plots-unary-encoding

October 24, 2021

```python
from results_loader import load_data
import matplotlib.pyplot as plt
import numpy as np
```

```python
# Reset_index makes a column called "index" with the column index
df = load_data('nontesting').reset_index()
```

```python
def maybe_dictionary_len(d):
    if d != None:
        num_non_link = 0
        for k in d:
            dep_data = d[k]
            if not ("link" in dep_data and dep_data["link"]):
                num_non_link = num_non_link + 1
        return num_non_link
    else:
        return np.nan

df['npm_number_deps'] = df['npm solve'].apply(maybe_dictionary_len)
df['rosette_number_deps'] = df['rosette solve'].apply(maybe_dictionary_len)
```

```python
df['ratio_num_deps'] = df['rosette_number_deps']/df['npm_number_deps']
```

```python
df['ratio'] = df['rosette time'] / df['npm time']
```

```python
df
```

```
       index    project_name  npm success   npm time  \
0          0  supports-color         True   8.840439
1          1           debug         True   9.247350
2          2          semver         True   3.341806
3          3           chalk         True   9.310416
4          4              ms         True   2.577305
..       ...             ...          ...        ...
995      995    is-directory         True   3.481128
996      996     whatwg-fetch         True   9.195429
997      997      decimal.js         True   0.402953
```

```
998    998      lodash.merge          True    0.403490
