```
import pandas as pd

movies = pd.read_csv(r'C:\Users\arenu\OneDrive\Desktop\movie.csv',
sep=',')
movies
```

```
       movieId                                     title  \
0            1                         Toy Story (1995)
1            2                           Jumanji (1995)
2            3                  Grumpier Old Men (1995)
3            4                 Waiting to Exhale (1995)
4            5       Father of the Bride Part II (1995)
...        ...                                       ...
27273   131254             Kein Bund für's Leben (2007)
27274   131256            Feuer, Eis & Dosenbier (2002)
27275   131258                       The Pirates (2014)
27276   131260                     Rentun Ruusu (2001)
27277   131262                         Innocence (2014)

                                              genres
0      Adventure|Animation|Children|Comedy|Fantasy
1                        Adventure|Children|Fantasy
2                                     Comedy|Romance
3                              Comedy|Drama|Romance
4                                           Comedy
...                                            ...
27273                                       Comedy
27274                                       Comedy
27275                                    Adventure
27276                          (no genres listed)
27277                      Adventure|Fantasy|Horror

[27278 rows x 3 columns]
```

```
print(type(movies))
```

```
<class 'pandas.core.frame.DataFrame'>
```

```
movies.head(20)
```

```
    movieId                                     title  \
0         1                         Toy Story (1995)
1         2                           Jumanji (1995)
2         3                  Grumpier Old Men (1995)
3         4                 Waiting to Exhale (1995)
4         5       Father of the Bride Part II (1995)
5         6                              Heat (1995)
6         7                           Sabrina (1995)
7         8                       Tom and Huck (1995)
8         9                       Sudden Death (1995)
9        10                          GoldenEye (1995)
```

```
10       11         American President, The (1995)
11       12     Dracula: Dead and Loving It (1995)
12       13                            Balto (1995)
13       14                            Nixon (1995)
14       15                Cutthroat Island (1995)
15       16                           Casino (1995)
16       17           Sense and Sensibility (1995)
17       18                        Four Rooms (1995)
18       19  Ace Ventura: When Nature Calls (1995)
19       20                      Money Train (1995)
```

```
                                        genres
0   Adventure|Animation|Children|Comedy|Fantasy
1                     Adventure|Children|Fantasy
2                                Comedy|Romance
3                          Comedy|Drama|Romance
4                                        Comedy
5                         Action|Crime|Thriller
6                                Comedy|Romance
7                           Adventure|Children
8                                        Action
9                     Action|Adventure|Thriller
10                         Comedy|Drama|Romance
11                               Comedy|Horror
12                 Adventure|Animation|Children
13                                        Drama
14                    Action|Adventure|Romance
15                                 Crime|Drama
16                              Drama|Romance
17                                       Comedy
18                                       Comedy
19           Action|Comedy|Crime|Drama|Thriller
```

```
tags = pd.read_csv(r'C:\Users\arenu\OneDrive\Desktop\tag.csv',
sep=',')
tags.head()
```

```
   userId  movieId            tag            timestamp
0      18     4141    Mark Waters  2009-04-24 18:19:40
1      65      208      dark hero  2013-05-10 01:41:18
2      65      353      dark hero  2013-05-10 01:41:19
3      65      521  noir thriller  2013-05-10 01:39:43
4      65      592      dark hero  2013-05-10 01:41:18
```

```
ratings = pd.read_csv(r'C:\Users\arenu\OneDrive\Desktop\rating.csv',
sep=',', parse_dates=['timestamp'])
ratings
```

```
          userId  movieId  rating           timestamp
0              1        2     3.5 2005-04-02 23:53:47
```

```
1              1       29     3.5 2005-04-02 23:31:16
2              1       32     3.5 2005-04-02 23:33:39
3              1       47     3.5 2005-04-02 23:32:07
4              1       50     3.5 2005-04-02 23:29:40
...          ...      ...     ...                 ...
