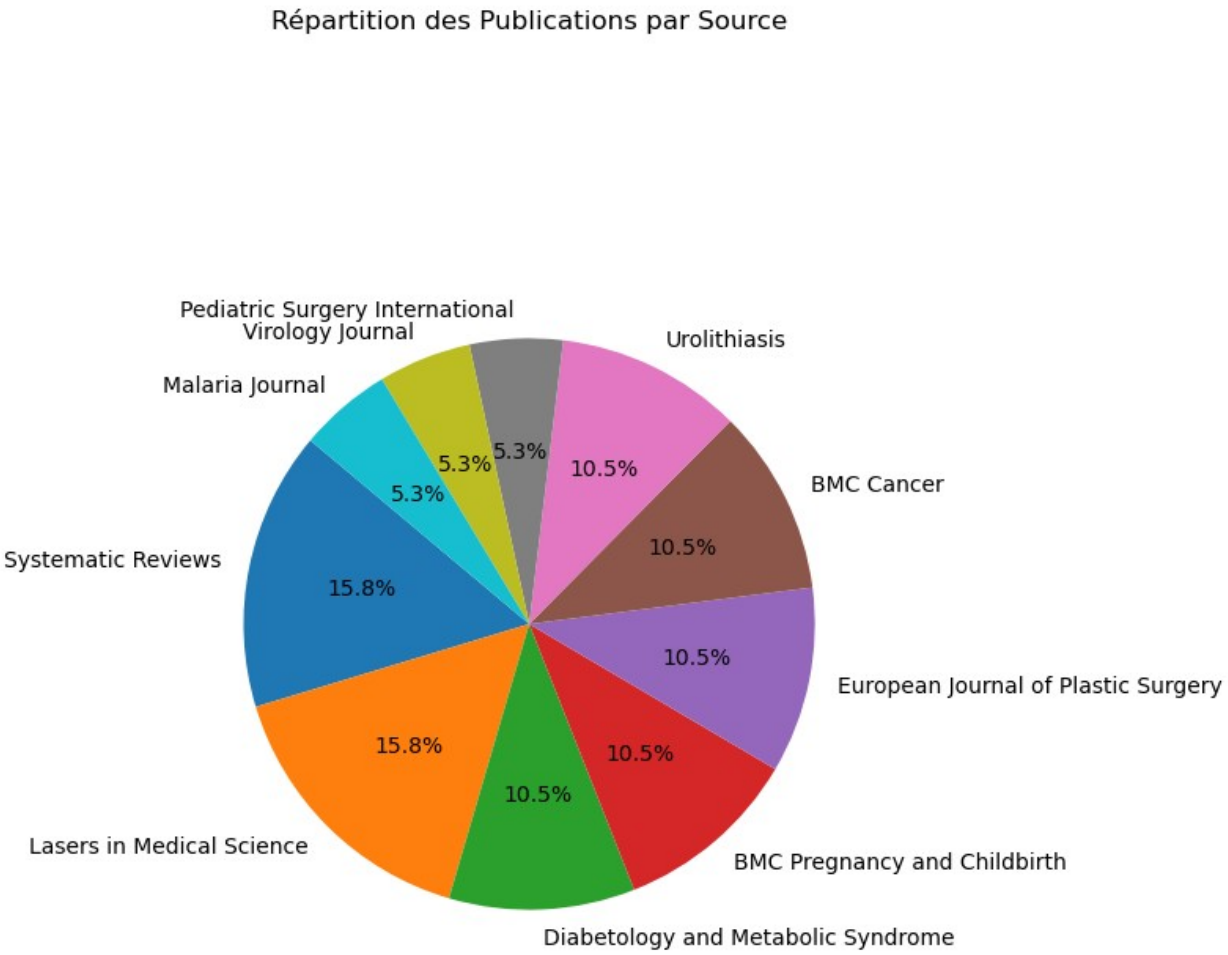
```
publications_by_author.values, color='skyblue')
        plt.xlabel('Nombre de Publications')
        plt.ylabel('Auteur')
        plt.title('Répartition des Publications par Auteur (Top 10)')
        plt.gca().invert_yaxis()  # Inverser l'ordre des auteurs pour
afficher du plus grand au plus petit
        plt.tight_layout()
        plt.show()
    else:
        print("La colonne 'dc:creator' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour visualiser la répartition des publications
par auteur
plot_publications_by_author(df)
```



