

lab1_DBSYS

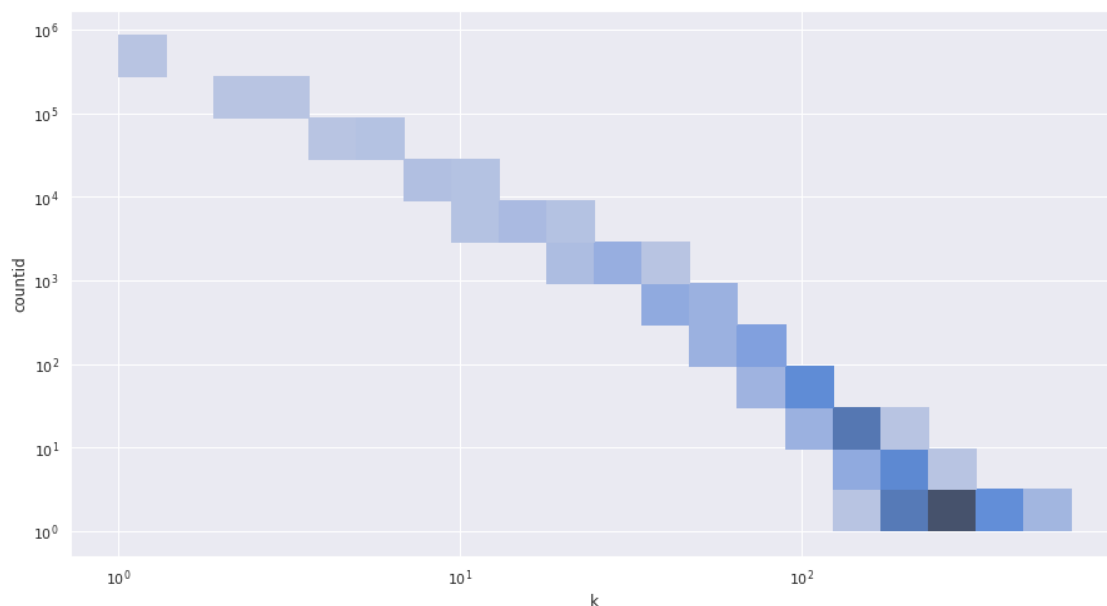
October 31, 2021

```
[ ]: import pandas as pd
[3]: import seaborn as sns
[ ]: import psycopg2
    # Connect to postgres database with simone user
    conn = psycopg2.connect("dbname=dblp user=simone")
    # Open a cursor to perform operation
    cur = conn.cursor()
    # Run the vis.sql
    cur.execute(open('vis.sql', 'r').read())
    results = cur.fetchall()
    cur.close()

[ ]: # store the results in a dataframe
    df = pd.DataFrame(results, columns=['k', 'countId'])

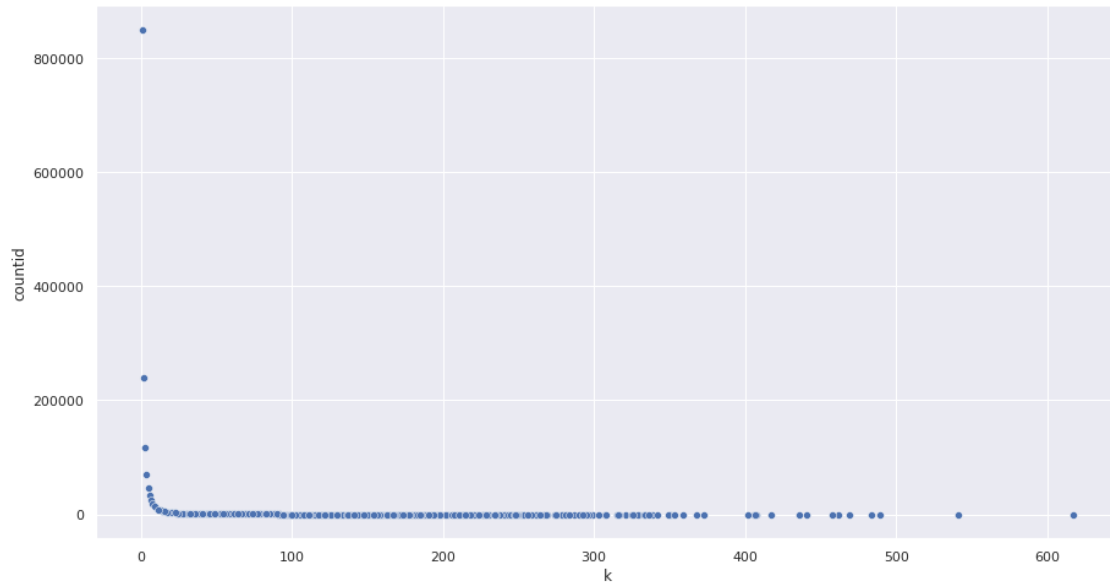
[7]: sns.set(rc = {'figure.figsize':(15,8)})
    sns.histplot(x=df.k, y=df.countId, log_scale=True)

[7]: <matplotlib.axes._subplots.AxesSubplot at 0x7fceefee4590>
```