20000258  138493    68954     4.5 2009-11-13 15:42:00
20000259  138493    69526     4.5 2009-12-03 18:31:48
20000260  138493    69644     3.0 2009-12-07 18:10:57
20000261  138493    70286     5.0 2009-11-13 15:42:24
20000262  138493    71619     2.5 2009-10-17 20:25:36

[20000263 rows x 4 columns]
```

```
ratings.head(3)
```

```
   userId  movieId  rating            timestamp
0       1        2     3.5 2005-04-02 23:53:47
1       1       29     3.5 2005-04-02 23:31:16
2       1       32     3.5 2005-04-02 23:33:39
```

```
del ratings['timestamp']
del tags['timestamp']
```

```
ratings
```

```
          userId  movieId  rating
0              1        2     3.5
1              1       29     3.5
2              1       32     3.5
3              1       47     3.5
4              1       50     3.5
...          ...      ...     ...
20000258  138493    68954     4.5
20000259  138493    69526     4.5
20000260  138493    69644     3.0
20000261  138493    70286     5.0
20000262  138493    71619     2.5

[20000263 rows x 3 columns]
```

```
row_0 = tags.iloc[0]
type(row_0)
```

```
pandas.core.series.Series
```

```
row_1 = tags.iloc[2]
type(row_1)
```

```
pandas.core.series.Series
```

```
print(row_0)
```

```
userId              18
movieId           4141
tag        Mark Waters
Name: 0, dtype: object
```

```
row_0.index
```

```
Index(['userId', 'movieId', 'tag'], dtype='object')
```

```
row_0['userId']
```

```
18
```

```
'rating' in row_0
```

```
False
```

```
row_0.name
```

```
0
```

```
row_0 = row_0.rename('firstRow')
row_0.name
```

```
'firstRow'
```

```
tags.head()
```

```
   userId  movieId            tag
0      18     4141    Mark Waters
1      65      208      dark hero
2      65      353      dark hero
3      65      521  noir thriller
4      65      592      dark hero
```

```
tags.index
```

```
RangeIndex(start=0, stop=465564, step=1)
```

```
tags.columns
```

```
Index(['userId', 'movieId', 'tag'], dtype='object')
```

```
tags.iloc[ [0,11,500] ]
```

```
     userId  movieId                tag
0        18     4141        Mark Waters
11       65     1783      noir thriller
500     342    55908  entirely dialogue
```

```
ratings['rating'].describe()  #it gives all the statistical values
which describes every function in the dataset
```

```
count    2.000026e+07
mean     3.525529e+00
std      1.051989e+00
min      5.000000e-01
25%      3.000000e+00
50%      3.500000e+00
75%      4.000000e+00
max      5.000000e+00
Name: rating, dtype: float64
```

```
ratings.describe()
```

```
             userId       movieId        rating
count  2.000026e+07  2.000026e+07  2.000026e+07
mean   6.904587e+04  9.041567e+03  3.525529e+00
std    4.003863e+04  1.978948e+04  1.051989e+00
min    1.000000e+00  1.000000e+00  5.000000e-01
25%    3.439500e+04  9.020000e+02  3.000000e+00
50%    6.914100e+04  2.167000e+03  3.500000e+00
75%    1.036370e+05  4.770000e+03  4.000000e+00
max    1.384930e+05  1.312620e+05  5.000000e+00
```

```
ratings['rating'].mean()
```

```
3.5255285642993797
```

```
ratings.mean()
```

```
userId     69045.872583
movieId     9041.567330
rating         3.525529
dtype: float64
```

```
ratings['rating'].min()
```

```
0.5
```

```
ratings['rating'].max()
```

```
5.0
```

```
ratings['rating'].std()
```

```
1.051988919275684
```

```
ratings['rating'].mode()
```

```
0    4.0
Name: rating, dtype: float64
```

```
ratings.corr()          #ratings.corr() will return a correlation
matrix showing the correlation coefficients between all pairs of
columns in ratings.
```

```
           userId   movieId    rating
userId   1.000000 -0.000850  0.001175
movieId -0.000850  1.000000  0.002606
rating   0.001175  0.002606  1.000000
```

```
filter1 = ratings['rating'] > 10
print(filter1)
filter1.any()
```

```
0           False
1           False
2           False
3           False
4           False
            ...
20000258    False
20000259    False
20000260    False
20000261    False
20000262    False
Name: rating, Length: 20000263, dtype: bool
```

```
False
```

```
filter2 = ratings['rating'] > 0
filter2.all()
```

```
True
```

```
movies.shape
```

```
(27278, 3)
```

```
movies.isnull().any().any()
```

```
False
```

```
ratings.shape
```

```
(20000263, 3)
```

```
ratings.isnull().any().any()
```

```
False
```

```
tags.shape
```

```
(465564, 3)
```

```
tags.isnull().any().any()
```

```
True
```

```
tags=tags.dropna()
```

```
tags.isnull().any().any()
```

```
False
```

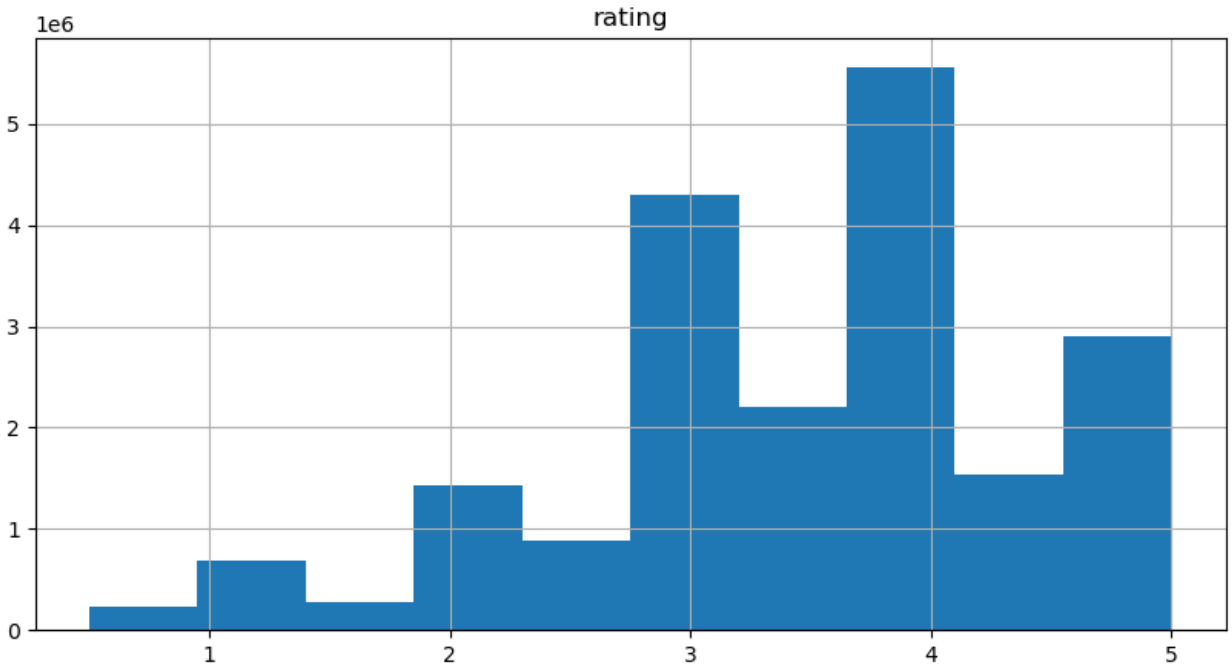
```
tags.shape
```

```
(465548, 3)
```

```
%matplotlib inline
```

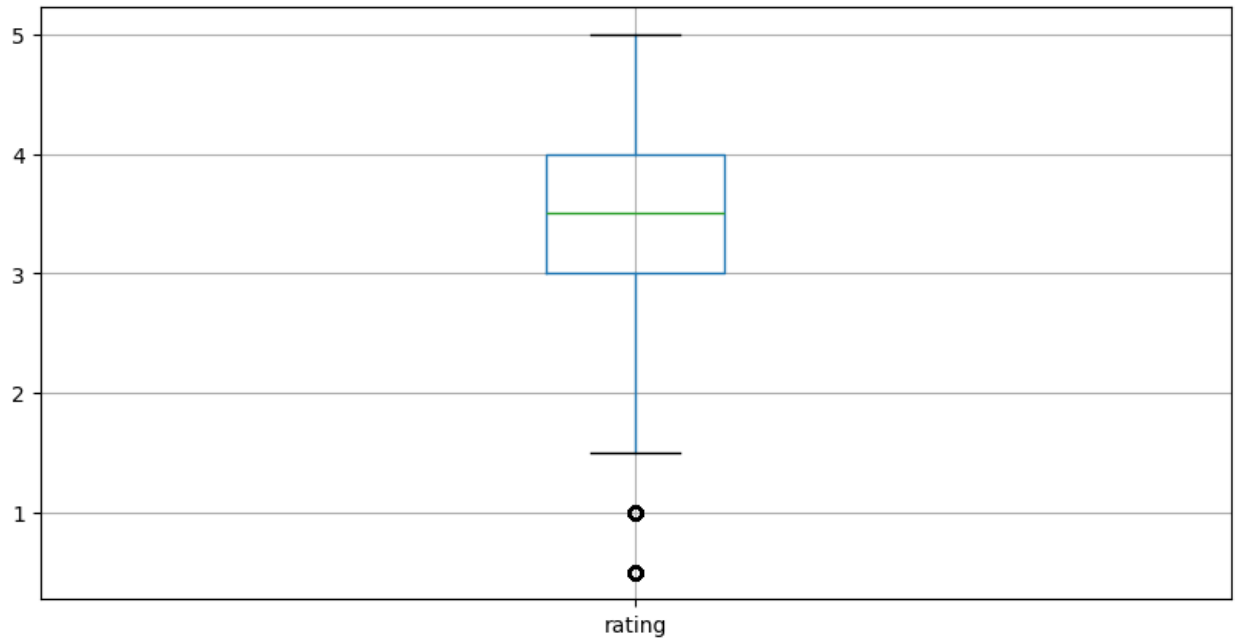
```
ratings.hist(column='rating', figsize=(10,5))
```

```
array([[<Axes: title={'center': 'rating'}>]], dtype=object)
```




```
ratings.boxplot(column='rating', figsize=(10,5))
```

```
<Axes: >
```




```
tags['tag'].head()
```

```
0      Mark Waters
1        dark hero
2        dark hero
3    noir thriller
4        dark hero
Name: tag, dtype: object
```

```
movies[['title','genres']].head()
```

```
                                title  \
0                    Toy Story (1995)
1                      Jumanji (1995)
2             Grumpier Old Men (1995)
3            Waiting to Exhale (1995)
4  Father of the Bride Part II (1995)

                                        genres
0  Adventure|Animation|Children|Comedy|Fantasy
1                   Adventure|Children|Fantasy
2                              Comedy|Romance
3                        Comedy|Drama|Romance
4                                      Comedy
```

```
ratings[-10:]
```

```
          userId  movieId  rating
20000253  138493    60816     4.5
20000254  138493    61160     4.0
20000255  138493    65682     4.5
```

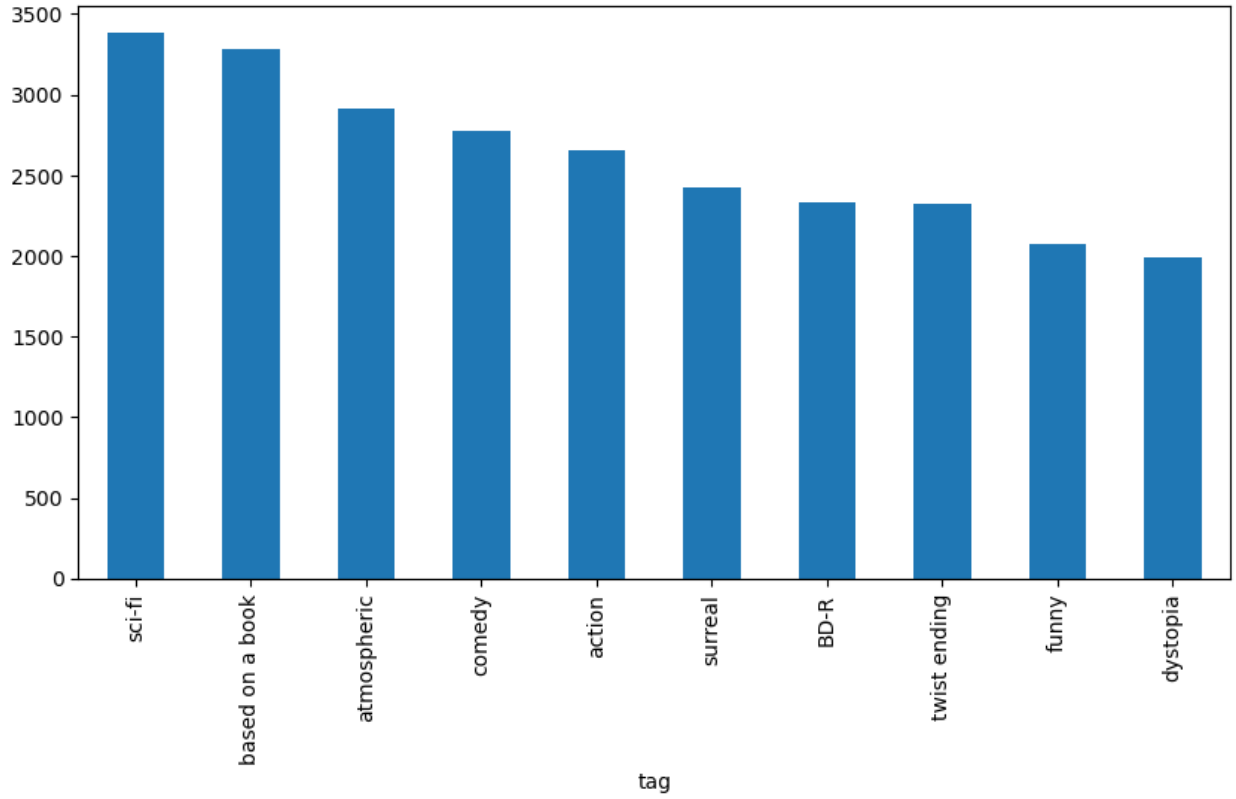
```
20000256  138493    66762     4.5
20000257  138493    68319     4.5
20000258  138493    68954     4.5
20000259  138493    69526     4.5
20000260  138493    69644     3.0
20000261  138493    70286     5.0
20000262  138493    71619     2.5
```

```
tag_counts = tags['tag'].value_counts()
tag_counts[-10:]
```

```
tag
missing child                     1
Ron Moore                         1
Citizen Kane                      1
mullet                            1
biker gang                        1
Paul Adelstein                    1
the wig                           1
killer fish                       1
genetically modified monsters     1
topless scene                     1
Name: count, dtype: int64
```

```
tag_counts[:10].plot(kind='bar', figsize=(10,5))
```

```
<Axes: xlabel='tag'>
```


3500
3000
2500
2000
1500
1000
500
0
sci-fi
based on a book
atmospheric
comedy
action
surreal
BD-R
twist ending
funny
dystopia
tag