data

November 30, 2022

```
[ ]: import pandas as pd
     import numpy as np
```

```
[ ]: data = pd.read_csv('./movies_metadata.csv', index_col='id')
     data.columns
```

```
/tmp/ipykernel_190104/2173573420.py:1: DtypeWarning: Columns (10) have mixed
types. Specify dtype option on import or set low_memory=False.
  data = pd.read_csv('./movies_metadata.csv', index_col='id')
```

```
[ ]: Index(['adult', 'belongs_to_collection', 'budget', 'genres', 'homepage',
            'imdb_id', 'original_language', 'original_title', 'overview',
            'popularity', 'poster_path', 'production_companies',
            'production_countries', 'release_date', 'revenue', 'runtime',
            'spoken_languages', 'status', 'tagline', 'title', 'video',
            'vote_average', 'vote_count'],
           dtype='object')
```

```
[ ]: #Not helpful
     data = data.drop(['adult', 'belongs_to_collection', 'homepage',␣
      ↪'original_language', 'overview', 'poster_path', 'production_companies',␣
      ↪'spoken_languages', 'status', 'tagline', 'video', 'original_title',␣
      ↪'genres'], axis=1)
```

```
[ ]: #Preprocessing
     data['production_countries'].replace('[]', np.nan, inplace=True)
     data['budget'].replace('0', np.nan, inplace=True)
     data['revenue'].replace(0, np.nan, inplace=True)
     data['runtime'].replace(0, np.nan, inplace=True)
     data['vote_average'].replace(0, np.nan, inplace=True)
     data['vote_count'].replace(0, np.nan, inplace=True)
```

```
[ ]: #Dropping null values
     data.dropna(subset=['budget', 'imdb_id', 'revenue', 'runtime', 'title',␣
      ↪'vote_average', 'vote_count', 'production_countries', 'release_date'],␣
      ↪inplace=True)
```

```
[ ]: data.isnull().sum()
[ ]: budget                  0
     imdb_id                 0
     popularity              0
     production_countries    0
     release_date            0
     revenue                 0
     runtime                 0
     title                   0
     vote_average            0
     vote_count              0
     dtype: int64
```

```
[ ]: data.min()
```

```
/tmp/ipykernel_190104/927168777.py:1: FutureWarning: Dropping of nuisance
columns in DataFrame reductions (with 'numeric_only=None') is deprecated; in a
future version this will raise TypeError.  Select only valid columns before
calling the reduction.
  data.min()
```

```
[ ]: budget                                                         1
     imdb_id                                                tt0004972
     production_countries    [{'iso_3166_1': 'AE', 'name': 'United Arab Emi…
     release_date                                          1915-02-08
     revenue                                                      1.0
     runtime                                                     26.0
     title                                        (500) Days of Summer
     vote_average                                                 1.0
     vote_count                                                   1.0
     dtype: object
```

```
[ ]: data.max()
```

```
/tmp/ipykernel_190104/2904433368.py:1: FutureWarning: Dropping of nuisance
columns in DataFrame reductions (with 'numeric_only=None') is deprecated; in a
future version this will raise TypeError.  Select only valid columns before
calling the reduction.
  data.max()
```

```
[ ]: budget                                                    994000
     imdb_id                                                tt6673840
     production_countries    [{'iso_3166_1': 'ZA', 'name': 'South Africa'}]
     release_date                                          2017-08-04
     revenue                                             2787965087.0
     runtime                                                    338.0
     title                                                   Æon Flux
     vote_average                                                 9.1
```

```
vote_count                                                           14075.0
dtype: object
```

[ ]:
```
for i in range(data.release_date.size):
    data.release_date[i] = data.release_date[i][:4]
```

```
/tmp/ipykernel_190104/475231589.py:2: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  data.release_date[i] = data.release_date[i][:4]
```

[ ]:
```
#Fetching country names from long strings:  "[{'iso_3166_1': 'ZA', 'name':␣
 ↪'South Africa'}]"
import re

for i in range(data.production_countries.size):
    s = re.search("me': '", data.production_countries[i]).span()[0] + 6
    e = re.search("'}", data.production_countries[i]).span()[1] - 2
    data.production_countries[i] = data.production_countries[i][s:e]
    #print(data.production_countries[i])
```

```
/tmp/ipykernel_190104/1261689539.py:7: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-
docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy
  data.production_countries[i] = data.production_countries[i][s:e]
```

```
United States of America
United States of America
United States of America
United States of America
United States of America
United Kingdom
United States of America
United States of America
France
France
United Kingdom
United States of America
United States of America
United States of America
United States of America
```

Usable features:

```
- `budget`
- (look into preprocessing `genres` out of the data)
- (look into preprocessing `production_countries` out of the data) -  DONE
- `imdb_id` or `title` at the base
- `release_date` to release year
- `revenue`
- `runtime`
- `vote_average`
- `vote_count`
```

[ ]:
```
data.to_csv('./preprocessed_movies.csv')
```

[ ]:
```
newer = 0
older = 0
for i in range (data.budget.size):
    if int(data.budget[i])<int(data.revenue[i]) and int(data.vote_average[i]) >␣
 ↪6:
        newer += 1
    else:
        older +=1

print(newer, older)
```

```
1045 4261
```