999    999    clone-response          True   10.739774


                                           npm solve npm error  \
0     {'node_modules/has-flag': {'version': '5.0.1',…       None
1     {'node_modules/ms': {'version': '2.1.2', 'reso…       None
2     {'node_modules/lru-cache': {'version': '6.0.0'…       None
3     {'node_modules/ansi-styles': {'version': '4.3…        None
4                                                  {}        None
..                                                 …          …
995                                                {}        None
996                                                {}        None
997                                                {}        None
998                                                {}        None
999   {'node_modules/mimic-response': {'version': '1…       None


      rosette success   rosette time  \
0               True       2.382267
1               True       2.343069
2               True       2.364619
3               True       2.493104
4               True       2.137862
..               …           …
995             True       2.414831
996             True       2.465897
997             True       2.446546
998             True       2.449112
999             True       2.646145


                                       rosette solve rosette error  \
0     {'node_modules/has-flag': {'version': '5.0.0',…          None
1     {'node_modules/ms': {'version': '2.1.2', 'inte…          None
2     {'node_modules/lru-cache': {'version': '6.0.0'…          None
3     {'node_modules/ansi-styles': {'version': '4.1…           None
4                                                  {}          None
..                                                 …            …
995                                                {}          None
996                                                {}          None
997                                                {}          None
998                                                {}          None
999   {'node_modules/mimic-response': {'version': '1…          None


      npm_number_deps  rosette_number_deps  ratio_num_deps    ratio
0                 1.0                  1.0             1.0  0.269474
1                 1.0                  1.0             1.0  0.253377
2                 2.0                  2.0             1.0  0.707587
3                 5.0                  5.0             1.0  0.267776
```
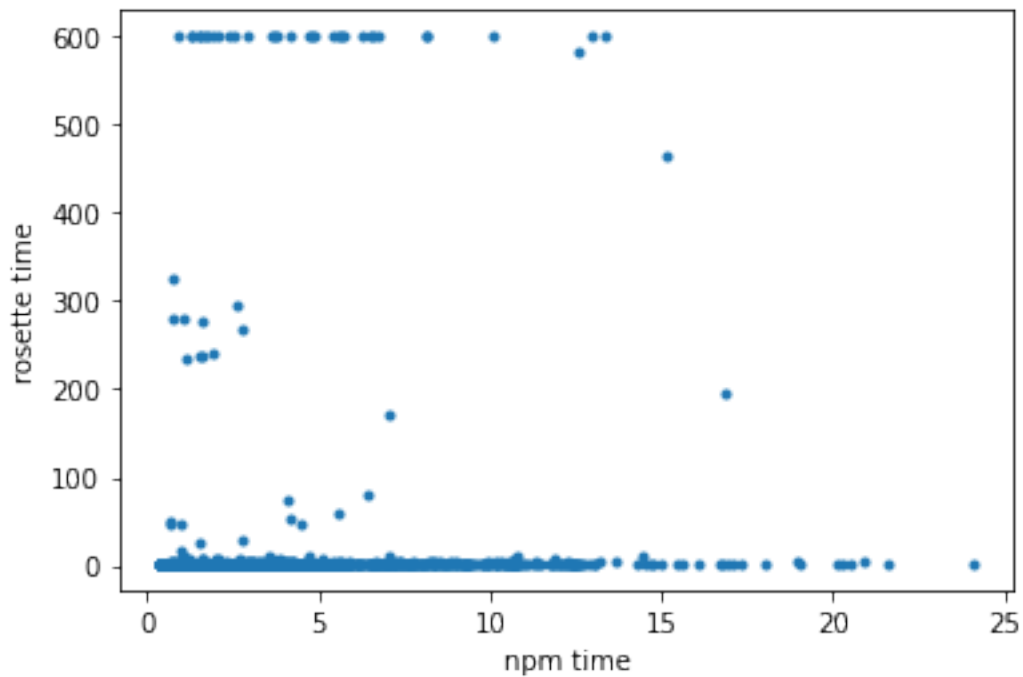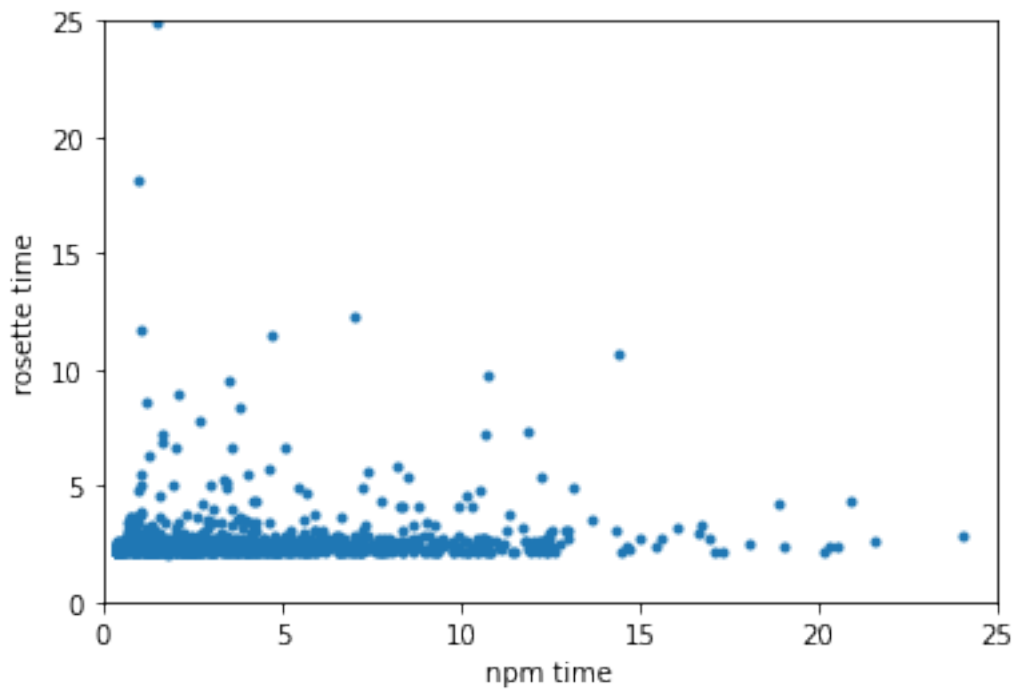
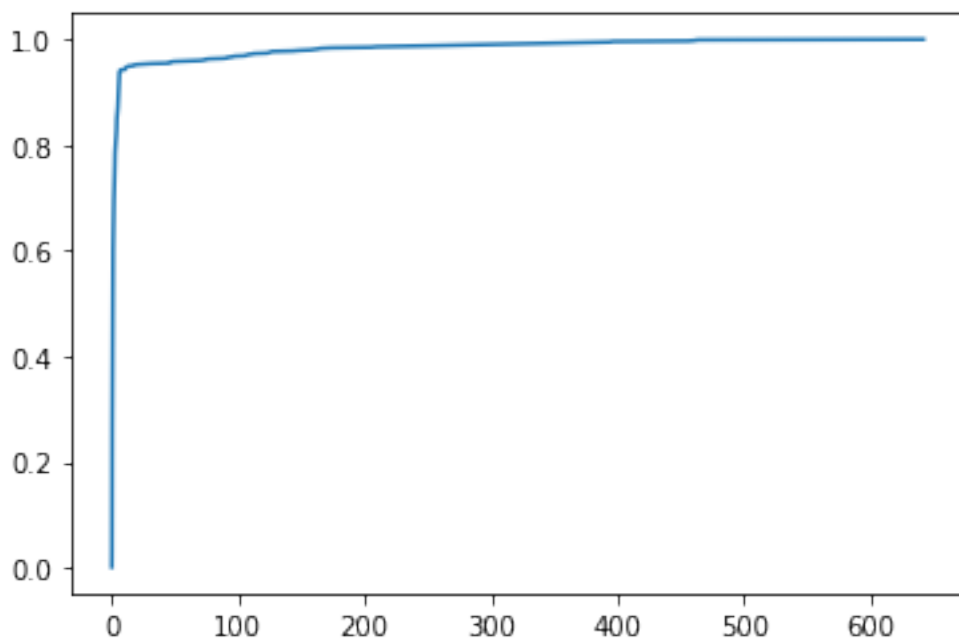| 4 | 0.0 | 0.0 | NaN | 0.829495 |
..	...	...	...	...
995	0.0	0.0	NaN	0.693692
996	0.0	0.0	NaN	0.268165
997	0.0	0.0	NaN	6.071548
998	0.0	0.0	NaN	6.069827
999	1.0	1.0	1.0	0.246387

[1000 rows x 14 columns]

```python
plt.scatter(x=df['npm time'], y=df['rosette time'], marker='.')
plt.xlabel('npm time') #x label
plt.ylabel('rosette time') #y label
plt.show()
```
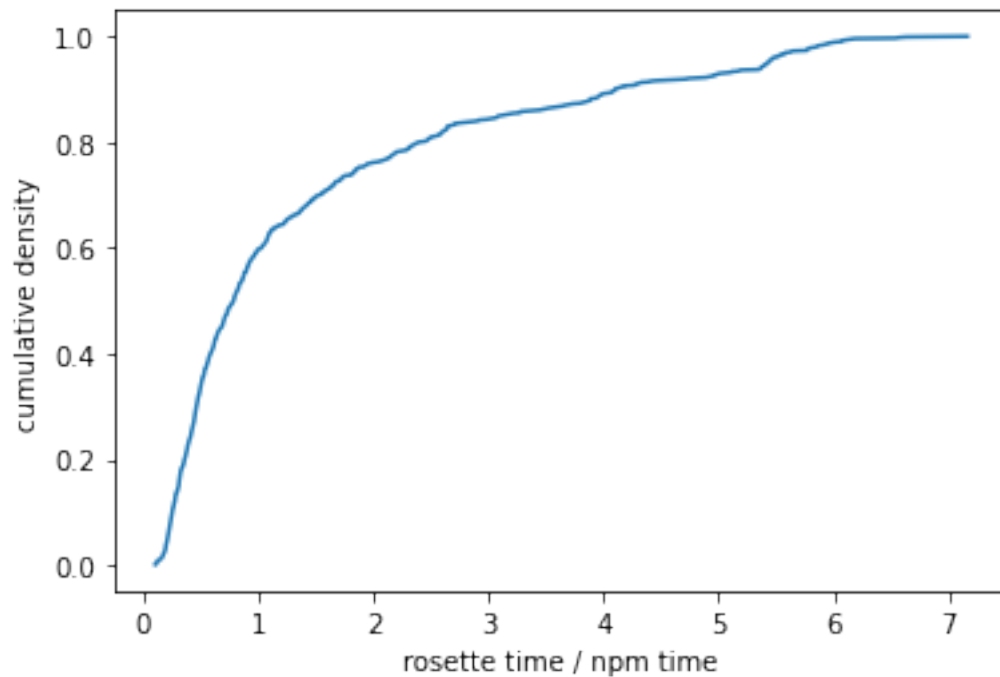


```python
plt.scatter(x=df['npm time'], y=df['rosette time'], marker='.')