Répartition des Publications par Source

```
def plot_publications_by_source(df):
    """Plot the distribution of publications by source."""
    if 'prism:publicationName' in df.columns:
        # Compter le nombre de publications par source (top 10)
        publications_by_source =
df['prism:publicationName'].value_counts().head(10)

        # Création du graphique à secteurs
        plt.figure(figsize=(8, 8))
```

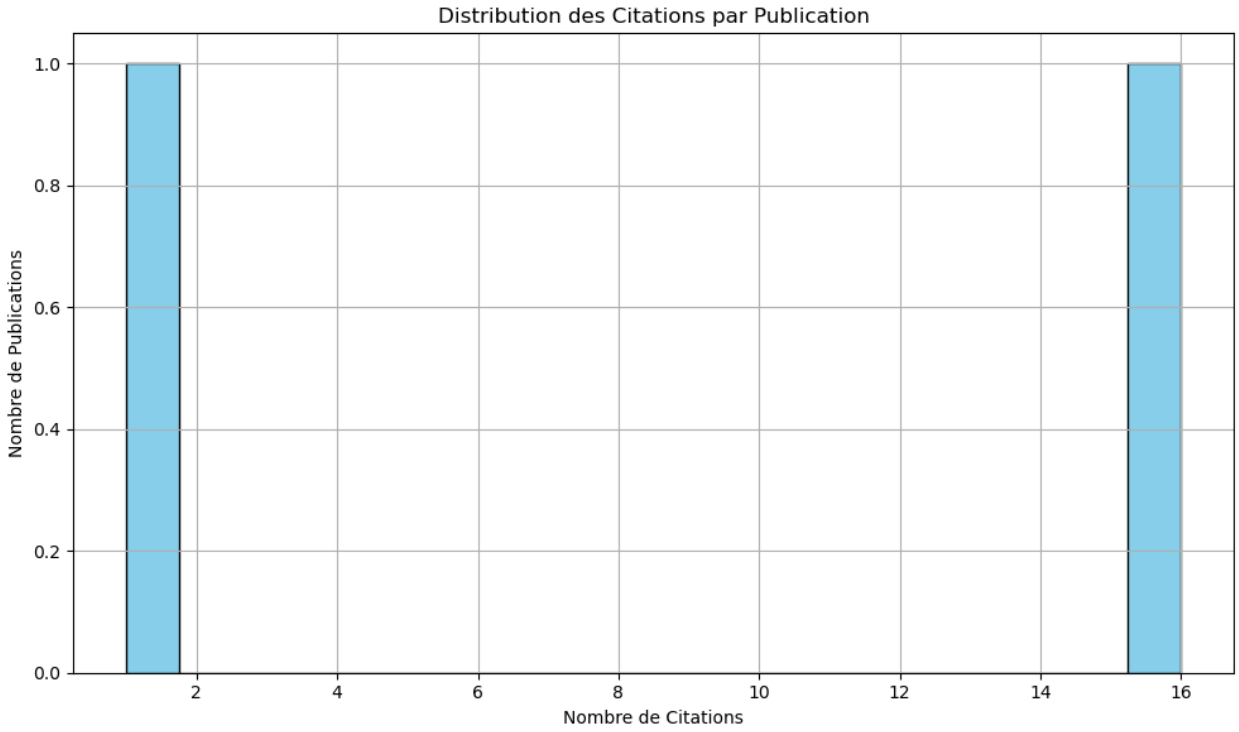
```
        plt.pie(publications_by_source.values,
labels=publications_by_source.index, autopct='%1.1f%%',
startangle=140)
        plt.title('Répartition des Publications par Source')
        plt.axis('equal')
        plt.tight_layout()
        plt.show()
    else:
        print("La colonne 'prism:publicationName' n'est pas présente
dans le DataFrame.")

# Appel de la fonction pour visualiser la répartition des publications
par source
plot_publications_by_source(df)
```