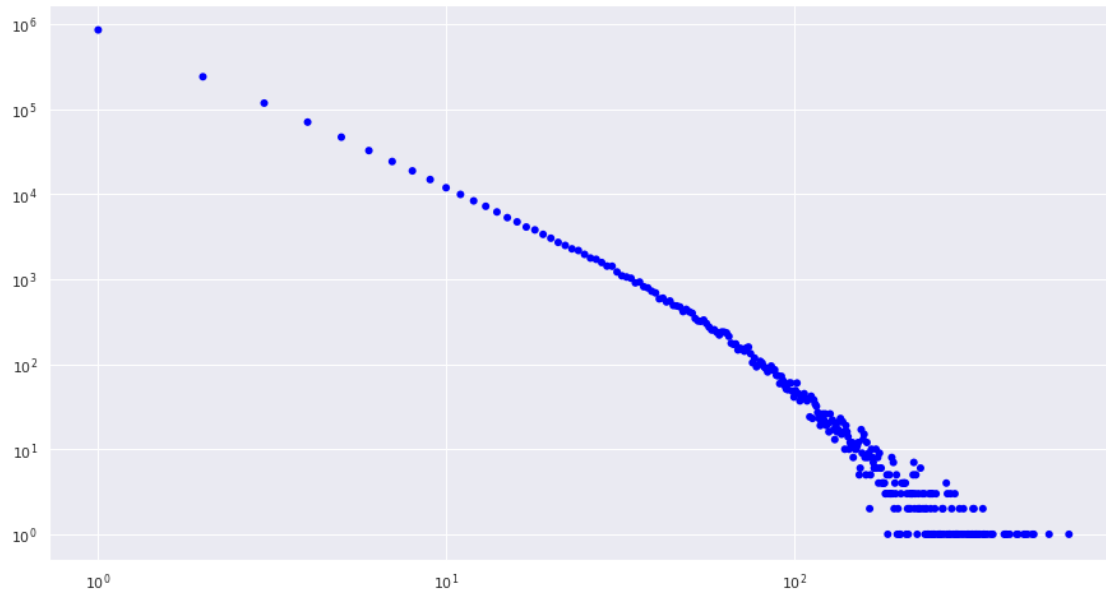


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[ ]: sns.scatterplot(x=df.k, y=df.countid)
```

```
[ ]: <matplotlib.axes._subplots.AxesSubplot at 0x7f42a43675d0>
```



```
[ ]: import matplotlib.pyplot as plt
fig = plt.figure()
ax = plt.gca()
ax.scatter(x=df.k ,y=df.countid , c='blue', alpha=1, edgecolors='none')
ax.set_yscale('log')
ax.set_xscale('log')
```



Since the elevated number of bins the scatter plot does not give us the possibility to understand what is going on, neither with the log-log scale. For this reason I moved to scatter plot. It is possible to see that we have an exponential decrease trend (first figure) which is confirmed by the log-log scatter plot (second plot) which in the first part contains a decreasing straight line

```
[!]: !apt-get install texlive texlive-xetex texlive-latex-extra pandoc
      !pip install pypandoc
```

```
[10]: !jupyter nbconvert --to PDF "/content/drive/MyDrive/Colab Notebooks/lab1_DBSYS.
      →ipynb"
```

```
[NbConvertApp] Converting notebook /content/drive/MyDrive/Colab
Notebooks/lab1_DBSYS.ipynb to PDF
[NbConvertApp] Support files will be in lab1_DBSYS_files/
[NbConvertApp] Making directory ./lab1_DBSYS_files
[NbConvertApp] Making directory ./lab1_DBSYS_files
[NbConvertApp] Making directory ./lab1_DBSYS_files
[NbConvertApp] Writing 53951 bytes to ./notebook.tex
[NbConvertApp] Building PDF
[NbConvertApp] Running xelatex 3 times: [u'xelatex', u'./notebook.tex',
'-quiet']
[NbConvertApp] Running bibtex 1 time: [u'bibtex', u'./notebook']
[NbConvertApp] WARNING | bibtex had problems, most likely because there were no
citations
[NbConvertApp] PDF successfully created
[NbConvertApp] Writing 82763 bytes to /content/drive/MyDrive/Colab
Notebooks/lab1_DBSYS.pdf
```

```
[!]:
```