plt.xlabel('npm time') #x label
plt.ylabel('rosette time') #y label
plt.ylim([0, 25])
plt.xlim([0, 25])
plt.show()
```

```
[ ]: plt.plot(np.sort(df['ratio']), np.arange(1, len(df)+1)/len(df))
     plt.show()
```
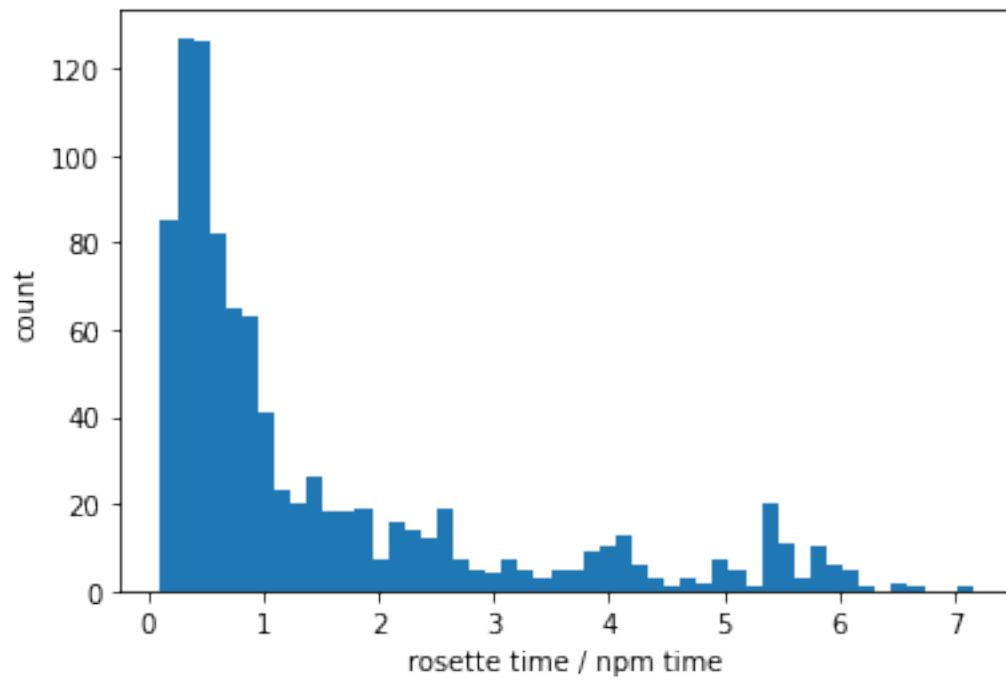

4

```
[ ]: non_outlier_ratio = df['ratio'][df['ratio'] < 10]