Distribution des Citations par Publication

```
def plot_citations_distribution(df):
    """Plot the distribution of citations per publication."""
    if 'citedby-count' in df.columns:
        # Filtrer les publications avec un nombre de citations non nul
        df_filtered = df[df['citedby-count'] > 0]

        # Création de l'histogramme des citations
        plt.figure(figsize=(10, 6))
        plt.hist(df_filtered['citedby-count'], bins=20,
color='skyblue', edgecolor='black')
        plt.xlabel('Nombre de Citations')
```

```
        plt.ylabel('Nombre de Publications')
        plt.title('Distribution des Citations par Publication')
        plt.grid(True)
        plt.tight_layout()
        plt.show()
    else:
        print("La colonne 'citedby-count' n'est pas présente dans le
DataFrame.")

# Appel de la fonction pour visualiser la distribution des citations
par publication
plot_citations_distribution(df)
```



Installation de la bibliothèque rdflib avec Python

```
 !pip install rdflib

Defaulting to user installation because normal site-packages is not
writeable
Requirement already satisfied: rdflib in c:\users\intel\appdata\
roaming\python\python311\site-packages (7.0.0)
Requirement already satisfied: isodate<0.7.0,>=0.6.0 in c:\users\
intel\appdata\roaming\python\python311\site-packages (from rdflib)
(0.6.1)
Requirement already satisfied: pyparsing<4,>=2.1.0 in c:\programdata\
anaconda3\lib\site-packages (from rdflib) (3.0.9)
```

```
Requirement already satisfied: six in c:\programdata\anaconda3\lib\
site-packages (from isodate<0.7.0,>=0.6.0->rdflib) (1.16.0)

DEPRECATION: Loading egg at c:\programdata\anaconda3\lib\site-
packages\vboxapi-1.0-py3.11.egg is deprecated. pip 24.3 will enforce
this behaviour change. A possible replacement is to use pip for
package installation.. Discussion can be found at
https://github.com/pypa/pip/issues/12330
```

Import des Bibliothèques RDFLib et Requests

```
import requests
import pandas as pd
from rdflib import Graph, Literal, RDF, URIRef, Namespace
from rdflib.namespace import DC
```

Fonction pour Récupérer les Données depuis l'API Scopus

```
def fetch_scopus_data(api_key, query, count=25):
    """Fetch data from the Scopus API."""
    url = 'https://api.elsevier.com/content/search/scopus'
    params = {
        'apiKey': api_key,
        'query': query,
        'count': count
    }

    try:
        response = requests.get(url, params=params)
        response.raise_for_status()
        data = response.json()

        if 'search-results' in data and 'entry' in data['search-
results']:
            return data['search-results']['entry']
        else:
            print("La structure de la réponse JSON ne contient pas les
clés attendues.")
            return None
    except requests.exceptions.HTTPError as http_err:
        print(f'Erreur HTTP {response.status_code}:
{response.reason}')
        print(response.text)
    except requests.exceptions.RequestException as req_err:
        print(f'Erreur de requête: {req_err}')
    except Exception as err:
        print(f'Erreur: {err}')
```

Fonction pour Parser les Valeurs FreetoRead

```
def parse_freetoread(value):
    if isinstance(value, list):
        return ', '.join([item['$'] for item in value])
    return value
```

Fonction pour Nettoyer et Sauvegarder les Données

```
def clean_and_save_data(entries, filename):
    if entries:
        df = pd.json_normalize(entries)

        if 'freetoread.value' in df.columns:
            df['freetoread.value'] =
df['freetoread.value'].apply(parse_freetoread)

        pd.set_option('display.max_rows', None)
        pd.set_option('display.max_columns', None)
        pd.set_option('display.width', None)
        pd.set_option('display.max_colwidth', None)

        #print(df)

        df.to_csv(filename, index=False)
        print(f"Les données ont été nettoyées et sauvegardées dans le
fichier {filename}")
```