MOVIE

BEFORE 2005 or AFTER 2005 : 2443 vs 2863

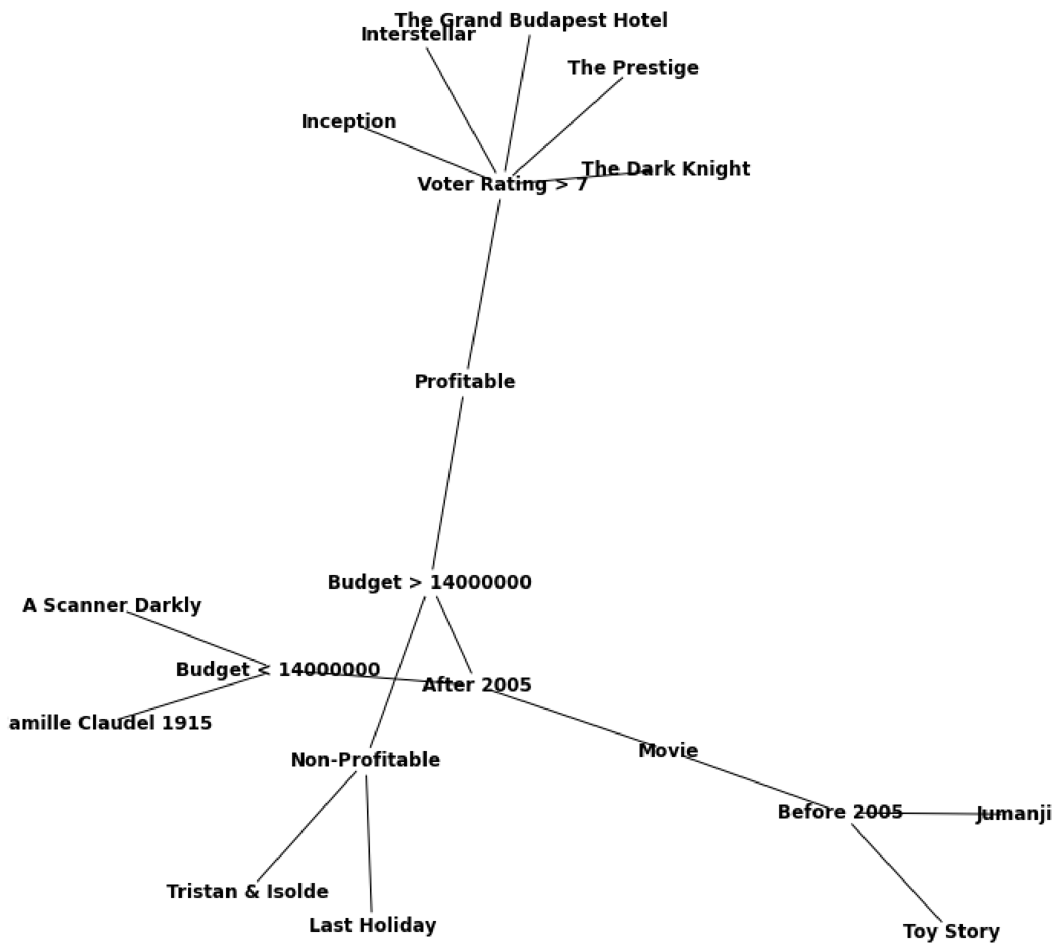
BUDGET > 14000000, < 14000000 : 2944 vs 2362

Profitable vs Non-profitable : 3732 vs 1574

VOTER RATING > 6 : 1045 vs 4261

0.0.1 SEE WHAT WE'RE TRYING TO DO

[ ]:
```
testData = data

import networkx as nx
import matplotlib.pyplot as plt

plt.figure(figsize = (10, 10))
G = nx.Graph()

#Basic Graph
G.add_nodes_from(['Movie', 'Before 2005', 'After 2005', 'Budget > 14000000',␣
 ↪'Budget < 14000000', 'Profitable', 'Non-Profitable', 'Voter Rating > 7'])
G.add_edges_from([
    ('Movie', 'Before 2005'),
    ('Movie', 'After 2005'),
    ('After 2005', 'Budget > 14000000'),
    ('After 2005', 'Budget < 14000000'),
    ('Budget > 14000000', 'Profitable'),
    ('Budget > 14000000', 'Non-Profitable'),
    ('Profitable', 'Voter Rating > 7'),
    ], weight = 2)

for i in range (testData.title.size):
    if (int(testData.vote_average[i]) > 7) and (int(testData.revenue[i]) >␣
 ↪int(testData.budget[i])) and (int(testData.budget[i]) > 14000000) and␣
 ↪(int(testData.release_date[i]) > 2005):
        G.add_edge('Voter Rating > 7', testData.title[i], weight=1)

counter = 0
for i in range (testData.title.size):
    if counter < 2:
        if (int(testData.revenue[i]) < int(testData.budget[i])) and␣
 ↪(int(testData.budget[i]) > 14000000) and (int(testData.release_date[i]) >␣
 ↪2005):
            G.add_edge('Non-Profitable', testData.title[i], weight=1)
            counter +=1

counter = 0
for i in range (testData.title.size):
    if counter < 2:
        if (int(testData.budget[i]) < 14000000) and (int(testData.
 ↪release_date[i]) > 2005):
            G.add_edge('Budget < 14000000', testData.title[i], weight=1)
            counter +=1

counter = 0
for i in range (testData.title.size):
    if counter < 2:
        if (int(testData.release_date[i]) < 2005):
            G.add_edge('Before 2005', testData.title[i], weight=1)
            counter +=1

nx.draw(G, with_labels=True, node_color='white', font_weight='bold')
```



[ ]:
```
testData = data
```

[ ]:
```
count = 0
for i in range (testData.title.size):
    if (int(testData.vote_average[i]) > 7) and (int(testData.revenue[i]) >␣
 ↪int(testData.budget[i])) and (int(testData.budget[i]) > 14000000) and␣
 ↪(int(testData.release_date[i]) > 2005):
        count += 1

print(count)
```

```
5
```

```
[ ]:
```