     plt.plot(np.sort(non_outlier_ratio), np.arange(1, len(non_outlier_ratio)+1)/
      ↪len(non_outlier_ratio))
     plt.xlabel('rosette time / npm time')
     plt.ylabel('cumulative density')
     plt.show()
```
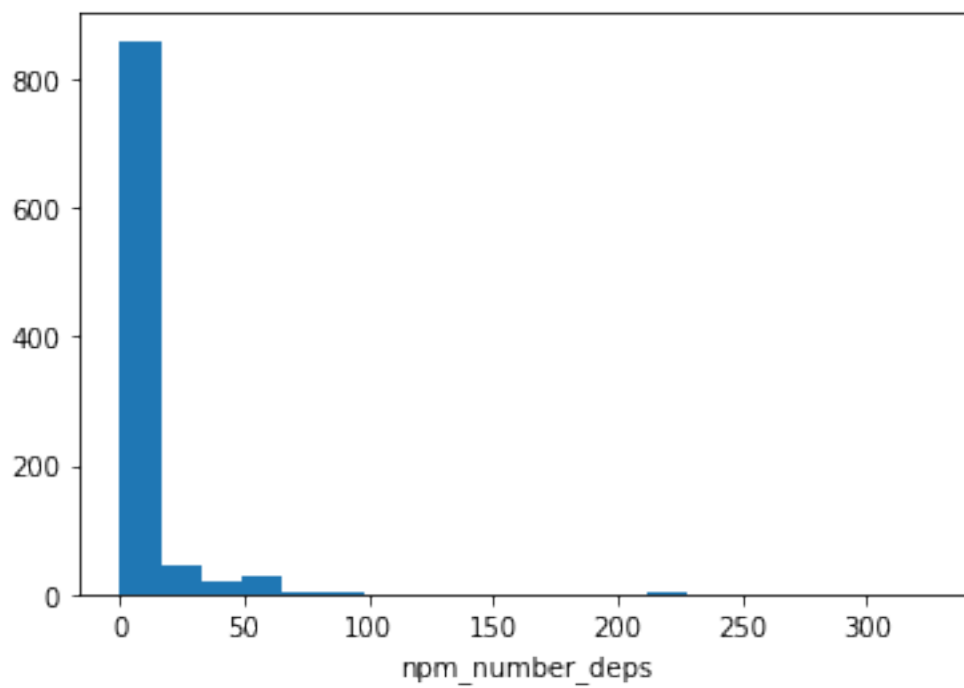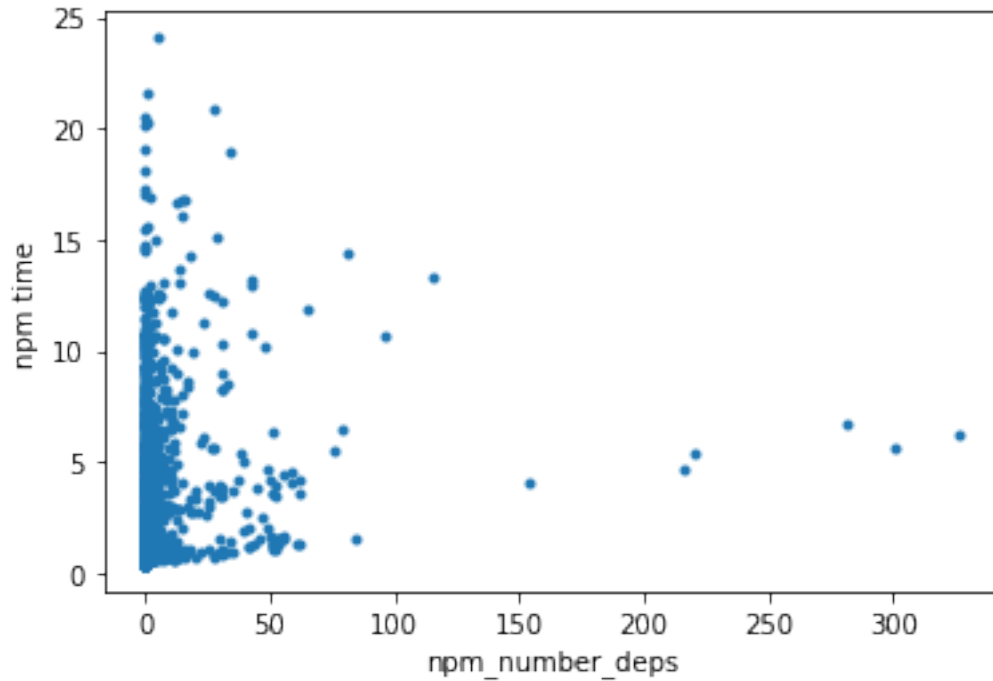


```
[ ]: plt.hist(non_outlier_ratio, bins=50)