Fonction pour Créer un RDF à partir d'un CSV

```
from rdflib import Graph, Namespace, Literal, URIRef
from rdflib.namespace import RDF, DC
import pandas as pd

def create_rdf_from_csv(csv_file, rdf_file):
    df = pd.read_csv(csv_file)
    g = Graph()

    SCOPUS = Namespace('http://example.org/scopus/')
    g.bind('scopus', SCOPUS)
    g.bind('dc', DC)

    for index, row in df.iterrows():
        publication =
URIRef(f"http://example.org/scopus/publication/{index}")
        g.add((publication, RDF.type, SCOPUS.Publication))

        if 'dc:title' in row and pd.notna(row['dc:title']):
            g.add((publication, DC.title, Literal(row['dc:title'])))

        if 'citedby-count' in row and pd.notna(row['citedby-count']):
```

```
            g.add((publication, SCOPUS.citedbyCount,
Literal(row['citedby-count'])))

        if 'prism:publicationName' in row and
pd.notna(row['prism:publicationName']):
            g.add((publication, SCOPUS.publicationName,
Literal(row['prism:publicationName'])))

        if 'dc:creator' in row and pd.notna(row['dc:creator']):
            g.add((publication, DC.creator,
Literal(row['dc:creator'])))

        if 'prism:coverDate' in row and
pd.notna(row['prism:coverDate']):
            g.add((publication, DC.date,
Literal(row['prism:coverDate'])))

        if 'freetoread.value' in row and
pd.notna(row['freetoread.value']):
            g.add((publication, SCOPUS.freetoRead,
Literal(row['freetoread.value'])))

        # Ajout des autres colonnes spécifiées
        if 'prism:eIssn' in row and pd.notna(row['prism:eIssn']):
            g.add((publication, SCOPUS.eIssn,
Literal(row['prism:eIssn'])))

        if 'prism:volume' in row and pd.notna(row['prism:volume']):
            g.add((publication, SCOPUS.volume,
Literal(row['prism:volume'])))

        if 'prism:issueIdentifier' in row and
pd.notna(row['prism:issueIdentifier']):
            g.add((publication, SCOPUS.issueIdentifier,
Literal(row['prism:issueIdentifier'])))

        if 'prism:pageRange' in row and
pd.notna(row['prism:pageRange']):
            g.add((publication, SCOPUS.pageRange,
Literal(row['prism:pageRange'])))

        if 'prism:coverDisplayDate' in row and
pd.notna(row['prism:coverDisplayDate']):
            g.add((publication, SCOPUS.coverDisplayDate,
Literal(row['prism:coverDisplayDate'])))

        if 'prism:doi' in row and pd.notna(row['prism:doi']):
            g.add((publication, SCOPUS.doi,
Literal(row['prism:doi'])))
```

```
        if 'affiliation' in row and pd.notna(row['affiliation']):
            g.add((publication, SCOPUS.affiliation,
Literal(row['affiliation'])))

        if 'prism:aggregationType' in row and
pd.notna(row['prism:aggregationType']):
            g.add((publication, SCOPUS.aggregationType,
Literal(row['prism:aggregationType'])))

        if 'subtype' in row and pd.notna(row['subtype']):
            g.add((publication, SCOPUS.subtype,
Literal(row['subtype'])))

        if 'subtypeDescription' in row and
pd.notna(row['subtypeDescription']):
            g.add((publication, SCOPUS.subtypeDescription,
Literal(row['subtypeDescription'])))

        if 'article-number' in row and pd.notna(row['article-
number']):
            g.add((publication, SCOPUS.articleNumber,
Literal(row['article-number'])))

        if 'source-id' in row and pd.notna(row['source-id']):
            g.add((publication, SCOPUS.sourceId, Literal(row['source-
id'])))

        if 'openaccess' in row and pd.notna(row['openaccess']):
            g.add((publication, SCOPUS.openAccess,
Literal(row['openaccess'])))

        if 'openaccessFlag' in row and
pd.notna(row['openaccessFlag']):
            g.add((publication, SCOPUS.openAccessFlag,
Literal(row['openaccessFlag'])))

        if 'freetoread.value' in row and
pd.notna(row['freetoread.value']):
            g.add((publication, SCOPUS.freetoRead,
Literal(row['freetoread.value'])))

        if 'freetoreadLabel.value' in row and
pd.notna(row['freetoreadLabel.value']):
            g.add((publication, SCOPUS.freetoReadLabel,
Literal(row['freetoreadLabel.value'])))

        if 'prism:issn' in row and pd.notna(row['prism:issn']):
            g.add((publication, SCOPUS.issn,
Literal(row['prism:issn'])))
```

```
        if 'pubmed-id' in row and pd.notna(row['pubmed-id']):
            g.add((publication, SCOPUS.pubmedId, Literal(row['pubmed-
id'])))

        if 'coverYear' in row and pd.notna(row['coverYear']):
            g.add((publication, SCOPUS.coverYear,
Literal(row['coverYear'])))

    g.serialize(rdf_file, format='turtle')
```

