EjercicioS6

May 2, 2020

1 Proyecto Final: Sesión 6

[1]:
```
import pandas as pd
import numpy as np
import math

r_cols = ['user_id', 'movie_id', 'rating']
ratings = pd.read_csv("dataset_unido/u.data", sep='\t', names=r_cols,␣
 ↪usecols=range(3), encoding="ISO-8859-1")

m_cols = ['movie_id', 'title']
movies = pd.read_csv('dataset_unido/u.item', sep='|', names=m_cols,␣
 ↪usecols=range(2), encoding="ISO-8859-1")

# combinamos ambos datasets para tener el
ratings = pd.merge(movies, ratings)

# Pivotamos la tabla para que la matriz tenga : fila por usuario y columna por␣
 ↪pelicula
movieRatings = ratings.
 ↪pivot_table(index=['user_id'],columns=['title'],values='rating')
movieRatings.head(3)
```

[1]:
```
title    'Til There Was You (1997)  1-900 (1994)  101 Dalmatians (1996)  \
user_id
1                              NaN           NaN                    2.0
2                              NaN           NaN                    NaN
3                              NaN           NaN                    NaN

title    12 Angry Men (1957)  187 (1997)  2 Days in the Valley (1996)  \
user_id
1                        5.0         NaN                          NaN
2                        NaN         NaN                          NaN
3                        NaN         2.0                          NaN

title    20,000 Leagues Under the Sea (1954)  2001: A Space Odyssey (1968)  \
```

```
user_id
1                                        3.0                            4.0
2                                        NaN                            NaN
3                                        NaN                            NaN

title    3 Ninjas: High Noon At Mega Mountain (1998)  39 Steps, The (1935)  \
user_id
1                                                NaN                  NaN
2                                                1.0                  NaN
3                                                NaN                  NaN

title    …  Yankee Zulu (1994)  Year of the Horse (1997)  \
user_id  …
1        …                 NaN                       NaN
2        …                 NaN                       NaN
3        …                 NaN                       NaN

title    You So Crazy (1994)  Young Frankenstein (1974)  Young Guns (1988)  \
user_id
1                        NaN                        5.0                3.0
2                        NaN                        NaN                NaN
3                        NaN                        NaN                NaN

title    Young Guns II (1990)  Young Poisoner's Handbook, The (1995)  \
user_id
1                         NaN                                    NaN
2                         NaN                                    NaN
3                         NaN                                    NaN

title    Zeus and Roxanne (1997)  unknown  Á köldum klaka (Cold Fever) (1994)
user_id
1                            NaN      4.0                                 NaN
2                            NaN      NaN                                 NaN
3                            NaN      NaN                                 NaN

[3 rows x 1664 columns]
```

Rellenamos los valores no numéricos con ceros.

[2]:
```
df = movieRatings.fillna(0)
df.head(3)
```

[2]:
```
title    'Til There Was You (1997)  1-900 (1994)  101 Dalmatians (1996)  \
user_id
1                              0.0           0.0                    2.0
2                              0.0           0.0                    0.0
3                              0.0           0.0                    0.0
```

```
title    12 Angry Men (1957)  187 (1997)  2 Days in the Valley (1996)  \
user_id
1                        5.0         0.0                         0.0
2                        0.0         0.0                         0.0
3                        0.0         2.0                         0.0

title    20,000 Leagues Under the Sea (1954)  2001: A Space Odyssey (1968)  \
user_id
1                                        3.0                           4.0
2                                        0.0                           0.0
3                                        0.0                           0.0

title    3 Ninjas: High Noon At Mega Mountain (1998)  39 Steps, The (1935)  \
user_id
1                                                0.0                  0.0
2                                                1.0                  0.0
3                                                0.0                  0.0

title    …  Yankee Zulu (1994)  Year of the Horse (1997)  \
user_id  …
1        …                 0.0                       0.0
2        …                 0.0                       0.0
3        …                 0.0                       0.0

title    You So Crazy (1994)  Young Frankenstein (1974)  Young Guns (1988)  \
user_id
1                        0.0                        5.0                3.0
2                        0.0                        0.0                0.0
3                        0.0                        0.0                0.0

title    Young Guns II (1990)  Young Poisoner's Handbook, The (1995)  \
user_id
1                         0.0                                    0.0
2                         0.0                                    0.0
3                         0.0                                    0.0

title    Zeus and Roxanne (1997)  unknown  Á köldum klaka (Cold Fever) (1994)
user_id
1                            0.0      4.0                                0.0
2                            0.0      0.0                                0.0
3                            0.0      0.0                                0.0

[3 rows x 1664 columns]
```

[3]:
```
columna_seleccionada = df['101 Dalmatians (1996)']
columna_seleccionada
```

[3]:
```
user_id
1      2.0
2      0.0
3      0.0
4      0.0
5      2.0
      …
939    0.0
940    0.0
941    0.0
942    0.0
943    0.0
Name: 101 Dalmatians (1996), Length: 943, dtype: float64
```

[4]:
```
type(columna_seleccionada)
```

[4]:
```
pandas.core.series.Series
```

[5]:
```
columna_seleccionada_np = columna_seleccionada.to_numpy()
```

[6]:
```
type(columna_seleccionada_np)
```

[6]:
```
numpy.ndarray
```

Elevamos cada valor de la columna al número Pi

[7]:
```
np.power(columna_seleccionada_np, math.pi)
```

[7]:
```
array([  8.82497783,   0.        ,   0.        ,   0.        ,
         8.82497783,   0.        ,   0.        ,   0.        ,
         0.        ,   0.        ,   0.        ,   0.        ,
         8.82497783,   0.        ,  31.5442807 ,   0.        ,
         0.        ,   0.        ,   0.        ,   0.        ,
         0.        ,   0.        ,   0.        ,   0.        ,
         0.        ,   0.        ,   0.        ,   0.        ,
         0.        ,   0.        ,   0.        ,   0.        ,
         0.        ,   0.        ,   0.        ,   0.        ,
         0.        , 156.99254531,   0.        ,   0.        ,
         0.        ,   0.        ,   8.82497783,   0.        ,
        77.88023365,   0.        ,   0.        ,   0.        ,
         8.82497783,   0.        ,   0.        ,   0.        ,
         0.        ,   0.        ,   0.        ,   8.82497783,
        31.5442807 ,   0.        ,   0.        ,  31.5442807 ,
         0.        ,  31.5442807 ,   8.82497783,   0.        ,
         0.        ,   0.        ,   0.        ,   0.        ,
         0.        ,  31.5442807 ,   0.        ,   0.        ,
         0.        ,   0.        ,   8.82497783,   0.        ,
         0.        ,   0.        ,   0.        ,   0.        ,
```

```
 0.        ,  31.5442807 ,  31.5442807 ,  77.88023365,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,  31.5442807 ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
31.5442807 ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
31.5442807 ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,  77.88023365,   0.        ,
 1.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,  31.5442807 , 156.99254531,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
31.5442807 ,   0.        ,   1.        ,   0.        ,
 0.        ,  77.88023365,   0.        ,   0.        ,
77.88023365,   0.        ,   0.        ,   0.        ,
 0.        ,  31.5442807 ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  77.88023365,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   1.        ,  31.5442807 ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,  31.5442807 ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,  31.5442807 ,   0.        ,  77.88023365,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
```

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 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,   0.        ,   0.        ,  77.88023365,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
77.88023365,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,  77.88023365,   0.        ,  31.5442807 ,
 0.        ,  31.5442807 ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
77.88023365,  31.5442807 ,   0.        ,   0.        ,
 0.        ,  31.5442807 ,   0.        ,   0.        ,
31.5442807 ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,  31.5442807 ,   0.        ,
 1.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   1.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 8.82497783,   0.        ,   0.        ,   0.        ,
 0.        ,  77.88023365,  31.5442807 ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,  77.88023365,   0.        ,   0.        ,
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```
77.88023365,   0.        ,  31.5442807 ,   0.        ,
 0.        ,   0.        ,  31.5442807 ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        , 156.99254531,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,  77.88023365,   0.        ,
31.5442807 ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  77.88023365,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
77.88023365,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
31.5442807 ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
31.5442807 ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
77.88023365,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        , 156.99254531,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
77.88023365,   0.        ,   0.        ,   0.        ,
 1.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   1.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,  31.5442807 ,   0.        ,   0.        ,
31.5442807 ,   0.        ,   0.        ,   0.        ,
 0.        ,  77.88023365,   0.        ,   0.        ,
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 0.        ,   0.        ,   0.        ,   1.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 1.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   8.82497783,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
31.5442807 ,   0.        ,  31.5442807 ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
77.88023365,   0.        ,   0.        ,   8.82497783,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,  31.5442807 ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   1.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,  77.88023365,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,  77.88023365,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 1.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,  31.5442807 ,   0.        ,   0.        ,
```

```
 0.        ,   0.        ,   8.82497783,   0.        ,
31.5442807 ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   8.82497783,   0.        ,
 0.        ,   0.        ,   1.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   1.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,  31.5442807 ,
 0.        ,   0.        ,   0.        ,   1.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,  31.5442807 ,   0.        ,   0.        ,
 8.82497783, 156.99254531,   0.        ,   0.        ,
31.5442807 ,   0.        ,  77.88023365,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   1.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        , 156.99254531,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ,   8.82497783,
 0.        ,   8.82497783,   0.        ,   0.        ,
 8.82497783,  77.88023365,   0.        ,   0.        ,
 0.        ,   0.        ,   0.        ])
```