     plt.xlabel('rosette time / npm time')
     plt.ylabel('count')
     plt.show()
```
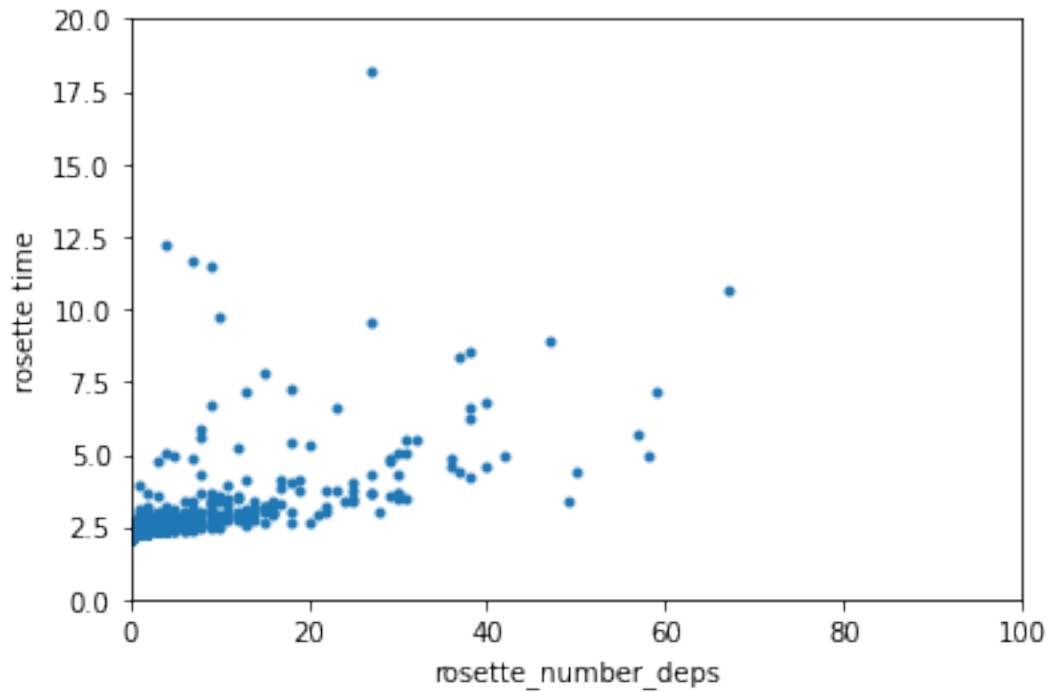
```
[ ]: plt.hist(df['npm_number_deps'], bins=20)
     plt.xlabel('npm_number_deps');
```
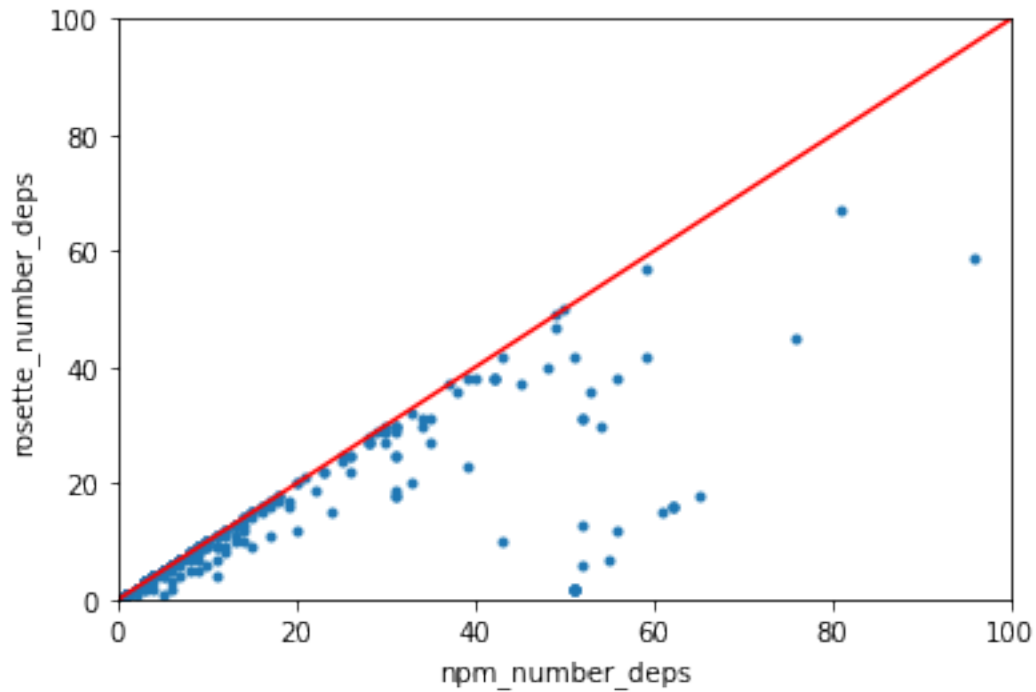
```
[ ]: plt.scatter(x=df['npm_number_deps'], y=df['npm time'], marker='.')