Utilisation de l'API Scopus, Nettoyage des Données, Création d'un RDF et Requête SPARQL

```
api_key = '9aebde1fa88b0b7325c7d8054dd3e754'
query = 'KEY(scopus)'
filename = 'api_scopus_data.csv'
rdf_filename = 'scopus_data.ttl'

# Récupération et nettoyage des données
entries = fetch_scopus_data(api_key, query)
clean_and_save_data(entries, filename)

# Création du fichier RDF à partir du CSV
create_rdf_from_csv(filename, rdf_filename)
print(f"Les données RDF ont été créées à partir du fichier
{filename}.")

def execute_sparql_query_and_style_results(rdf_filename,
sparql_query):
    g = Graph()
    g.parse(rdf_filename, format='turtle')

    # Execute the SPARQL query
    results = g.query(sparql_query)

    # Styling the results
    print("Les noms de publication et dates :\n")
    for idx, row in enumerate(results):
        publication_name = row['publicationName']
        cover_date = row['coverDate']

        # Print each result with styling
        print(f"{idx + 1}. Publication Name: {publication_name}")
        print(f"   Date: {cover_date}\n")


sparql_query_publications_info = """
PREFIX scopus: <http://example.org/scopus/>
PREFIX dc: <http://purl.org/dc/elements/1.1/>
```

```
PREFIX prism: <http://prismstandard.org/namespaces/basic/2.0/>

SELECT ?publicationName ?coverDate
WHERE {
    ?publication a scopus:Publication ;
                 dc:date ?coverDate ;
                 scopus:publicationName ?publicationName .
}
LIMIT 5
"""
execute_sparql_query_and_style_results(rdf_filename,
sparql_query_publications_info)

Les données ont été nettoyées et sauvegardées dans le fichier
api_scopus_data.csv
Les données RDF ont été créées à partir du fichier
api_scopus_data.csv.
Les noms de publication et dates :

1. Publication Name: Systematic Reviews
   Date: 2024-12-01

2. Publication Name: BMC Psychiatry
   Date: 2024-12-01

3. Publication Name: BMC Pregnancy and Childbirth
   Date: 2024-12-01

4. Publication Name: Thrombosis Journal
   Date: 2024-12-01

5. Publication Name: Diabetology and Metabolic Syndrome
   Date: 2024-12-01


def execute_sparql_query_authors_and_titles(rdf_filename,
sparql_query):
    g = Graph()
    g.parse(rdf_filename, format='turtle')

    # Execute the SPARQL query
    results = g.query(sparql_query)

    # Store results in a list of tuples
    data = [(row['creator'], row['title']) for row in results]

    return data

# Votre requête SPARQL
sparql_query_authors_and_titles = """
PREFIX scopus: <http://example.org/scopus/>
```

```
PREFIX dc: <http://purl.org/dc/elements/1.1/>

SELECT ?creator ?title
WHERE {
    ?publication a scopus:Publication .
    ?publication dc:creator ?creator .
    ?publication dc:title ?title .
}
LIMIT 5
"""

# Appel de la fonction pour exécuter la requête et obtenir les
résultats sous forme de liste de tuples
results = execute_sparql_query_authors_and_titles(rdf_filename,
sparql_query_authors_and_titles)

# Affichage des résultats sous forme de liste de tuples
print("\nCréateurs et titres des publications :")
for creator, title in results:
    print(f"Auteur: {creator}\nTitre: {title}\n")


Créateurs et titres des publications :
Auteur: Benavides-Gil G.
Titre: Mindfulness-based interventions for improving mental health of
frontline healthcare professionals during the COVID-19 pandemic: a
systematic review

Auteur: Bafkar N.
Titre: Efficacy and safety of omega-3 fatty acids supplementation for
anxiety symptoms: a systematic review and dose-response meta-analysis
of randomized controlled trials

Auteur: Moradkhani A.
Titre: Association of vitamin D receptor genetic polymorphisms with
the risk of infertility: a systematic review and meta-analysis

Auteur: Maghsudlu M.
Titre: Systematic review and meta-analysis of association between
plasminogen activator inhibitor-1 4G/5G polymorphism and recurrent