     plt.xlabel('npm_number_deps') #x label
     plt.ylabel('npm time') #y label
     plt.show()
```
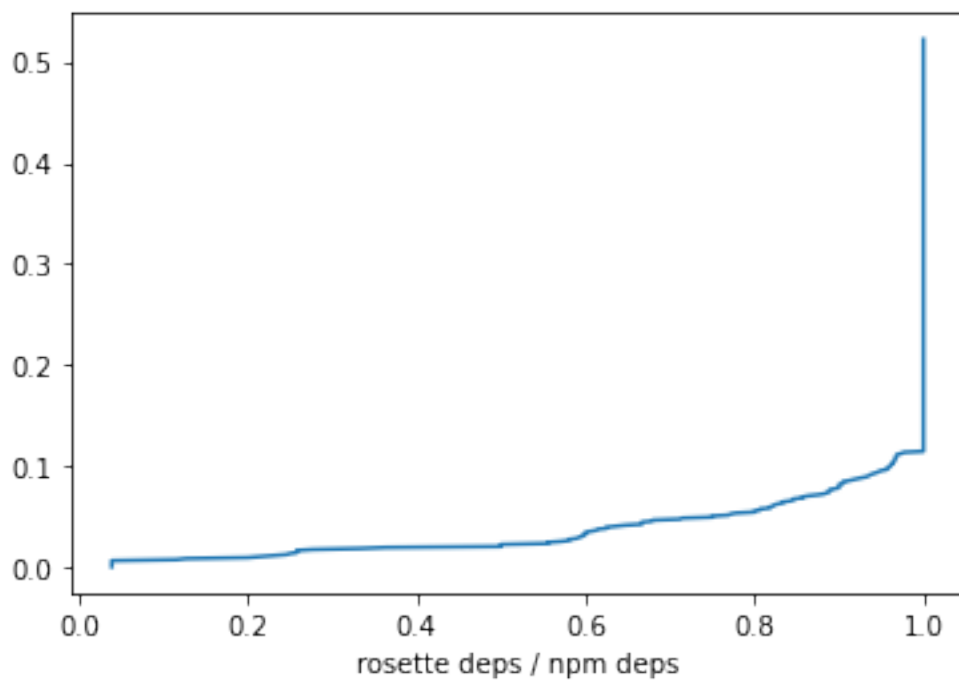


```
[ ]: plt.scatter(x=df['rosette_number_deps'], y=df['rosette time'], marker='.')
     plt.xlabel('rosette_number_deps') #x label
     plt.ylabel('rosette time') #y label
     plt.xlim([0, 100])
     plt.ylim([0, 20])
     plt.show()
```

```
[ ]: plt.scatter(x=df['npm_number_deps'], y=df['rosette_number_deps'], marker='.')
plt.plot([0, 100], [0, 100], color='r')
plt.xlabel('npm_number_deps') #x label
plt.ylabel('rosette_number_deps') #y label
plt.xlim([0, 100])
plt.ylim([0, 100])
plt.show()
```

```
[ ]: plt.plot(np.sort(df['ratio_num_deps']), np.arange(1,␣
      ↪len(df['ratio_num_deps'])+1)/len(df['ratio_num_deps']))
     plt.xlabel('rosette deps / npm deps')
     plt.show()
```

```
df[(df['rosette success'] == False) & df['npm success']].