pregnancy loss: an update

Auteur: Miao Z.
Titre: Impact of frailty on mortality, hospitalization, cardiovascular
events, and complications in patients with diabetes mellitus: a
systematic review and meta-analysis


def execute_sparql_query_publications_by_year(rdf_file, sparql_query):
    # Fonction pour exécuter la requête SPARQL et afficher les
résultats
```

```
    g = Graph()
    g.parse(rdf_file, format='turtle')

    qres = g.query(sparql_query)

    # Affichage des résultats sous forme de tableau
    print("\nNombre de publications par année :")
    print("{:<10} {:<10}".format("Year", "Count"))
    print("="*25)
    for row in qres:
        print("{:<10} {:<10}".format(row['year'], row['count']))

sparql_query_publications_by_year = """
PREFIX scopus: <http://example.org/scopus/>
PREFIX dc: <http://purl.org/dc/elements/1.1/>
PREFIX prism: <http://prismstandard.org/namespaces/basic/2.0/>

SELECT ((?coverDate) AS ?year) (COUNT(?publication) AS ?count)
WHERE {
    ?publication a scopus:Publication ;
                 dc:date ?coverDate .
}
GROUP BY ?year
"""
# Appel de la fonction avec la nouvelle requête et le nom de fonction
modifié
execute_sparql_query_publications_by_year(rdf_filename,
sparql_query_publications_by_year)


Nombre de publications par année :
Year       Count
=========================
2024-12-01 25

def execute_sparql_query_doi_and_publication_name(rdf_file,
sparql_query):
    # Fonction pour exécuter la requête SPARQL et afficher les
résultats
    g = Graph()
    g.parse(rdf_file, format='turtle')

    qres = g.query(sparql_query)

    # Affichage des résultats sous forme de tableau
    print("\nAffichage des DOI et noms de publication :")
    print("{:<30} {:<70}".format("DOI", "Publication Name"))
    print("="*100)
    for row in qres:
        print("{:<30} {:<70}".format(row['doi'],
```

```
row['publicationName']))

sparql_query_doi_and_publication_name = """
PREFIX scopus: <http://example.org/scopus/>
PREFIX dc: <http://purl.org/dc/elements/1.1/>
PREFIX prism: <http://prismstandard.org/namespaces/basic/2.0/>

SELECT ?doi ?publicationName
WHERE {
    ?publication a scopus:Publication ;
                 scopus:doi ?doi ;
                 scopus:publicationName ?publicationName .
}
LIMIT 6
"""
# Appel de la fonction avec la nouvelle requête et le nom de fonction
modifié
execute_sparql_query_doi_and_publication_name(rdf_filename,
sparql_query_doi_and_publication_name)


Affichage des DOI et noms de publication :
DOI                            Publication Name

================================================================================
==============================
10.1186/s13643-024-02574-5     Systematic Reviews

10.1186/s12888-024-05881-2     BMC Psychiatry

10.1186/s12884-024-06590-0     BMC Pregnancy and Childbirth

10.1186/s12959-024-00612-9     Thrombosis Journal

10.1186/s13098-024-01352-6     Diabetology and Metabolic Syndrome

10.1007/s00238-024-02190-5     European Journal of Plastic Surgery


def execute_sparql_query_volume(rdf_file, sparql_query):
    # Fonction pour exécuter la requête SPARQL et afficher les
résultats
    g = Graph()
    g.parse(rdf_file, format='turtle')

    qres = g.query(sparql_query)

    # Affichage des résultats sous forme de tableau
    print("\nAffichage des volumes des publications :")
    print("{:<10} {:<30}".format("Publication", "Volume"))
    print("="*50)
```

```
    for row in qres:
        print("{:<10} {:<30}".format(row['publication'],
row['volume']))

sparql_query_volume = """
PREFIX scopus: <http://example.org/scopus/>
PREFIX prism: <http://prismstandard.org/namespaces/basic/2.0/>

SELECT ?publication ?volume
WHERE {
    ?publication a scopus:Publication ;
                 scopus:volume ?volume .
}
LIMIT 10
"""
# Appel de la fonction avec la requête pour les volumes des
publications
execute_sparql_query_volume(rdf_filename, sparql_query_volume)


Affichage des volumes des publications :
Publication Volume
==================================================
http://example.org/scopus/publication/0 13
http://example.org/scopus/publication/1 24
http://example.org/scopus/publication/10 24

http://example.org/scopus/publication/11 22

http://example.org/scopus/publication/12 16

http://example.org/scopus/publication/13 47

http://example.org/scopus/publication/14 24

http://example.org/scopus/publication/15 13

http://example.org/scopus/publication/16 24

http://example.org/scopus/publication/17 39


from rdflib import Graph, Namespace

def execute_sparql_query_article_volume(rdf_file, sparql_query):
    # Chargement du fichier RDF
    g = Graph()
    g.parse(rdf_file, format='turtle')

    # Exécution de la requête SPARQL
    qres = g.query(sparql_query)
```

```
    # Affichage des résultats
    print("\nPublications de type 'Article' avec leur volume :")
    print("=" * 50)
    for row in qres:
        print(f"Titre de la publication : {row['title']}")
        print(f"Volume : {row['volume']}")
        print("-" * 50)

# Requête SPARQL pour récupérer les articles avec leur volume
sparql_query_article_volume = """
PREFIX scopus: <http://example.org/scopus/>
PREFIX prism: <http://prismstandard.org/namespaces/basic/2.0/>

SELECT ?title (GROUP_CONCAT(?volume; separator=", ") AS ?volume)
WHERE {
    ?publication a scopus:Publication ;
                 scopus:subtypeDescription "Article" ;
                 scopus:volume ?volume ;
                 dc:title ?title .
}
GROUP BY ?title
LIMIT 10
"""

# Appel de la fonction avec la requête pour les articles et leur
volume
execute_sparql_query_article_volume(rdf_filename,
sparql_query_article_volume)
```

```
Publications de type 'Article' avec leur volume :
==================================================
Titre de la publication : Mindfulness-based interventions for
improving mental health of frontline healthcare professionals during
the COVID-19 pandemic: a systematic review
Volume : 13
--------------------------------------------------
Titre de la publication : Efficacy and safety of omega-3 fatty acids
supplementation for anxiety symptoms: a systematic review and dose-
response meta-analysis of randomized controlled trials
Volume : 24
--------------------------------------------------
Titre de la publication : Association of vitamin D receptor genetic
polymorphisms with the risk of infertility: a systematic review and
meta-analysis
Volume : 24
--------------------------------------------------
Titre de la publication : Impact of frailty on mortality,
hospitalization, cardiovascular events, and complications in patients
```

with diabetes mellitus: a systematic review and meta-analysis
Volume : 16

Titre de la publication : Association of prothrombin time, thrombin time and activated partial thromboplastin time levels with preeclampsia: a systematic review and meta-analysis
Volume : 24

Titre de la publication : Protocol for a systematic review and meta-analysis on Janus kinase inhibitors in the management of vitiligo
Volume : 13

Titre de la publication : Analyzing global research trends and focal points in the utilization of laser techniques for the treatment of urolithiasis from 1978 to 2022: visualization and bibliometric analysis
Volume : 52

Titre de la publication : Barriers and facilitators to implementing workplace interventions to promote mental health: qualitative evidence synthesis
Volume : 13

Titre de la publication : The impact of immunosuppression on the mortality and hospitalization of Monkeypox: a systematic review and meta-analysis of the 2022 outbreak
Volume : 21

Titre de la publication : 75 years’ journey of malaria publications in English: what and where?
Volume : 23