  ↪sort_values('npm_number_deps')
```

```
     index        project_name  npm success   npm time  \
968    968  @istanbuljs/load-nyc-config       True  10.088682
754    754                jest-each       True   0.935397
972    972         copy-concurrently       True   5.704619
942    942           @eslint/eslintrc       True   5.618146
976    976         move-concurrently       True   3.677404
815    815         crypto-browserify       True  12.945039
641    641          @jest/test-result       True   1.296059
679    679           @jest/fake-timers       True   1.516454
745    745          @jest/environment       True   2.529956
772    772              jest-watcher       True   1.671375
458    458              jest-resolve       True   1.301497
703    703       babel-plugin-istanbul       True   6.547545
872    872          node-libs-browser       True   1.522540
369    369                   eslint       True  13.370108
818    818        @jest/test-sequencer       True   4.738987
737    737             jest-jasmine2       True   5.406078
760    760               jest-runner       True   6.770424
727    727               jest-config       True   5.594669
744    744                     jest       True   6.263629

                                        npm solve npm error  \
968  {'node_modules/argparse': {'version': '1.0.10'…      None
754  {'node_modules/@jest/types': {'version': '27.2…      None
972  {'node_modules/aproba': {'version': '1.2.0', '…      None
942  {'node_modules/acorn': {'version': '8.5.0', 'r…      None
976  {'node_modules/aproba': {'version': '1.2.0', '…      None
815  {'node_modules/asn1.js': {'version': '5.4.1', …      None
641  {'node_modules/@babel/code-frame': {'version':…      None
679  {'node_modules/@babel/code-frame': {'version':…      None
745  {'node_modules/@babel/code-frame': {'version':…      None
772  {'node_modules/@babel/code-frame': {'version':…      None
458  {'node_modules/@jest/types': {'version': '27.2…      None
703  {'node_modules/@babel/code-frame': {'version':…      None
872  {'node_modules/asn1.js': {'version': '5.4.1', …      None
369  {'node_modules/@babel/code-frame': {'version':…      None
818  {'node_modules/@babel/code-frame': {'version':…      None
737  {'node_modules/@babel/code-frame': {'version':…      None
760  {'node_modules/@babel/code-frame': {'version':…      None
727  {'node_modules/@babel/code-frame': {'version':…      None
744  {'node_modules/@babel/code-frame': {'version':…      None
```

```
     rosette success   rosette time rosette solve  \
968          False     600.101990          None
754          False     600.101862          None
972          False     600.102401          None
942          False     600.102497          None
976          False     600.101760          None
815          False     600.102607          None
641          False     600.057264          None
679          False     600.101612          None
745          False     600.102027          None
772          False     600.102659          None
458          False     600.007192          None
703          False     600.102210          None
872          False     600.102099          None
369          False     600.102523          None
818          False     600.102362          None
737          False     600.101927          None
760          False     600.070308          None
727          False     600.101967          None
744          False     600.102560          None


                                          rosette error  npm_number_deps  \
968  {'stage': 'install timeout', 'command': 'npm i…           13.0
754  {'stage': 'install timeout', 'command': 'npm i…           22.0
972  {'stage': 'install timeout', 'command': 'npm i…           27.0
942  {'stage': 'install timeout', 'command': 'npm i…           28.0
976  {'stage': 'install timeout', 'command': 'npm i…           28.0
815  {'stage': 'install timeout', 'command': 'npm i…           43.0
641  {'stage': 'install timeout', 'command': 'npm i…           44.0
679  {'stage': 'install timeout', 'command': 'npm i…           46.0
745  {'stage': 'install timeout', 'command': 'npm i…           47.0
772  {'stage': 'install timeout', 'command': 'npm i…           50.0
458  {'stage': 'install timeout', 'command': 'npm i…           53.0
703  {'stage': 'install timeout', 'command': 'npm i…           79.0
872  {'stage': 'install timeout', 'command': 'npm i…           84.0
369  {'stage': 'install timeout', 'command': 'npm i…          116.0
818  {'stage': 'install timeout', 'command': 'npm i…          216.0
737  {'stage': 'install timeout', 'command': 'npm i…          220.0
760  {'stage': 'install timeout', 'command': 'npm i…          282.0
727  {'stage': 'install timeout', 'command': 'npm i…          301.0
744  {'stage': 'install timeout', 'command': 'npm i…          326.0


     rosette_number_deps  ratio_num_deps       ratio
968                  NaN             NaN   59.482692
754                  NaN             NaN  641.547508
972                  NaN             NaN  105.195883
942                  NaN             NaN  106.815038
```

```
976            NaN        NaN  163.186230
815            NaN        NaN   46.357729
641            NaN        NaN  462.986109
679            NaN        NaN  395.726948
745            NaN        NaN  237.198593
772            NaN        NaN  359.047279
458            NaN        NaN  461.013210
703            NaN        NaN   91.653008
872            NaN        NaN  394.145289
369            NaN        NaN   44.883895
818            NaN        NaN  126.630931
737            NaN        NaN  111.005042
760            NaN        NaN   88.631125
727            NaN        NaN  107.263183
744            NaN        NaN   95.807489
```

[ ]: