More important function

```python
# value_counts
# sort_values
# rank
# sort index
# set index
# rename index -> rename
# reset index
# unique & nunique
# isnull/notnull/hasnans
# dropna
# fillna
# drop_duplicates
# drop
# apply
# isin
# corr
# nlargest -> nsmallest
# insert
# copy

import numpy as np
import pandas as pd

a = pd.Series([1,1,1,2,2,3])
a.value_counts()
```

```
1    3
2    2
3    1
Name: count, dtype: int64
```

```python
# value_counts(series and dataframe)  # frequency batata hai ye
batayega ki data frame me kon kon se rows repeate hua hai


marks = pd.DataFrame([
    [100,80,10],
    [90,70,7],
    [120,100,14],
    [80,70,14],
    [80,70,14]
],columns=['iq','marks','package'])

marks
```

```
     iq  marks  package
0   100     80       10
1    90     70        7
```

```
2   120     100        14
3    80      70        14
4    80      70        14
```

```
marks.value_counts()
```

```
iq   marks  package
80   70     14          2
90   70     7           1
100  80     10          1
120  100    14          1
Name: count, dtype: int64
```

```
ipl=pd.read_csv("ipl-matches.csv")
ipl
```

```
            ID        City         Date    Season   MatchNumber  \
0      1312200   Ahmedabad   2022-05-29      2022         Final
1      1312199   Ahmedabad   2022-05-27      2022   Qualifier 2
2      1312198     Kolkata   2022-05-25      2022     Eliminator
3      1312197     Kolkata   2022-05-24      2022   Qualifier 1
4      1304116      Mumbai   2022-05-22      2022            70
..         ...         ...          ...       ...           ...
945     335986     Kolkata   2008-04-20   2007/08             4
946     335985      Mumbai   2008-04-20   2007/08             5
947     335984       Delhi   2008-04-19   2007/08             3
948     335983  Chandigarh   2008-04-19   2007/08             2
949     335982   Bangalore   2008-04-18   2007/08             1
```

```
                          Team1                          Team2  \
0               Rajasthan Royals                 Gujarat Titans
1    Royal Challengers Bangalore               Rajasthan Royals
2    Royal Challengers Bangalore            Lucknow Super Giants
3               Rajasthan Royals                 Gujarat Titans
4             Sunrisers Hyderabad                   Punjab Kings
..                          ...                            ...
945         Kolkata Knight Riders                Deccan Chargers
946                Mumbai Indians    Royal Challengers Bangalore
947               Delhi Daredevils               Rajasthan Royals
948                Kings XI Punjab            Chennai Super Kings
949   Royal Challengers Bangalore          Kolkata Knight Riders
```

```
                                  Venue
TossWinner  \
0              Narendra Modi Stadium, Ahmedabad                  Rajasthan
Royals
1              Narendra Modi Stadium, Ahmedabad                  Rajasthan
Royals
2                         Eden Gardens, Kolkata        Lucknow Super
Giants
```

```
3                               Eden Gardens, Kolkata                     Gujarat
Titans
4                          Wankhede Stadium, Mumbai                Sunrisers
Hyderabad
..                                                   ...
...
945                                   Eden Gardens                  Deccan
Chargers
946                               Wankhede Stadium                 Mumbai
Indians
947                               Feroz Shah Kotla               Rajasthan
Royals
948  Punjab Cricket Association Stadium, Mohali         Chennai Super
Kings
949                         M Chinnaswamy Stadium  Royal Challengers
Bangalore

    TossDecision SuperOver                  WinningTeam    WonBy
Margin  \
0            bat         N              Gujarat Titans  Wickets
7.0
1          field         N             Rajasthan Royals  Wickets
7.0
2          field         N  Royal Challengers Bangalore      Runs
14.0
3          field         N              Gujarat Titans  Wickets
7.0
4            bat         N                 Punjab Kings  Wickets
5.0
..           ...       ...                          ...      ...      .
..
945          bat         N          Kolkata Knight Riders  Wickets
5.0
946          bat         N  Royal Challengers Bangalore  Wickets
5.0
947          bat         N             Delhi Daredevils  Wickets
9.0
948          bat         N          Chennai Super Kings      Runs
33.0
949        field         N          Kolkata Knight Riders      Runs
140.0

    method Player_of_Match
Team1Players  \
0     NaN       HH Pandya  ['YBK Jaiswal', 'JC Buttler', 'SV Samson',
'D ...
1     NaN       JC Buttler  ['V Kohli', 'F du Plessis', 'RM Patidar',
'GJ ...
2     NaN       RM Patidar  ['V Kohli', 'F du Plessis', 'RM Patidar',
```

```
                                              'GJ ...
3          NaN        DA Miller  ['YBK Jaiswal', 'JC Buttler', 'SV Samson',
'D ...
4          NaN    Harpreet Brar  ['PK Garg', 'Abhishek Sharma', 'RA
Tripathi', ...
..         ...              ...
...
945        NaN        DJ Hussey  ['WP Saha', 'BB McCullum', 'RT Ponting',
'SC G...
946        NaN       MV Boucher  ['L Ronchi', 'ST Jayasuriya', 'DJ
Thornely', '...
947        NaN      MF Maharoof  ['G Gambhir', 'V Sehwag', 'S Dhawan', 'MK
Tiwa...
948        NaN      MEK Hussey  ['K Goel', 'JR Hopes', 'KC Sangakkara',
'Yuvra...
949        NaN      BB McCullum  ['R Dravid', 'W Jaffer', 'V Kohli', 'JH
Kallis...

                                          Team2Players         Umpire1
\
0     ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...      CB Gaffaney

1     ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...      CB Gaffaney

2     ['Q de Kock', 'KL Rahul', 'M Vohra', 'DJ Hooda...    J Madanagopal

3     ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...      BNJ Oxenford

4     ['JM Bairstow', 'S Dhawan', 'M Shahrukh Khan',...      AK Chaudhary

..                                                 ...              ...

945   ['AC Gilchrist', 'Y Venugopal Rao', 'VVS Laxma...        BF Bowden

946   ['S Chanderpaul', 'R Dravid', 'LRPL Taylor', '...         SJ Davis

947   ['T Kohli', 'YK Pathan', 'SR Watson', 'M Kaif'...        Aleem Dar

948   ['PA Patel', 'ML Hayden', 'MEK Hussey', 'MS Dh...        MR Benson

949   ['SC Ganguly', 'BB McCullum', 'RT Ponting', 'D...        Asad Rauf


             Umpire2
0        Nitin Menon
1        Nitin Menon
2          MA Gough
3          VK Sharma
4      NA Patwardhan
..             ...
```

```
945        K Hariharan
946         DJ Harper
947   GA Pratapkumar
948        SL Shastri
949       RE Koertzen

[950 rows x 20 columns]

# find which player has won most man of the match award in
semifinal(Qualifiers) and finals
ipl[~ipl['MatchNumber'].str.isdigit()]
['Player_of_Match'].value_counts()

Player_of_Match
KA Pollard            3
F du Plessis          3
SK Raina              3
A Kumble              2
MK Pandey             2
YK Pathan             2
M Vijay               2
JJ Bumrah             2
AB de Villiers        2
SR Watson             2
HH Pandya             1
Harbhajan Singh       1
A Nehra               1
V Sehwag              1
UT Yadav              1
MS Bisla              1
BJ Hodge              1
MEK Hussey            1
MS Dhoni              1
CH Gayle              1
MM Patel              1
DE Bollinger          1
AC Gilchrist          1
RG Sharma             1
DA Warner             1
MC Henriques          1
JC Buttler            1
RM Patidar            1
DA Miller             1
VR Iyer               1
SP Narine             1
RD Gaikwad            1
TA Boult              1
MP Stoinis            1
KS Williamson         1
RR Pant               1
```

```
SA Yadav               1
Rashid Khan            1
AD Russell             1
KH Pandya              1
KV Sharma              1
NM Coulter-Nile        1
Washington Sundar      1
BCJ Cutting            1
M Ntini                1
Name: count, dtype: int64
```

```python
# Toss decision plot
ipl.head()
```

```
        ID       City       Date Season   MatchNumber  \
0  1312200  Ahmedabad  2022-05-29   2022         Final
1  1312199  Ahmedabad  2022-05-27   2022   Qualifier 2
2  1312198    Kolkata  2022-05-25   2022    Eliminator
3  1312197    Kolkata  2022-05-24   2022   Qualifier 1
4  1304116     Mumbai  2022-05-22   2022            70

                        Team1                 Team2  \
0            Rajasthan Royals       Gujarat Titans
1  Royal Challengers Bangalore      Rajasthan Royals
2  Royal Challengers Bangalore  Lucknow Super Giants
3            Rajasthan Royals       Gujarat Titans
4          Sunrisers Hyderabad          Punjab Kings

                          Venue            TossWinner TossDecision
\
0  Narendra Modi Stadium, Ahmedabad      Rajasthan Royals           bat

1  Narendra Modi Stadium, Ahmedabad      Rajasthan Royals         field

2          Eden Gardens, Kolkata  Lucknow Super Giants         field

3          Eden Gardens, Kolkata        Gujarat Titans         field

4       Wankhede Stadium, Mumbai   Sunrisers Hyderabad           bat


  SuperOver                WinningTeam    WonBy  Margin method  \
0         N              Gujarat Titans  Wickets     7.0    NaN
1         N            Rajasthan Royals  Wickets     7.0    NaN
2         N  Royal Challengers Bangalore     Runs    14.0    NaN
3         N              Gujarat Titans  Wickets     7.0    NaN
4         N                Punjab Kings  Wickets     5.0    NaN

  Player_of_Match
Team1Players  \
0       HH Pandya  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
```

```
1        JC Buttler   ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...

2        RM Patidar   ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...

3         DA Miller   ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...

4      Harpreet Brar  ['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...


                                         Team2Players          Umpire1  \
0  ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...    CB Gaffaney
1  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...    CB Gaffaney
2  ['Q de Kock', 'KL Rahul', 'M Vohra', 'DJ Hooda...  J Madanagopal
3  ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...    BNJ Oxenford
4  ['JM Bairstow', 'S Dhawan', 'M Shahrukh Khan',...    AK Chaudhary

          Umpire2
0    Nitin Menon
1    Nitin Menon
2        MA Gough
3      VK Sharma
4  NA Patwardhan
```
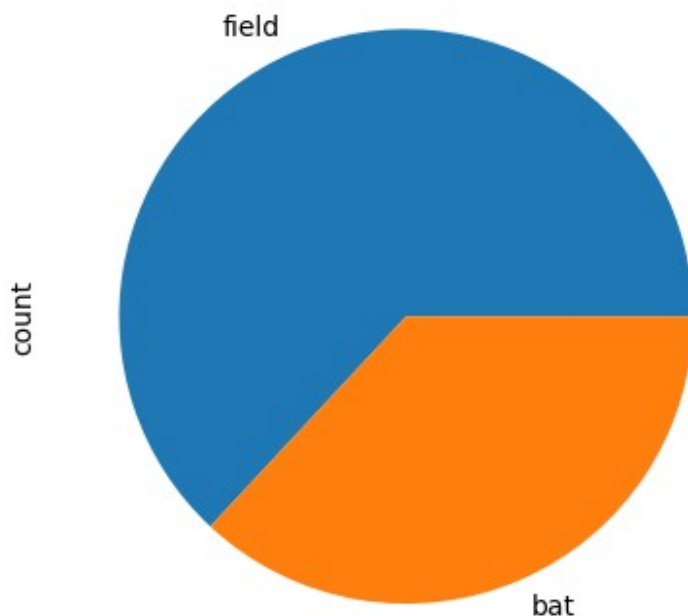
```python
ipl['TossDecision'].value_counts().plot(kind='pie')
```

```
<Axes: ylabel='count'>
```

```python
## how many matches each team has played
ipl.head()
```

```
        ID       City         Date  Season   MatchNumber  \
0  1312200  Ahmedabad  2022-05-29    2022         Final
1  1312199  Ahmedabad  2022-05-27    2022   Qualifier 2
2  1312198    Kolkata  2022-05-25    2022     Eliminator
3  1312197    Kolkata  2022-05-24    2022   Qualifier 1
4  1304116     Mumbai  2022-05-22    2022            70

                        Team1                 Team2  \
0           Rajasthan Royals       Gujarat Titans
1  Royal Challengers Bangalore     Rajasthan Royals
2  Royal Challengers Bangalore  Lucknow Super Giants
3           Rajasthan Royals       Gujarat Titans
4          Sunrisers Hyderabad         Punjab Kings

                          Venue            TossWinner TossDecision
\
0  Narendra Modi Stadium, Ahmedabad      Rajasthan Royals          bat

1  Narendra Modi Stadium, Ahmedabad      Rajasthan Royals        field

2            Eden Gardens, Kolkata  Lucknow Super Giants        field

3            Eden Gardens, Kolkata        Gujarat Titans        field

4         Wankhede Stadium, Mumbai   Sunrisers Hyderabad          bat

  SuperOver              WinningTeam    WonBy  Margin method  \
0         N            Gujarat Titans  Wickets     7.0    NaN
1         N          Rajasthan Royals  Wickets     7.0    NaN
2         N  Royal Challengers Bangalore    Runs    14.0    NaN
3         N            Gujarat Titans  Wickets     7.0    NaN
4         N              Punjab Kings  Wickets     5.0    NaN

  Player_of_Match
Team1Players  \
0       HH Pandya  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...

1      JC Buttler  ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...

2      RM Patidar  ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...

3        DA Miller  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...

4    Harpreet Brar  ['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...

                                   Team2Players        Umpire1  \
```

```
0  ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...      CB Gaffaney
1  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...      CB Gaffaney
2  ['Q de Kock', 'KL Rahul', 'M Vohra', 'DJ Hooda...  J Madanagopal
3  ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...     BNJ Oxenford
4  ['JM Bairstow', 'S Dhawan', 'M Shahrukh Khan',...     AK Chaudhary

        Umpire2
0    Nitin Menon
1    Nitin Menon
2       MA Gough
3      VK Sharma
4  NA Patwardhan
```

ipl['Team1'].value_counts()

```
Team1
Royal Challengers Bangalore    126
Mumbai Indians                 112
Chennai Super Kings            111
Kolkata Knight Riders          105
Kings XI Punjab                 92
Rajasthan Royals                89
Delhi Daredevils                85
Sunrisers Hyderabad             69
Deccan Chargers                 39
Delhi Capitals                  29
Pune Warriors                   23
Punjab Kings                    18
Gujarat Lions                   16
Lucknow Super Giants             8
Gujarat Titans                   7
Rising Pune Supergiant           7
Rising Pune Supergiants          7
Kochi Tuskers Kerala             7
Name: count, dtype: int64
```

ipl['Team2'].value_counts()

```
Team2
Mumbai Indians                 119
Kolkata Knight Riders          118
Rajasthan Royals               103
Royal Challengers Bangalore    100
Kings XI Punjab                 98
Chennai Super Kings             97
Sunrisers Hyderabad             83
Delhi Daredevils                76
Deccan Chargers                 36
Delhi Capitals                  34
Pune Warriors                   23
```

```
Gujarat Lions                  14
Punjab Kings                   10
Gujarat Titans                  9
Rising Pune Supergiant          9
Rising Pune Supergiants         7
Lucknow Super Giants            7
Kochi Tuskers Kerala            7
Name: count, dtype: int64
```

```python
ipl['Team1'].value_counts() + ipl['Team2'].value_counts()   # do
series ko add kar sakte hain agar index same ho to basically sare
arithmetic
# operation use kar sakte hain but dhyan rahe mainy values_count
function ko hum series pe mainly use karte hain
```

```
Chennai Super Kings           208
Deccan Chargers                75
Delhi Capitals                 63
Delhi Daredevils              161
Gujarat Lions                  30
Gujarat Titans                 16
Kings XI Punjab               190
Kochi Tuskers Kerala           14
Kolkata Knight Riders         223
Lucknow Super Giants           15
Mumbai Indians                231
Pune Warriors                  46
Punjab Kings                   28
Rajasthan Royals              192
Rising Pune Supergiant         16
Rising Pune Supergiants        14
Royal Challengers Bangalore   226
Sunrisers Hyderabad           152
Name: count, dtype: int64
```

```python
(ipl['Team1'].value_counts() +
ipl['Team2'].value_counts()).sort_values(ascending=False)
```

```
Mumbai Indians                231
Royal Challengers Bangalore   226
Kolkata Knight Riders         223
Chennai Super Kings           208
Rajasthan Royals              192
Kings XI Punjab               190
Delhi Daredevils              161
Sunrisers Hyderabad           152
Deccan Chargers                75
Delhi Capitals                 63
Pune Warriors                  46
Gujarat Lions                  30
```

```
Punjab Kings                        28
Gujarat Titans                      16
Rising Pune Supergiant              16
Lucknow Super Giants                15
Kochi Tuskers Kerala                14
Rising Pune Supergiants             14
Name: count, dtype: int64
```

```python
# sort_values(series and dataframe) -> ascending -> na_position ->
inplace -> multiple cols
```

```python
x = pd.Series([12,14,1,56,89])
x
```

```
0    12
1    14
2     1
3    56
4    89
dtype: int64
```

```python
x.sort_values(ascending=False)
```

```
4    89
3    56
1    14
0    12
2     1
dtype: int64
```

```python
movies=pd.read_csv('movies.csv')
movies.head()
```

```
                              title_x     imdb_id  \
0            Uri: The Surgical Strike  tt8291224
1                        Battalion 609  tt9472208
2   The Accidental Prime Minister (film)  tt6986710
3                      Why Cheat India  tt8108208
4                      Evening Shadows  tt6028796


                                      poster_path  \
0  https://upload.wikimedia.org/wikipedia/en/thum...
1                                            NaN
2  https://upload.wikimedia.org/wikipedia/en/thum...
3  https://upload.wikimedia.org/wikipedia/en/thum...
4                                            NaN


                                      wiki_link  \
0  https://en.wikipedia.org/wiki/Uri:_The_Surgica...
1        https://en.wikipedia.org/wiki/Battalion_609
2  https://en.wikipedia.org/wiki/The_Accidental_P...
```

```
3        https://en.wikipedia.org/wiki/Why_Cheat_India
4        https://en.wikipedia.org/wiki/Evening_Shadows

                            title_y                    original_title
is_adult  \
0        Uri: The Surgical Strike      Uri: The Surgical Strike
0
1                    Battalion 609                    Battalion 609
0
2  The Accidental Prime Minister  The Accidental Prime Minister
0
3                  Why Cheat India                  Why Cheat India
0
4                  Evening Shadows                  Evening Shadows
0

   year_of_release runtime          genres  imdb_rating  imdb_votes
\
0             2019     138  Action|Drama|War         8.4       35112

1             2019     131              War         4.1          73

2             2019     112  Biography|Drama         6.1        5549

3             2019     121      Crime|Drama         6.0        1891

4             2018     102            Drama         7.3         280


                                              story  \
0  Divided over five chapters  the film chronicle...
1  The story revolves around a cricket match betw...
2  Based on the memoir by Indian policy analyst S...
3  The movie focuses on existing malpractices in ...
4  While gay rights and marriage equality has bee...

                                            summary tagline  \
0  Indian army special forces execute a covert op...     NaN
1  The story of Battalion 609 revolves around a c...     NaN
2  Explores Manmohan Singh's tenure as the Prime ...     NaN
3  The movie focuses on existing malpractices in ...     NaN
4  Under the 'Evening Shadows'  truth often plays...     NaN

                                             actors
wins_nominations  \
0  Vicky Kaushal|Paresh Rawal|Mohit Raina|Yami Ga...
4 wins
1  Vicky Ahuja|Shoaib Ibrahim|Shrikant Kamat|Elen...
NaN
2  Anupam Kher|Akshaye Khanna|Aahana Kumra|Atul S...
```

```
NaN
3  Emraan Hashmi|Shreya Dhanwanthary|Snighdadeep ...
NaN
4  Mona Ambegaonkar|Ananth Narayan Mahadevan|Deva...    17 wins & 1
nomination

            release_date
0     11 January 2019 (USA)
1   11 January 2019 (India)
2     11 January 2019 (USA)
3     18 January 2019 (USA)
4   11 January 2019 (India)
```

```python
# sort single column
# suppose hum chahate hain ki title_x column sort ho jaye
movies.sort_values('title_x')
```

```
                    title_x      imdb_id  \
1498        16 December (film)  tt0313844
1021                1920 (film)  tt1301698
287                1920: London  tt5638500
723       1920: The Evil Returns  tt2222550
1039            1971 (2007 film)  tt0983990
...                        ...        ...
778     Zindagi Na Milegi Dobara  tt1562872
670            Zindagi Tere Naam  tt2164702
756                    Zokkomon  tt1605790
939         Zor Lagaa Ke...Haiya!  tt1479857
1623                    Zubeidaa  tt0255713

                                          poster_path  \
1498  https://upload.wikimedia.org/wikipedia/en/thum...
1021  https://upload.wikimedia.org/wikipedia/en/thum...
287   https://upload.wikimedia.org/wikipedia/en/thum...
723   https://upload.wikimedia.org/wikipedia/en/e/e7...
1039  https://upload.wikimedia.org/wikipedia/en/thum...
...                                                ...
778   https://upload.wikimedia.org/wikipedia/en/thum...
670   https://upload.wikimedia.org/wikipedia/en/thum...
756   https://upload.wikimedia.org/wikipedia/en/thum...
939   https://upload.wikimedia.org/wikipedia/en/thum...
1623  https://upload.wikimedia.org/wikipedia/en/thum...

                                          wiki_link  \
1498   https://en.wikipedia.org/wiki/16_December_(film)
1021         https://en.wikipedia.org/wiki/1920_(film)
287          https://en.wikipedia.org/wiki/1920_London
723    https://en.wikipedia.org/wiki/1920:_The_Evil_R...
1039     https://en.wikipedia.org/wiki/1971_(2007_film)
...                                                ...
```

```
778     https://en.wikipedia.org/wiki/Zindagi_Na_Mileg...
670      https://en.wikipedia.org/wiki/Zindagi_Tere_Naam
756               https://en.wikipedia.org/wiki/Zokkomon
939     https://en.wikipedia.org/wiki/Zor_Lagaa_Ke...H...
1623             https://en.wikipedia.org/wiki/Zubeidaa

                        title_y           original_title  is_adult  \
1498                     16-Dec                   16-Dec         0
1021                       1920                     1920         0
287                  1920 London              1920 London         0
723           1920: Evil Returns       1920: Evil Returns         0
1039                       1971                     1971         0
...                         ...                      ...       ...
778     Zindagi Na Milegi Dobara  Zindagi Na Milegi Dobara    0
670           Zindagi Tere Naam        Zindagi Tere Naam         0
756                    Zokkomon                 Zokkomon         0
939      Zor Lagaa Ke... Haiya!    Zor Lagaa Ke... Haiya!       0
1623                    Zubeidaa                 Zubeidaa         0

      year_of_release runtime                genres  imdb_rating  \
1498             2002     158         Action|Thriller          6.9
1021             2008     138   Horror|Mystery|Romance        6.4
287              2016     120          Horror|Mystery          4.1
723              2012     124    Drama|Horror|Romance          4.8
1039             2007     160         Action|Drama|War          7.9
...               ...     ...                    ...          ...
778              2011     155           Comedy|Drama          8.1
670              2012     120                Romance          4.7
756              2011     109        Action|Adventure          4.0
939              2009      \N     Comedy|Drama|Family          6.4
1623             2001     153  Biography|Drama|History          6.2

      imdb_votes                                       story  \
1498        1091  16 December  1971 was the day when India won t...
1021        2588  A devotee of Bhagwan Shri Hanuman  Arjun Singh...
287         1373  Shivangi (Meera Chopra) lives in London with h...
723         1587  This story revolves around a famous poet who m...
1039        1121  Based on true facts  the film revolves around ...
...          ...                                         ...
778        60826  Three friends decide to turn their fantasy vac...
670           27  Mr. Singh  an elderly gentleman  relates to hi...
756          274  After the passing of his parents in an acciden...
939           46  A tree narrates the story of four Mumbai-based...
1623        1384  The film begins with Riyaz (Rajat Kapoor)  Zub...

                                         summary  \
1498  Indian intelligence agents race against time t...
1021  After forsaking his family and religion  a hus...
287   After her husband is possessed by an evil spir...
723   This story revolves around a famous poet who m...
```

```
1039    Based on true facts  the film revolves around ...
...                                                      ...
778     Three friends decide to turn their fantasy vac...
670     Mr. Singh  an elderly gentleman  relates to hi...
756     An orphan is abused and abandoned  believed to...
939     Children build a tree-house to spy on a beggar...
1623    Zubeidaa  an aspiring Muslim actress  marries ...

                                              tagline  \
1498                                              NaN
1021    A Love Made in Heaven...A Revenge Born in Hell...
287                                   Fear strikes again
723                                   Possession is back
1039                            Honor the heroes.......
...                                                   ...
778                                               NaN
670                                               NaN
756                       Betrayal. Friendship. Bravery.
939                                               NaN
1623                            The Story of a Princess

                                               actors  \
1498    Danny Denzongpa|Gulshan Grover|Milind Soman|Di...
1021    Rajniesh Duggall|Adah Sharma|Anjori Alagh|Raj ...
287     Sharman Joshi|Meera Chopra|Vishal Karwal|Suren...
723     Vicky Ahuja|Tia Bajpai|Irma Jämhammar|Sharad K...
1039        Manoj Bajpayee|Ravi Kishan|Deepak Dobriyal|
...                                                   ...
778     Hrithik Roshan|Farhan Akhtar|Abhay Deol|Katrin...
670     Mithun Chakraborty|Ranjeeta Kaur|Priyanka Meht...
756     Darsheel Safary|Anupam Kher|Manjari Fadnnis|Ti...
939     Meghan Jadhav|Mithun Chakraborty|Riya Sen|Seem...
1623    Karisma Kapoor|Rekha|Manoj Bajpayee|Rajit Kapo...

            wins_nominations               release_date
1498           2 nominations       22 March 2002 (India)
1021                     NaN   12 September 2008 (India)
287                      NaN          6 May 2016 (USA)
723                      NaN    2 November 2012 (India)
1039                   1 win        9 March 2007 (India)
...                      ...                        ...
778     30 wins & 22 nominations      15 July 2011 (India)
670                    1 win       16 March 2012 (India)
756                      NaN       22 April 2011 (India)
939                      NaN                        NaN
1623    3 wins & 13 nominations    19 January 2001 (India)

[1629 rows x 18 columns]

movies.sort_values('title_x',ascending=False)
```

```
                    title_x      imdb_id  \
1623                Zubeidaa  tt0255713
939     Zor Lagaa Ke...Haiya!  tt1479857
756                 Zokkomon  tt1605790
670       Zindagi Tere Naam  tt2164702
778   Zindagi Na Milegi Dobara  tt1562872
...                      ...          ...
1039         1971 (2007 film)  tt0983990
723     1920: The Evil Returns  tt2222550
287             1920: London  tt5638500
1021            1920 (film)  tt1301698
1498        16 December (film)  tt0313844

                                        poster_path  \
1623  https://upload.wikimedia.org/wikipedia/en/thum...
939   https://upload.wikimedia.org/wikipedia/en/thum...
756   https://upload.wikimedia.org/wikipedia/en/thum...
670   https://upload.wikimedia.org/wikipedia/en/thum...
778   https://upload.wikimedia.org/wikipedia/en/thum...
...                                               ...
1039  https://upload.wikimedia.org/wikipedia/en/thum...
723   https://upload.wikimedia.org/wikipedia/en/e/e7...
287   https://upload.wikimedia.org/wikipedia/en/thum...
1021  https://upload.wikimedia.org/wikipedia/en/thum...
1498  https://upload.wikimedia.org/wikipedia/en/thum...

                                         wiki_link  \
1623            https://en.wikipedia.org/wiki/Zubeidaa
939    https://en.wikipedia.org/wiki/Zor_Lagaa_Ke...H...
756             https://en.wikipedia.org/wiki/Zokkomon
670     https://en.wikipedia.org/wiki/Zindagi_Tere_Naam
778    https://en.wikipedia.org/wiki/Zindagi_Na_Mileg...
...                                               ...
1039      https://en.wikipedia.org/wiki/1971_(2007_film)
723    https://en.wikipedia.org/wiki/1920:_The_Evil_R...
287          https://en.wikipedia.org/wiki/1920_London
1021          https://en.wikipedia.org/wiki/1920_(film)
1498   https://en.wikipedia.org/wiki/16_December_(film)

                       title_y              original_title  is_adult  \
1623                  Zubeidaa                    Zubeidaa         0
939      Zor Lagaa Ke... Haiya!      Zor Lagaa Ke... Haiya!         0
756                   Zokkomon                    Zokkomon         0
670         Zindagi Tere Naam         Zindagi Tere Naam         0
778   Zindagi Na Milegi Dobara   Zindagi Na Milegi Dobara         0
...                        ...                         ...       ...
1039                      1971                        1971         0
723         1920: Evil Returns         1920: Evil Returns         0
287               1920 London               1920 London         0
1021                      1920                        1920         0
```

```
1498                   16-Dec              16-Dec        0

      year_of_release  runtime              genres  imdb_rating  \
1623             2001      153  Biography|Drama|History          6.2
939              2009       \N     Comedy|Drama|Family          6.4
756              2011      109        Action|Adventure          4.0
670              2012      120                 Romance          4.7
778              2011      155            Comedy|Drama          8.1
...               ...      ...                     ...          ...
1039             2007      160        Action|Drama|War          7.9
723              2012      124    Drama|Horror|Romance          4.8
287              2016      120           Horror|Mystery          4.1
1021             2008      138  Horror|Mystery|Romance          6.4
1498             2002      158        Action|Thriller          6.9

      imdb_votes                                              story  \
1623        1384  The film begins with Riyaz (Rajat Kapoor)  Zub...
939           46  A tree narrates the story of four Mumbai-based...
756          274  After the passing of his parents in an acciden...
670           27  Mr. Singh  an elderly gentleman  relates to hi...
778        60826  Three friends decide to turn their fantasy vac...
...          ...                                                ...
1039        1121  Based on true facts  the film revolves around ...
723         1587  This story revolves around a famous poet who m...
287         1373  Shivangi (Meera Chopra) lives in London with h...
1021        2588  A devotee of Bhagwan Shri Hanuman  Arjun Singh...
1498        1091  16 December  1971 was the day when India won t...

                                                summary  \
1623  Zubeidaa  an aspiring Muslim actress  marries ...
939   Children build a tree-house to spy on a beggar...
756   An orphan is abused and abandoned  believed to...
670   Mr. Singh  an elderly gentleman  relates to hi...
778   Three friends decide to turn their fantasy vac...
...                                                 ...
1039  Based on true facts  the film revolves around ...
723   This story revolves around a famous poet who m...
287   After her husband is possessed by an evil spir...
1021  After forsaking his family and religion  a hus...
1498  Indian intelligence agents race against time t...

                         tagline  \
1623       The Story of a Princess
939                            NaN
756       Betrayal. Friendship. Bravery.
670                            NaN
778                            NaN
...                            ...
1039             Honor the heroes.......
723                   Possession is back
```

```
287                                              Fear strikes again
1021   A Love Made in Heaven...A Revenge Born in Hell...
1498                                                        NaN

                                                     actors  \
1623   Karisma Kapoor|Rekha|Manoj Bajpayee|Rajit Kapo...
939    Meghan Jadhav|Mithun Chakraborty|Riya Sen|Seem...
756    Darsheel Safary|Anupam Kher|Manjari Fadnnis|Ti...
670    Mithun Chakraborty|Ranjeeta Kaur|Priyanka Meht...
778    Hrithik Roshan|Farhan Akhtar|Abhay Deol|Katrin...
...                                                  ...
1039         Manoj Bajpayee|Ravi Kishan|Deepak Dobriyal|
723    Vicky Ahuja|Tia Bajpai|Irma Jämhammar|Sharad K...
287    Sharman Joshi|Meera Chopra|Vishal Karwal|Suren...
1021   Rajniesh Duggall|Adah Sharma|Anjori Alagh|Raj ...
1498   Danny Denzongpa|Gulshan Grover|Milind Soman|Di...

              wins_nominations              release_date
1623    3 wins & 13 nominations   19 January 2001 (India)
939                         NaN                       NaN
756                         NaN     22 April 2011 (India)
670                       1 win     16 March 2012 (India)
778    30 wins & 22 nominations      15 July 2011 (India)
...                         ...                       ...
1039                      1 win      9 March 2007 (India)
723                         NaN    2 November 2012 (India)
287                         NaN          6 May 2016 (USA)
1021                        NaN  12 September 2008 (India)
1498            2 nominations       22 March 2002 (India)

[1629 rows x 18 columns]

students = pd.DataFrame(
    {
        'name':
['nitish','ankit','rupesh',np.nan,'mrityunjay',np.nan,'rishabh',np.nan
,'aditya',np.nan],
        'college':
['bit','iit','vit',np.nan,np.nan,'vlsi','ssit',np.nan,np.nan,'git'],
        'branch':
['eee','it','cse',np.nan,'me','ce','civ','cse','bio',np.nan],
        'cgpa':[6.66,8.25,6.41,np.nan,5.6,9.0,7.4,10,7.4,np.nan],
        'package':[4,5,6,np.nan,6,7,8,9,np.nan,np.nan]

    }
)

students
```

```
        name college branch    cgpa  package
0      nitish     bit    eee    6.66      4.0
1       ankit     iit     it    8.25      5.0
2      rupesh     vit    cse    6.41      6.0
3         NaN     NaN    NaN     NaN      NaN
4  mrityunjay     NaN     me    5.60      6.0
5         NaN    vlsi     ce    9.00      7.0
6     rishabh    ssit    civ    7.40      8.0
7         NaN     NaN    cse   10.00      9.0
8      aditya     NaN    bio    7.40      NaN
9         NaN     git    NaN     NaN      NaN
```

abb dekhenge ki agar nan value par sorting lagayenge to kya hoga
=> missing values ko automatically last me le jata hai
students.sort_values('name')

```
        name college branch    cgpa  package
8      aditya     NaN    bio    7.40      NaN
1       ankit     iit     it    8.25      5.0
4  mrityunjay     NaN     me    5.60      6.0
0      nitish     bit    eee    6.66      4.0
6     rishabh    ssit    civ    7.40      8.0
2      rupesh     vit    cse    6.41      6.0
3         NaN     NaN    NaN     NaN      NaN
5         NaN    vlsi     ce    9.00      7.0
7         NaN     NaN    cse   10.00      9.0
9         NaN     git    NaN     NaN      NaN
```

students.sort_values('name',ascending=False) # ascending = False
karne par bhi nan value niche hi rah gya baki not-nan valuue
descending order me aa gya

```
        name college branch    cgpa  package
2      rupesh     vit    cse    6.41      6.0
6     rishabh    ssit    civ    7.40      8.0
0      nitish     bit    eee    6.66      4.0
4  mrityunjay     NaN     me    5.60      6.0
1       ankit     iit     it    8.25      5.0
8      aditya     NaN    bio    7.40      NaN
3         NaN     NaN    NaN     NaN      NaN
5         NaN    vlsi     ce    9.00      7.0
7         NaN     NaN    cse   10.00      9.0
9         NaN     git    NaN     NaN      NaN
```

# if you want ki nan value top me chale jaye to ....
na_position='first' kar do by default last hota hai
students.sort_values('name',na_position='first')

```
        name college branch    cgpa  package
3         NaN     NaN    NaN     NaN      NaN
5         NaN    vlsi     ce    9.00      7.0
```

```
7         NaN      NaN      cse   10.00        9.0
9         NaN      git      NaN     NaN        NaN
8      aditya      NaN      bio    7.40        NaN
1       ankit      iit       it    8.25        5.0
4  mrityunjay      NaN       me    5.60        6.0
0      nitish      bit      eee    6.66        4.0
6     rishabh     ssit      civ    7.40        8.0
2      rupesh      vit      cse    6.41        6.0
```

`students.sort_values(`'name'`,na_position=`'first'`,ascending=False)`

```
          name college branch    cgpa  package
3         NaN      NaN      NaN     NaN        NaN
5         NaN     vlsi       ce    9.00        7.0
7         NaN      NaN      cse   10.00        9.0
9         NaN      git      NaN     NaN        NaN
2      rupesh      vit      cse    6.41        6.0
6     rishabh     ssit      civ    7.40        8.0
0      nitish      bit      eee    6.66        4.0
4  mrityunjay      NaN       me    5.60        6.0
1       ankit      iit       it    8.25        5.0
8      aditya      NaN      bio    7.40        NaN
```

`students` *# => abhi sorting karne ke baad temporary change hua hai but if you want to aap permanemnt change bhi kar sakte ho by inplace=True parameter*

```
          name college branch    cgpa  package
0      nitish      bit      eee    6.66        4.0
1       ankit      iit       it    8.25        5.0
2      rupesh      vit      cse    6.41        6.0
3         NaN      NaN      NaN     NaN        NaN
4  mrityunjay      NaN       me    5.60        6.0
5         NaN     vlsi       ce    9.00        7.0
6     rishabh     ssit      civ    7.40        8.0
7         NaN      NaN      cse   10.00        9.0
8      aditya      NaN      bio    7.40        NaN
9         NaN      git      NaN     NaN        NaN
```

`students.sort_values(`'name'`,na_position=`'first'`,ascending=False ,inplace=True)`

`students`

```
          name college branch    cgpa  package
3         NaN      NaN      NaN     NaN        NaN
5         NaN     vlsi       ce    9.00        7.0
7         NaN      NaN      cse   10.00        9.0
9         NaN      git      NaN     NaN        NaN
2      rupesh      vit      cse    6.41        6.0
6     rishabh     ssit      civ    7.40        8.0
```

```
0        nitish        bit        eee        6.66        4.0
4    mrityunjay        NaN         me        5.60        6.0
1         ankit        iit         it        8.25        5.0
8        aditya        NaN        bio        7.40        NaN
```

sort multiple column
movies

```
                                    title_x        imdb_id  \
0              Uri: The Surgical Strike     tt8291224
1                        Battalion 609     tt9472208
2     The Accidental Prime Minister (film)     tt6986710
3                        Why Cheat India     tt8108208
4                        Evening Shadows     tt6028796
...                                  ...           ...
1624              Tera Mera Saath Rahen     tt0301250
1625              Yeh Zindagi Ka Safar     tt0298607
1626                    Sabse Bada Sukh     tt0069204
1627                              Daaka    tt10833860
1628                            Humsafar     tt2403201

                                            poster_path  \
0        https://upload.wikimedia.org/wikipedia/en/thum...
1                                                      NaN
2        https://upload.wikimedia.org/wikipedia/en/thum...
3        https://upload.wikimedia.org/wikipedia/en/thum...
4                                                      NaN
...                                                    ...
1624     https://upload.wikimedia.org/wikipedia/en/2/2b...
1625     https://upload.wikimedia.org/wikipedia/en/thum...
1626                                                   NaN
1627     https://upload.wikimedia.org/wikipedia/en/thum...
1628     https://upload.wikimedia.org/wikipedia/en/thum...

                                            wiki_link  \
0        https://en.wikipedia.org/wiki/Uri:_The_Surgica...
1             https://en.wikipedia.org/wiki/Battalion_609
2        https://en.wikipedia.org/wiki/The_Accidental_P...
3           https://en.wikipedia.org/wiki/Why_Cheat_India
4           https://en.wikipedia.org/wiki/Evening_Shadows
...                                                    ...
1624     https://en.wikipedia.org/wiki/Tera_Mera_Saath_...
1625     https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...
1626        https://en.wikipedia.org/wiki/Sabse_Bada_Sukh
1627                 https://en.wikipedia.org/wiki/Daaka
1628              https://en.wikipedia.org/wiki/Humsafar

                          title_y                    original_title
is_adult  \
0          Uri: The Surgical Strike        Uri: The Surgical Strike
```

```
0
1                  Battalion 609                      Battalion 609
0
2     The Accidental Prime Minister  The Accidental Prime Minister
0
3                Why Cheat India                      Why Cheat India
0
4                Evening Shadows                      Evening Shadows
0
...                              ...                              ...
...
1624        Tera Mera Saath Rahen          Tera Mera Saath Rahen
0
1625          Yeh Zindagi Ka Safar            Yeh Zindagi Ka Safar
0
1626              Sabse Bada Sukh                Sabse Bada Sukh
0
1627                        Daaka                        Daaka
0
1628                     Humsafar                     Humsafar
0

      year_of_release runtime           genres  imdb_rating
imdb_votes  \
0               2019     138  Action|Drama|War          8.4
35112
1               2019     131               War          4.1
73
2               2019     112   Biography|Drama          6.1
5549
3               2019     121        Crime|Drama          6.0
1891
4               2018     102             Drama          7.3
280
...              ...     ...               ...          ...    .
..
1624            2001     148             Drama          4.9
278
1625            2001     146             Drama          3.0
133
1626            2018      \N      Comedy|Drama          6.1
13
1627            2019     136            Action          7.4
38
1628            2011      35     Drama|Romance          9.0
2968

                                                story  \
0      Divided over five chapters  the film chronicle...
```

```
1      The story revolves around a cricket match betw...
2      Based on the memoir by Indian policy analyst S...
3      The movie focuses on existing malpractices in ...
4      While gay rights and marriage equality has bee...
...                                                  ...
1624   Raj Dixit lives with his younger brother  Rahu...
1625   Hindi pop-star  Sarina Devan  lives a wealthy ...
1626   Village born Lalloo re-locates to Bombay  and ...
1627   Shinda tries robbing a bank so he can be wealt...
1628   Sara and Ashar are childhood friends who share...

                                          summary tagline  \
0      Indian army special forces execute a covert op...     NaN
1      The story of Battalion 609 revolves around a c...     NaN
2      Explores Manmohan Singh's tenure as the Prime ...     NaN
3      The movie focuses on existing malpractices in ...     NaN
4      Under the 'Evening Shadows'  truth often plays...     NaN
...                                                  ...     ...
1624   A man is torn between his handicapped brother ...     NaN
1625   A singer finds out she was adopted when the ed...     NaN
1626   Village born Lalloo re-locates to Bombay  and ...     NaN
1627   Shinda tries robbing a bank so he can be wealt...     NaN
1628   Ashar and Khirad are forced to get married due...     NaN

                                           actors  \
0      Vicky Kaushal|Paresh Rawal|Mohit Raina|Yami Ga...
1      Vicky Ahuja|Shoaib Ibrahim|Shrikant Kamat|Elen...
2      Anupam Kher|Akshaye Khanna|Aahana Kumra|Atul S...
3      Emraan Hashmi|Shreya Dhanwanthary|Snighdadeep ...
4      Mona Ambegaonkar|Ananth Narayan Mahadevan|Deva...
...                                               ...
1624   Ajay Devgn|Sonali Bendre|Namrata Shirodkar|Pre...
1625   Ameesha Patel|Jimmy Sheirgill|Nafisa Ali|Gulsh...
1626   Vijay Arora|Asrani|Rajni Bala|Kumud Damle|Utpa...
1627                       Gippy Grewal|Zareen Khan|
1628                                    Fawad Khan|

            wins_nominations              release_date
0                     4 wins      11 January 2019 (USA)
1                        NaN    11 January 2019 (India)
2                        NaN      11 January 2019 (USA)
3                        NaN      18 January 2019 (USA)
4      17 wins & 1 nomination    11 January 2019 (India)
...                       ...                        ...
1624                     NaN    7 November 2001 (India)
1625                     NaN   16 November 2001 (India)
1626                     NaN                        NaN
1627                     NaN      1 November 2019 (USA)
1628                     NaN       TV Series (2011–2012)
```

```
[1629 rows x 18 columns]

# mai chahate hu ki year of release ke according movie sort ho jaye
matlab ki jo pahle movie release hui hai usko pahle and so and aur
phir each year me
# jake movies name ko sort karna hai matlab ki jo movie a se suru hai
kisi particular year me wo pahle and then b and so on....

movies.sort_values(['year_of_release','title_x'])  # bass ek list pass
kar do jiss,jiss bhi column ko sort karna hai

                              title_x      imdb_id  \
1575                       Aalavandhan   tt0294264
1576  Aamdani Atthanni Kharcha Rupaiya   tt0305173
1577                 Aashiq (2001 film)   tt0273406
1579                Ajnabee (2001 film)   tt0278291
1578                    Aks (2001 film)   tt0289845
...                               ...          ...
64                        Ujda Chaman  tt11046300
0           Uri: The Surgical Strike    tt8291224
3                    Why Cheat India    tt8108208
60                 Yaaram (2019 film)  tt11007050
73                 Yeh Saali Aashiqui  tt10443846

                                             poster_path  \
1575   https://upload.wikimedia.org/wikipedia/en/thum...
1576   https://upload.wikimedia.org/wikipedia/en/thum...
1577   https://upload.wikimedia.org/wikipedia/en/c/c6...
1579   https://upload.wikimedia.org/wikipedia/en/thum...
1578   https://upload.wikimedia.org/wikipedia/en/thum...
...                                                  ...
64     https://upload.wikimedia.org/wikipedia/en/thum...
0      https://upload.wikimedia.org/wikipedia/en/thum...
3      https://upload.wikimedia.org/wikipedia/en/thum...
60     https://upload.wikimedia.org/wikipedia/en/thum...
73     https://upload.wikimedia.org/wikipedia/en/thum...

                                         wiki_link  \
1575           https://en.wikipedia.org/wiki/Aalavandhan
1576   https://en.wikipedia.org/wiki/Aamdani_Atthanni...
1577    https://en.wikipedia.org/wiki/Aashiq_(2001_film)
1579   https://en.wikipedia.org/wiki/Ajnabee_(2001_film)
1578       https://en.wikipedia.org/wiki/Aks_(2001_film)
...                                                  ...
64             https://en.wikipedia.org/wiki/Ujda_Chaman
0        https://en.wikipedia.org/wiki/Uri:_The_Surgica...
3              https://en.wikipedia.org/wiki/Why_Cheat_India
60         https://en.wikipedia.org/wiki/Yaaram_(2019_film)
73          https://en.wikipedia.org/wiki/Yeh_Saali_Aashiqui
```

```
                                 title_y  \
original_title
1575                        Aalavandhan
Aalavandhan
1576   Aamdani Atthanni Kharcha Rupaiya   Aamdani Atthanni Kharcha
Rupaiya
1577                             Aashiq
Aashiq
1579                            Ajnabee
Ajnabee
1578                                Aks
Aks
...                                 ...                                    .
..
64                         Ujda Chaman                          Ujda
Chaman
0           Uri: The Surgical Strike        Uri: The Surgical
Strike
3                    Why Cheat India                      Why Cheat
India
60                            #Yaaram
#Yaaram
73                  Yeh Saali Aashiqui                   Yeh Saali
Aashiqui

      is_adult  year_of_release runtime                genres
imdb_rating  \
1575         0             2001     177        Action|Thriller
7.1
1576         0             2001     150     Comedy|Drama|Family
4.7
1577         0             2001     160    Action|Drama|Romance
3.8
1579         0             2001     165     Action|Crime|Drama
6.3
1578         0             2001     184    Action|Crime|Horror
5.9
...        ...              ...     ...                     ...
...
64           0             2019     120                  Comedy
8.1
0            0             2019     138       Action|Drama|War
8.4
3            0             2019     121             Crime|Drama
6.0
60           0             2019      \N         Comedy|Romance
5.7
73           0             2019     137                Thriller
```

```
7.9

      imdb_votes                                                story  \
1575        1746  The story follows Abhay (Haasan) who has a dis...
1576        1026  Jhoomri and her husband  Bhimsha  move into a ...
1577         357  Pooja and Chander Kapoor have a heart-to-heart...
1579        7480  A new couple get married and move to Switzerla...
1578        1518  Aks is the story of a hunter and his prey. A c...
...          ...                                                  ...
64          1440  Ujda Chaman is about a 30 -year-old bachelor C...
0          35112  Divided over five chapters  the film chronicle...
3           1891  The movie focuses on existing malpractices in ...
60             7  All set for an arranged marriage  Rohit Bajaj ...
73          3200                                                  NaN

                                               summary  \
1575  A psychopath tries to protect his twin brother...
1576  In order to make ends meet  three women steps ...
1577  Pooja and Chander Kapoor have a heart-to-heart...
1579  Bobby Deol and Kareena Kapoor play a new coupl...
1578  Raghavan Ghatge  a psychotic terrorist  and Ma...
...                                                 ...
64    Ujda Chaman is about a 30 -year-old bachelor C...
0     Indian army special forces execute a covert op...
3     The movie focuses on existing malpractices in ...
60    All set for an arranged marriage  Rohit Bajaj ...
73                                         Add a Plot »

                          tagline  \
1575                 The Fearless
1576                          NaN
1577                          NaN
1579                 Trust no one
1578  There is a stranger in your mirror
...                           ...
64                            NaN
0                             NaN
3                             NaN
60                            NaN
73                            NaN

                                                actors  \
1575  Kamal Haasan|Raveena Tandon|Manisha Koirala|Ki...
1576  Govinda|Juhi Chawla|Tabu|Chandrachur Singh|Joh...
1577                          Bobby Deol|Karisma Kapoor|
1579  Akshay Kumar|Bobby Deol|Kareena Kapoor|Bipasha...
1578  Amitabh Bachchan|Raveena Tandon|Manoj Bajpayee...
...                                                  ...
64    Sunny Singh Nijjar|Maanvi Gagroo|Saurabh Shukl...
0     Vicky Kaushal|Paresh Rawal|Mohit Raina|Yami Ga...
```

```
3           Emraan Hashmi|Shreya Dhanwanthary|Snighdadeep ...
60          Siddhanth Kapoor|Prateik|Anita Raj|Ishita Raj|...
73                              Vardhan Puri|Jessey Lever|

             wins_nominations                   release_date
1575       1 win & 1 nomination   16 November 2001 (India)
1576             1 nomination   21 December 2001 (India)
1577                      NaN     26 January 2001 (India)
1579    3 wins & 9 nominations   21 September 2001 (India)
1578   9 wins & 14 nominations          13 July 2001 (India)
...                         ...                          ...
64                        NaN      1 November 2019 (USA)
0                      4 wins     11 January 2019 (USA)
3                         NaN     18 January 2019 (USA)
60                        NaN                        NaN
73                        NaN                        NaN

[1629 rows x 18 columns]
```

```python
# just an example ki movies ke name ko descending order me sort karna
hai
movies.sort_values(['year_of_release','title_x'],ascending=[True,False
])  # ascending parameter ke andar ek list pass kar do
```

```
                                 title_x       imdb_id  \
1623                             Zubeidaa    tt0255713
1625                  Yeh Zindagi Ka Safar    tt0298607
1622        Yeh Teraa Ghar Yeh Meraa Ghar    tt0298606
1620            Yeh Raaste Hain Pyaar Ke    tt0292740
1573                  Yaadein (2001 film)    tt0248617
...                                    ...          ...
37                      Article 15 (film)   tt10324144
46                         Arjun Patiala    tt7881524
10                                Amavas    tt8396186
26    Albert Pinto Ko Gussa Kyun Aata Hai?    tt4355838
21                              22 Yards    tt9496212

                                 poster_path  \
1623  https://upload.wikimedia.org/wikipedia/en/thum...
1625  https://upload.wikimedia.org/wikipedia/en/thum...
1622  https://upload.wikimedia.org/wikipedia/en/thum...
1620  https://upload.wikimedia.org/wikipedia/en/thum...
1573  https://upload.wikimedia.org/wikipedia/en/thum...
...                                        ...
37    https://upload.wikimedia.org/wikipedia/en/thum...
46    https://upload.wikimedia.org/wikipedia/en/thum...
10    https://upload.wikimedia.org/wikipedia/en/thum...
26    https://upload.wikimedia.org/wikipedia/en/thum...
21    https://upload.wikimedia.org/wikipedia/en/thum...
```

```
                                              wiki_link  \
1623            https://en.wikipedia.org/wiki/Zubeidaa
1625    https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...
1622    https://en.wikipedia.org/wiki/Yeh_Teraa_Ghar_Y...
1620    https://en.wikipedia.org/wiki/Yeh_Raaste_Hain_...
1573    https://en.wikipedia.org/wiki/Yaadein_(2001_film)
...                                                   ...
37        https://en.wikipedia.org/wiki/Article_15_(film)
46            https://en.wikipedia.org/wiki/Arjun_Patiala
10                  https://en.wikipedia.org/wiki/Amavas
26      https://en.wikipedia.org/wiki/Albert_Pinto_Ko_...
21                  https://en.wikipedia.org/wiki/22_Yards

                                  title_y  \
1623                             Zubeidaa
1625                   Yeh Zindagi Ka Safar
1622          Yeh Teraa Ghar Yeh Meraa Ghar
1620             Yeh Raaste Hain Pyaar Ke
1573                            Yaadein...
...                                    ...
37                             Article 15
46                           Arjun Patiala
10                                 Amavas
26      Albert Pinto Ko Gussa Kyun Aata Hai?
21                              22 Yards

                             original_title  is_adult  year_of_release
runtime  \
1623                              Zubeidaa         0             2001
153
1625                   Yeh Zindagi Ka Safar         0             2001
146
1622          Yeh Teraa Ghar Yeh Meraa Ghar         0             2001
175
1620             Yeh Raaste Hain Pyaar Ke         0             2001
149
1573                            Yaadein...         0             2001
171
...                                    ...        ...              ...
...
37                             Article 15         0             2019
130
46                           Arjun Patiala         0             2019
107
10                                 Amavas         0             2019
134
26      Albert Pinto Ko Gussa Kyun Aata Hai?         0             2019
100
21                              22 Yards         0             2019
```

126

	genres	imdb_rating	imdb_votes
1623	Biography|Drama|History	6.2	1384
1625	Drama	3.0	133
1622	Comedy|Drama	5.7	704
1620	Drama|Romance	4.0	607
1573	Drama|Musical|Romance	4.4	3034
...	...	...	...
37	Crime|Drama	8.3	13417
46	Action|Comedy	4.1	676
10	Horror|Thriller	2.8	235
26	Drama	4.8	56
21	Sport	5.3	124

	story
1623	The film begins with Riyaz (Rajat Kapoor) Zub...
1625	Hindi pop-star Sarina Devan lives a wealthy ...
1622	In debt; Dayashankar Pandey is forced to go to...
1620	Two con artistes and car thieves Vicky (Ajay ...
1573	Raj Singh Puri is best friends with L.K. Malho...
...	...
37	In the rural heartlands of India an upright p...
46	Arjun Patiala(Diljit Dosanjh)has recently been...
10	Far away from the bustle of the city a young ...
26	Albert leaves his house one morning without te...
21	A dramatic portrayal of a victorious tale of a...

	summary
1623	Zubeidaa an aspiring Muslim actress marries ...
1625	A singer finds out she was adopted when the ed...
1622	In debt; Dayashankar Pandey is forced to go to...
1620	Two con artistes and car thieves Vicky (Ajay ...
1573	Raj Singh Puri is best friends with L.K. Malho...
...	...
37	In the rural heartlands of India an upright p...
46	This spoof comedy narrates the story of a cop ...
10	The lives of a couple turn into a nightmare a...
26	Albert Pinto goes missing one day and his girl...
21	A dramatic portrayal of a victorious tale of a...

	tagline
1623	The Story of a Princess
1625	NaN
1622	NaN
1620	Love is a journey... not a destination
1573	memories to cherish...
...	...
37	Farq Bahut Kar Liya| Ab Farq Laayenge.
46	NaN

```
10                                              NaN
26                                              NaN
21                                              NaN

                                            actors  \
1623  Karisma Kapoor|Rekha|Manoj Bajpayee|Rajit Kapo...
1625  Ameesha Patel|Jimmy Sheirgill|Nafisa Ali|Gulsh...
1622  Sunil Shetty|Mahima Chaudhry|Paresh Rawal|Saur...
1620  Ajay Devgn|Madhuri Dixit|Preity Zinta|Vikram G...
1573  Jackie Shroff|Hrithik Roshan|Kareena Kapoor|Am...
...                                                 ...
37     Ayushmann Khurrana|Nassar|Manoj Pahwa|Kumud Mi...
46     Diljit Dosanjh|Kriti Sanon|Varun Sharma|Ronit ...
10     Ali Asgar|Vivan Bhatena|Nargis Fakhri|Sachiin ...
26                               Manav Kaul|Nandita Das|
21     Barun Sobti|Rajit Kapur|Panchhi Bora|Kartikey ...

              wins_nominations            release_date
1623  3 wins & 13 nominations    19 January 2001 (India)
1625                      NaN   16 November 2001 (India)
1622            1 nomination     12 October 2001 (India)
1620                      NaN    10 August 2001 (India)
1573            1 nomination       27 June 2001 (India)
...                      ...                         ...
37                    1 win        28 June 2019 (USA)
46                      NaN        26 July 2019 (USA)
10                      NaN    8 February 2019 (India)
26                      NaN       12 April 2019 (India)
21                      NaN       15 March 2019 (India)

[1629 rows x 18 columns]
```

```python
#rank(only used in series)
batsman = pd.read_csv("batsman_runs_ipl.csv")
batsman
batsman.head(5)
```

```
          batter  batsman_run
0  A Ashish Reddy          280
1        A Badoni          161
2      A Chandila            4
3        A Chopra           53
4      A Choudhary          25
```

```python
# just an example ki hum ek rank provide karna chahate hain on the
basis of ki kon se batsman ne kitne run banaye hain
batsman['batsman_run'].rank()
```

```
0      439.5
1      380.0
```

```
2       71.0
3      277.0
4      203.5
         ...
600     12.0
601    263.0
602     58.5
603    579.0
604    350.0
Name: batsman_run, Length: 605, dtype: float64
```

```python
batsman['batsman_run'].rank(ascending=False)
```

```
0      166.5
1      226.0
2      535.0
3      329.0
4      402.5
         ...
600    594.0
601    343.0
602    547.5
603     27.0
604    256.0
Name: batsman_run, Length: 605, dtype: float64
```

```python
batsman['batsman_rank'] = batsman['batsman_run'].rank(ascending=False)
batsman    # new column add ho gya batsman_rank name se
```

```
           batter  batsman_run  batsman_rank
0    A Ashish Reddy          280         166.5
1          A Badoni          161         226.0
2        A Chandila            4         535.0
3          A Chopra           53         329.0
4       A Choudhary           25         402.5
..              ...          ...           ...
600      Yash Dayal            0         594.0
601   Yashpal Singh           47         343.0
602     Younis Khan            3         547.5
603   Yuvraj Singh         2754          27.0
604          Z Khan          117         256.0

[605 rows x 3 columns]
```

```python
# now we can sort on the basis of rank
batsman.sort_values('batsman_rank')
```

```
         batter  batsman_run  batsman_rank
569     V Kohli         6634           1.0
462    S Dhawan         6244           2.0
130    DA Warner         5883           3.0
```

```
430       RG Sharma          5881          4.0
493        SK Raina          5536          5.0
..             ...           ...           ...
512     SS Cottrell             0         594.0
466       S Kaushik             0         594.0
203       IC Pandey             0         594.0
467         S Ladda             0         594.0
468   S Lamichhane             0         594.0

[605 rows x 3 columns]
```

```python
# sort_index  (for both series and dataframe)
marks = {
    'maths':67,
    'english':57,
    'science':89,
    'hindi':100
}

marks_series = pd.Series(marks)
marks_series
```

```
maths       67
english     57
science     89
hindi      100
dtype: int64
```

```python
marks_series.sort_index()    # index ke basis pe sort ho gya by default
ascending
```

```
english     57
hindi      100
maths       67
science     89
dtype: int64
```

```python
marks_series.sort_index(ascending=False)
```

```
science     89
maths       67
hindi      100
english     57
dtype: int64
```

```python
movies
```

```
                                    title_x      imdb_id  \
0                 Uri: The Surgical Strike   tt8291224
1                            Battalion 609   tt9472208
2      The Accidental Prime Minister (film)   tt6986710
```

```
3                            Why Cheat India     tt8108208
4                            Evening Shadows     tt6028796
...                                      ...           ...
1624                  Tera Mera Saath Rahen     tt0301250
1625                 Yeh Zindagi Ka Safar     tt0298607
1626                    Sabse Bada Sukh     tt0069204
1627                               Daaka   tt10833860
1628                             Humsafar     tt2403201

                                            poster_path  \
0     https://upload.wikimedia.org/wikipedia/en/thum...
1                                                   NaN
2     https://upload.wikimedia.org/wikipedia/en/thum...
3     https://upload.wikimedia.org/wikipedia/en/thum...
4                                                   NaN
...                                                 ...
1624  https://upload.wikimedia.org/wikipedia/en/2/2b...
1625  https://upload.wikimedia.org/wikipedia/en/thum...
1626                                                NaN
1627  https://upload.wikimedia.org/wikipedia/en/thum...
1628  https://upload.wikimedia.org/wikipedia/en/thum...

                                              wiki_link  \
0     https://en.wikipedia.org/wiki/Uri:_The_Surgica...
1              https://en.wikipedia.org/wiki/Battalion_609
2     https://en.wikipedia.org/wiki/The_Accidental_P...
3          https://en.wikipedia.org/wiki/Why_Cheat_India
4          https://en.wikipedia.org/wiki/Evening_Shadows
...                                                 ...
1624  https://en.wikipedia.org/wiki/Tera_Mera_Saath_...
1625  https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...
1626      https://en.wikipedia.org/wiki/Sabse_Bada_Sukh
1627               https://en.wikipedia.org/wiki/Daaka
1628             https://en.wikipedia.org/wiki/Humsafar

                              title_y                    original_title  \
is_adult  \
0           Uri: The Surgical Strike        Uri: The Surgical Strike
0
1                       Battalion 609                   Battalion 609
0
2     The Accidental Prime Minister   The Accidental Prime Minister
0
3                     Why Cheat India                 Why Cheat India
0
4                     Evening Shadows                 Evening Shadows
0
...                                ...                             ...
...
1624          Tera Mera Saath Rahen           Tera Mera Saath Rahen
```

```
0
1625              Yeh Zindagi Ka Safar              Yeh Zindagi Ka Safar
0
1626                  Sabse Bada Sukh                  Sabse Bada Sukh
0
1627                             Daaka                             Daaka
0
1628                          Humsafar                          Humsafar
0

      year_of_release  runtime              genres   imdb_rating
imdb_votes  \
0                 2019      138  Action|Drama|War          8.4
35112
1                 2019      131               War          4.1
73
2                 2019      112   Biography|Drama          6.1
5549
3                 2019      121        Crime|Drama          6.0
1891
4                 2018      102             Drama          7.3
280
...                ...      ...               ...          ...        .
..
1624              2001      148             Drama          4.9
278
1625              2001      146             Drama          3.0
133
1626              2018       \N      Comedy|Drama          6.1
13
1627              2019      136            Action          7.4
38
1628              2011       35     Drama|Romance          9.0
2968

                                                story  \
0      Divided over five chapters  the film chronicle...
1      The story revolves around a cricket match betw...
2      Based on the memoir by Indian policy analyst S...
3      The movie focuses on existing malpractices in ...
4      While gay rights and marriage equality has bee...
...                                                  ...
1624   Raj Dixit lives with his younger brother  Rahu...
1625   Hindi pop-star  Sarina Devan  lives a wealthy ...
1626   Village born Lalloo re-locates to Bombay  and ...
1627   Shinda tries robbing a bank so he can be wealt...
1628   Sara and Ashar are childhood friends who share...

                                              summary tagline  \
0      Indian army special forces execute a covert op...     NaN
```

```
1      The story of Battalion 609 revolves around a c...    NaN
2      Explores Manmohan Singh's tenure as the Prime ...    NaN
3      The movie focuses on existing malpractices in ...    NaN
4      Under the 'Evening Shadows'  truth often plays...    NaN
...                                                ...     ...
1624   A man is torn between his handicapped brother ...    NaN
1625   A singer finds out she was adopted when the ed...    NaN
1626   Village born Lalloo re-locates to Bombay  and ...    NaN
1627   Shinda tries robbing a bank so he can be wealt...    NaN
1628   Ashar and Khirad are forced to get married due...    NaN

                                                actors  \
0      Vicky Kaushal|Paresh Rawal|Mohit Raina|Yami Ga...
1      Vicky Ahuja|Shoaib Ibrahim|Shrikant Kamat|Elen...
2      Anupam Kher|Akshaye Khanna|Aahana Kumra|Atul S...
3      Emraan Hashmi|Shreya Dhanwanthary|Snighdadeep ...
4      Mona Ambegaonkar|Ananth Narayan Mahadevan|Deva...
...                                                ...
1624   Ajay Devgn|Sonali Bendre|Namrata Shirodkar|Pre...
1625   Ameesha Patel|Jimmy Sheirgill|Nafisa Ali|Gulsh...
1626   Vijay Arora|Asrani|Rajni Bala|Kumud Damle|Utpa...
1627                         Gippy Grewal|Zareen Khan|
1628                                      Fawad Khan|

            wins_nominations              release_date
0                     4 wins     11 January 2019 (USA)
1                        NaN   11 January 2019 (India)
2                        NaN     11 January 2019 (USA)
3                        NaN     18 January 2019 (USA)
4      17 wins & 1 nomination   11 January 2019 (India)
...                      ...                       ...
1624                     NaN   7 November 2001 (India)
1625                     NaN  16 November 2001 (India)
1626                     NaN                       NaN
1627                     NaN     1 November 2019 (USA)
1628                     NaN       TV Series (2011—2012)

[1629 rows x 18 columns]

# sort_index in dataframe
movies.sort_index(ascending=False)

                         title_x       imdb_id  \
1628                     Humsafar     tt2403201
1627                        Daaka    tt10833860
1626               Sabse Bada Sukh     tt0069204
1625           Yeh Zindagi Ka Safar    tt0298607
1624           Tera Mera Saath Rahen     tt0301250
...                          ...           ...
4                Evening Shadows     tt6028796
```

```
3                          Why Cheat India    tt8108208
2      The Accidental Prime Minister (film)    tt6986710
1                             Battalion 609    tt9472208
0                 Uri: The Surgical Strike    tt8291224

                                             poster_path  \
1628   https://upload.wikimedia.org/wikipedia/en/thum...
1627   https://upload.wikimedia.org/wikipedia/en/thum...
1626                                                 NaN
1625   https://upload.wikimedia.org/wikipedia/en/thum...
1624   https://upload.wikimedia.org/wikipedia/en/2/2b...
...                                                  ...
4                                                    NaN
3      https://upload.wikimedia.org/wikipedia/en/thum...
2      https://upload.wikimedia.org/wikipedia/en/thum...
1                                                    NaN
0      https://upload.wikimedia.org/wikipedia/en/thum...

                                       wiki_link  \
1628            https://en.wikipedia.org/wiki/Humsafar
1627               https://en.wikipedia.org/wiki/Daaka
1626        https://en.wikipedia.org/wiki/Sabse_Bada_Sukh
1625   https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...
1624   https://en.wikipedia.org/wiki/Tera_Mera_Saath_...
...                                                  ...
4          https://en.wikipedia.org/wiki/Evening_Shadows
3          https://en.wikipedia.org/wiki/Why_Cheat_India
2      https://en.wikipedia.org/wiki/The_Accidental_P...
1            https://en.wikipedia.org/wiki/Battalion_609
0      https://en.wikipedia.org/wiki/Uri:_The_Surgica...

                                title_y                       original_title  \
is_adult  \
1628                            Humsafar                             Humsafar
0
1627                               Daaka                                Daaka
0
1626                      Sabse Bada Sukh                      Sabse Bada Sukh
0
1625                   Yeh Zindagi Ka Safar                 Yeh Zindagi Ka Safar
0
1624                Tera Mera Saath Rahen                 Tera Mera Saath Rahen
0
...                                    ...                                  ...
...
4                       Evening Shadows                       Evening Shadows
0
3                        Why Cheat India                       Why Cheat India
0
2            The Accidental Prime Minister   The Accidental Prime Minister
```

```
0
1                        Battalion 609                      Battalion 609
0
0            Uri: The Surgical Strike       Uri: The Surgical Strike
0

      year_of_release runtime            genres  imdb_rating
imdb_votes  \
1628             2011      35      Drama|Romance         9.0
2968
1627             2019     136             Action         7.4
38
1626             2018      \N       Comedy|Drama         6.1
13
1625             2001     146              Drama         3.0
133
1624             2001     148              Drama         4.9
278
...               ...     ...                ...         ...        .
..
4                2018     102              Drama         7.3
280
3                2019     121        Crime|Drama         6.0
1891
2                2019     112    Biography|Drama         6.1
5549
1                2019     131                War         4.1
73
0                2019     138  Action|Drama|War         8.4
35112

                                                    story  \
1628  Sara and Ashar are childhood friends who share...
1627  Shinda tries robbing a bank so he can be wealt...
1626  Village born Lalloo re-locates to Bombay  and ...
1625  Hindi pop-star  Sarina Devan  lives a wealthy ...
1624  Raj Dixit lives with his younger brother  Rahu...
...                                                  ...
4     While gay rights and marriage equality has bee...
3     The movie focuses on existing malpractices in ...
2     Based on the memoir by Indian policy analyst S...
1     The story revolves around a cricket match betw...
0     Divided over five chapters  the film chronicle...

                                                summary tagline  \
1628  Ashar and Khirad are forced to get married due...     NaN
1627  Shinda tries robbing a bank so he can be wealt...     NaN
1626  Village born Lalloo re-locates to Bombay  and ...     NaN
1625  A singer finds out she was adopted when the ed...     NaN
1624  A man is torn between his handicapped brother ...     NaN
```

```
...                                                    ...    ...
4      Under the 'Evening Shadows'  truth often plays...    NaN
3      The movie focuses on existing malpractices in ...    NaN
2      Explores Manmohan Singh's tenure as the Prime ...    NaN
1      The story of Battalion 609 revolves around a c...    NaN
0      Indian army special forces execute a covert op...    NaN

                                               actors  \
1628                                      Fawad Khan|
1627                          Gippy Grewal|Zareen Khan|
1626  Vijay Arora|Asrani|Rajni Bala|Kumud Damle|Utpa...
1625  Ameesha Patel|Jimmy Sheirgill|Nafisa Ali|Gulsh...
1624  Ajay Devgn|Sonali Bendre|Namrata Shirodkar|Pre...
...                                                 ...
4      Mona Ambegaonkar|Ananth Narayan Mahadevan|Deva...
3      Emraan Hashmi|Shreya Dhanwanthary|Snighdadeep ...
2      Anupam Kher|Akshaye Khanna|Aahana Kumra|Atul S...
1      Vicky Ahuja|Shoaib Ibrahim|Shrikant Kamat|Elen...
0      Vicky Kaushal|Paresh Rawal|Mohit Raina|Yami Ga...

          wins_nominations             release_date
1628                   NaN      TV Series (2011–2012)
1627                   NaN       1 November 2019 (USA)
1626                   NaN                         NaN
1625                   NaN   16 November 2001 (India)
1624                   NaN    7 November 2001 (India)
...                    ...                        ...
4      17 wins & 1 nomination   11 January 2019 (India)
3                      NaN      18 January 2019 (USA)
2                      NaN      11 January 2019 (USA)
1                      NaN     11 January 2019 (India)
0                   4 wins     11 January 2019 (USA)

[1629 rows x 18 columns]

#set_index (only in dataframe) -> inplace

batsman

            batter  batsman_run  batsman_rank
0    A Ashish Reddy          280         166.5
1          A Badoni          161         226.0
2        A Chandila            4         535.0
3          A Chopra           53         329.0
4        A Choudhary          25         402.5
..              ...          ...           ...
600       Yash Dayal            0         594.0
601    Yashpal Singh           47         343.0
602     Younis Khan            3         547.5
603    Yuvraj Singh         2754          27.0
```

```
604            Z Khan            117           256.0
```

[605 rows x 3 columns]

#hum chahate hain ki jo default indexing hai wo nn rahe and uske jagah
pe batter index ban jaye
batsman.set_index("batter")

```
                   batsman_run  batsman_rank
batter
A Ashish Reddy          280           166.5
A Badoni                161           226.0
A Chandila                4           535.0
A Chopra                 53           329.0
A Choudhary              25           402.5
...                      ...             ...
Yash Dayal                0           594.0
Yashpal Singh            47           343.0
Younis Khan               3           547.5
Yuvraj Singh           2754            27.0
Z Khan                  117           256.0
```

[605 rows x 2 columns]

batsman

```
           batter  batsman_run  batsman_rank
0    A Ashish Reddy        280           166.5
1          A Badoni        161           226.0
2        A Chandila          4           535.0
3          A Chopra         53           329.0
4       A Choudhary         25           402.5
..              ...         ...             ...
600       Yash Dayal          0           594.0
601    Yashpal Singh         47           343.0
602      Younis Khan          3           547.5
603     Yuvraj Singh       2754            27.0
604           Z Khan        117           256.0
```

[605 rows x 3 columns]

# if permanent change karna chahate ho to inplace true kar do
batsman.set_index("batter",inplace=True)

batsman

```
                   batsman_run  batsman_rank
batter
A Ashish Reddy          280           166.5
A Badoni                161           226.0
A Chandila                4           535.0
```

```
A Chopra                      53         329.0
A Choudhary                   25         402.5
...                          ...           ...
Yash Dayal                     0         594.0
Yashpal Singh                 47         343.0
Younis Khan                    3         547.5
Yuvraj Singh                2754          27.0
Z Khan                       117         256.0

[605 rows x 2 columns]
```

reset_index (series + dataframe both) -> drop parameter
batsman

```
                  batsman_run  batsman_rank
batter
A Ashish Reddy            280         166.5
A Badoni                  161         226.0
A Chandila                  4         535.0
A Chopra                   53         329.0
A Choudhary                25         402.5
...                       ...           ...
Yash Dayal                  0         594.0
Yashpal Singh              47         343.0
Younis Khan                 3         547.5
Yuvraj Singh             2754          27.0
Z Khan                    117         256.0

[605 rows x 2 columns]
```

batsman.reset_index() # not permanent   similar inplace = True kar do

```
            batter  batsman_run  batsman_rank
0    A Ashish Reddy          280         166.5
1          A Badoni          161         226.0
2        A Chandila            4         535.0
3          A Chopra           53         329.0
4       A Choudhary           25         402.5
..              ...          ...           ...
600      Yash Dayal            0         594.0
601   Yashpal Singh           47         343.0
602     Younis Khan            3         547.5
603    Yuvraj Singh         2754          27.0
604          Z Khan          117         256.0

[605 rows x 3 columns]
```

batsman

```
                  batsman_run  batsman_rank
batter
```

```
A Ashish Reddy        280        166.5
A Badoni              161        226.0
A Chandila              4        535.0
A Chopra               53        329.0
A Choudhary            25        402.5
...                   ...          ...
Yash Dayal              0        594.0
Yashpal Singh          47        343.0
Younis Khan             3        547.5
Yuvraj Singh         2754         27.0
Z Khan                117        256.0

[605 rows x 2 columns]
```

```
# how to replace existing index without loosing
# basically ki hum chahate hain ki batter nahi batsman_rank bale
column ko index banana hai
batsman.set_index('batsman_rank')  # abhi batsman_rank index to ban
gya but batter bala column loose ho gya
```

```
                batsman_run
batsman_rank
166.5                   280
226.0                   161
535.0                     4
329.0                    53
402.5                    25
...                     ...
594.0                     0
343.0                    47
547.5                     3
27.0                   2754
256.0                   117

[605 rows x 1 columns]
```

```
batsman
```

```
                batsman_run  batsman_rank
batter
A Ashish Reddy         280         166.5
A Badoni               161         226.0
A Chandila               4         535.0
A Chopra                53         329.0
A Choudhary             25         402.5
...                    ...           ...
Yash Dayal               0         594.0
Yashpal Singh           47         343.0
Younis Khan              3         547.5
Yuvraj Singh          2754          27.0
```

```
Z Khan                        117        256.0

[605 rows x 2 columns]
```

```python
batsman.reset_index().set_index('batsman_rank')   # pahle r5eset karo
and then phir se set kar do
```

```
                      batter  batsman_run
batsman_rank
166.5         A Ashish Reddy          280
226.0               A Badoni          161
535.0              A Chandila            4
329.0                A Chopra           53
402.5             A Choudhary           25
...                      ...          ...
594.0              Yash Dayal            0
343.0           Yashpal Singh           47
547.5             Younis Khan            3
27.0            Yuvraj Singh         2754
256.0                  Z Khan          117

[605 rows x 2 columns]
```

```python
marks_series
```

```
maths        67
english      57
science      89
hindi       100
dtype: int64
```

```python
type(marks_series)
```

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

```python
marks_series.reset_index()  #  series pe  jab reset_index() function
use karte hain to series ko datframe me convert kar deta hai
```

```
    index    0
0   maths   67
1  english  57
2  science  89
3   hindi  100
```

```python
type(marks_series.reset_index())
```

```
pandas.core.frame.DataFrame
```

```python
# rename (dataframe) -> index    => rename ka kaam hota hai column ko
rename karna

movies.set_index('title_x',inplace=True)
```

```
movies

                                         imdb_id  \
title_x
Uri: The Surgical Strike              tt8291224
Battalion 609                         tt9472208
The Accidental Prime Minister (film)  tt6986710
Why Cheat India                       tt8108208
Evening Shadows                       tt6028796
...                                         ...
Tera Mera Saath Rahen                 tt0301250
Yeh Zindagi Ka Safar                  tt0298607
Sabse Bada Sukh                       tt0069204
Daaka                                tt10833860
Humsafar                              tt2403201


poster_path  \
title_x

Uri: The Surgical Strike
https://upload.wikimedia.org/wikipedia/en/thum...
Battalion 609
NaN
The Accidental Prime Minister (film)
https://upload.wikimedia.org/wikipedia/en/thum...
Why Cheat India
https://upload.wikimedia.org/wikipedia/en/thum...
Evening Shadows
NaN
...
...
Tera Mera Saath Rahen
https://upload.wikimedia.org/wikipedia/en/2/2b...
Yeh Zindagi Ka Safar
https://upload.wikimedia.org/wikipedia/en/thum...
Sabse Bada Sukh
NaN
Daaka
https://upload.wikimedia.org/wikipedia/en/thum...
Humsafar
https://upload.wikimedia.org/wikipedia/en/thum...


wiki_link  \
title_x

Uri: The Surgical Strike
https://en.wikipedia.org/wiki/Uri:_The_Surgica...
Battalion 609
```

```
https://en.wikipedia.org/wiki/Battalion_609
The Accidental Prime Minister (film)
https://en.wikipedia.org/wiki/The_Accidental_P...
Why Cheat India
https://en.wikipedia.org/wiki/Why_Cheat_India
Evening Shadows
https://en.wikipedia.org/wiki/Evening_Shadows
...
...
Tera Mera Saath Rahen
https://en.wikipedia.org/wiki/Tera_Mera_Saath_...
Yeh Zindagi Ka Safar
https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...
Sabse Bada Sukh
https://en.wikipedia.org/wiki/Sabse_Bada_Sukh
Daaka
https://en.wikipedia.org/wiki/Daaka
Humsafar
https://en.wikipedia.org/wiki/Humsafar

                                                            title_y  \
title_x
Uri: The Surgical Strike                          Uri: The Surgical Strike
Battalion 609                                                Battalion 609
The Accidental Prime Minister (film)  The Accidental Prime Minister
Why Cheat India                                            Why Cheat India
Evening Shadows                                            Evening Shadows
...                                                                    ...
Tera Mera Saath Rahen                                Tera Mera Saath Rahen
Yeh Zindagi Ka Safar                                  Yeh Zindagi Ka Safar
Sabse Bada Sukh                                            Sabse Bada Sukh
Daaka                                                                Daaka
Humsafar                                                          Humsafar

                                                         original_title
is_adult  \
title_x

Uri: The Surgical Strike                          Uri: The Surgical Strike
0
Battalion 609                                                Battalion 609
0
The Accidental Prime Minister (film)  The Accidental Prime Minister
0
Why Cheat India                                            Why Cheat India
0
Evening Shadows                                            Evening Shadows
0
...                                                                    ...
...
```

```
Tera Mera Saath Rahen                          Tera Mera Saath Rahen
0
Yeh Zindagi Ka Safar                           Yeh Zindagi Ka Safar
0
Sabse Bada Sukh                                    Sabse Bada Sukh
0
Daaka                                                        Daaka
0
Humsafar                                                  Humsafar
0

                                          year_of_release  runtime  \
title_x
Uri: The Surgical Strike                              2019      138
Battalion 609                                         2019      131
The Accidental Prime Minister (film)                  2019      112
Why Cheat India                                       2019      121
Evening Shadows                                       2018      102
...                                                    ...      ...
Tera Mera Saath Rahen                                 2001      148
Yeh Zindagi Ka Safar                                  2001      146
Sabse Bada Sukh                                       2018       \N
Daaka                                                 2019      136
Humsafar                                              2011       35

                                                genres  imdb_rating  \
title_x
Uri: The Surgical Strike              Action|Drama|War          8.4
Battalion 609                                      War          4.1
The Accidental Prime Minister (film)   Biography|Drama          6.1
Why Cheat India                            Crime|Drama          6.0
Evening Shadows                                  Drama          7.3
...                                                ...          ...
Tera Mera Saath Rahen                            Drama          4.9
Yeh Zindagi Ka Safar                             Drama          3.0
Sabse Bada Sukh                          Comedy|Drama          6.1
Daaka                                           Action          7.4
Humsafar                                 Drama|Romance          9.0

                                      imdb_votes  \
title_x
Uri: The Surgical Strike                   35112
Battalion 609                                 73
The Accidental Prime Minister (film)        5549
Why Cheat India                             1891
Evening Shadows                              280
...                                          ...
Tera Mera Saath Rahen                        278
Yeh Zindagi Ka Safar                         133
Sabse Bada Sukh                               13
```

```
Daaka                                              38
Humsafar                                         2968


story  \
title_x

Uri: The Surgical Strike            Divided over five chapters  the
film chronicle...
Battalion 609                       The story revolves around a
cricket match betw...
The Accidental Prime Minister (film) Based on the memoir by Indian
policy analyst S...
Why Cheat India                     The movie focuses on existing
malpractices in ...
Evening Shadows                     While gay rights and marriage
equality has bee...
...
...
Tera Mera Saath Rahen               Raj Dixit lives with his younger
brother  Rahu...
Yeh Zindagi Ka Safar                Hindi pop-star  Sarina Devan
lives a wealthy ...
Sabse Bada Sukh                     Village born Lalloo re-locates
to Bombay  and ...
Daaka                               Shinda tries robbing a bank so
he can be wealt...
Humsafar                            Sara and Ashar are childhood
friends who share...


summary  \
title_x

Uri: The Surgical Strike            Indian army special forces
execute a covert op...
Battalion 609                       The story of Battalion 609
revolves around a c...
The Accidental Prime Minister (film) Explores Manmohan Singh's tenure
as the Prime ...
Why Cheat India                     The movie focuses on existing
malpractices in ...
Evening Shadows                     Under the 'Evening Shadows'
truth often plays...
...
...
Tera Mera Saath Rahen               A man is torn between his
handicapped brother ...
Yeh Zindagi Ka Safar                A singer finds out she was
adopted when the ed...
```

```
Sabse Bada Sukh                            Village born Lalloo re-locates
to Bombay  and ...
Daaka                                      Shinda tries robbing a bank so
he can be wealt...
Humsafar                                   Ashar and Khirad are forced to
get married due...

                                              tagline  \
title_x
Uri: The Surgical Strike                      NaN
Battalion 609                                 NaN
The Accidental Prime Minister (film)          NaN
Why Cheat India                               NaN
Evening Shadows                               NaN
...                                           ...
Tera Mera Saath Rahen                         NaN
Yeh Zindagi Ka Safar                          NaN
Sabse Bada Sukh                               NaN
Daaka                                         NaN
Humsafar                                      NaN


actors  \
title_x

Uri: The Surgical Strike              Vicky Kaushal|Paresh Rawal|Mohit
Raina|Yami Ga...
Battalion 609                         Vicky Ahuja|Shoaib Ibrahim|
Shrikant Kamat|Elen...
The Accidental Prime Minister (film)  Anupam Kher|Akshaye Khanna|
Aahana Kumra|Atul S...
Why Cheat India                       Emraan Hashmi|Shreya
Dhanwanthary|Snighdadeep ...
Evening Shadows                       Mona Ambegaonkar|Ananth Narayan
Mahadevan|Deva...
...
...
Tera Mera Saath Rahen                 Ajay Devgn|Sonali Bendre|Namrata
Shirodkar|Pre...
Yeh Zindagi Ka Safar                  Ameesha Patel|Jimmy Sheirgill|
Nafisa Ali|Gulsh...
Sabse Bada Sukh                       Vijay Arora|Asrani|Rajni Bala|
Kumud Damle|Utpa...
Daaka                                                            Gippy
Grewal|Zareen Khan|
Humsafar
Fawad Khan|

                                          wins_nominations  \
title_x
```

```
Uri: The Surgical Strike                            4 wins
Battalion 609                                        NaN
The Accidental Prime Minister (film)                 NaN
Why Cheat India                                      NaN
Evening Shadows                     17 wins & 1 nomination
...                                                  ...
Tera Mera Saath Rahen                                NaN
Yeh Zindagi Ka Safar                                 NaN
Sabse Bada Sukh                                      NaN
Daaka                                                NaN
Humsafar                                             NaN

                                           release_date
title_x
Uri: The Surgical Strike             11 January 2019 (USA)
Battalion 609                        11 January 2019 (India)
The Accidental Prime Minister (film)  11 January 2019 (USA)
Why Cheat India                       18 January 2019 (USA)
Evening Shadows                       11 January 2019 (India)
...                                                   ...
Tera Mera Saath Rahen                 7 November 2001 (India)
Yeh Zindagi Ka Safar                 16 November 2001 (India)
Sabse Bada Sukh                                       NaN
Daaka                                 1 November 2019 (USA)
Humsafar                              TV Series (2011—2012)

[1629 rows x 17 columns]
```

```python
movies.rename(columns={'imdb_id':'imdb','poster_path':'link'},inplace=
True)

movies
```

```
                                           imdb  \
title_x
Uri: The Surgical Strike              tt8291224
Battalion 609                         tt9472208
The Accidental Prime Minister (film)  tt6986710
Why Cheat India                       tt8108208
Evening Shadows                       tt6028796
...                                         ...
Tera Mera Saath Rahen                 tt0301250
Yeh Zindagi Ka Safar                  tt0298607
Sabse Bada Sukh                       tt0069204
Daaka                                tt10833860
Humsafar                              tt2403201


link  \
title_x
```

```
Uri: The Surgical Strike
https://upload.wikimedia.org/wikipedia/en/thum...
Battalion 609
NaN
The Accidental Prime Minister (film)
https://upload.wikimedia.org/wikipedia/en/thum...
Why Cheat India
https://upload.wikimedia.org/wikipedia/en/thum...
Evening Shadows
NaN
...
...
Tera Mera Saath Rahen
https://upload.wikimedia.org/wikipedia/en/2/2b...
Yeh Zindagi Ka Safar
https://upload.wikimedia.org/wikipedia/en/thum...
Sabse Bada Sukh
NaN
Daaka
https://upload.wikimedia.org/wikipedia/en/thum...
Humsafar
https://upload.wikimedia.org/wikipedia/en/thum...


wiki_link  \
title_x

Uri: The Surgical Strike
https://en.wikipedia.org/wiki/Uri:_The_Surgica...
Battalion 609
https://en.wikipedia.org/wiki/Battalion_609
The Accidental Prime Minister (film)
https://en.wikipedia.org/wiki/The_Accidental_P...
Why Cheat India
https://en.wikipedia.org/wiki/Why_Cheat_India
Evening Shadows
https://en.wikipedia.org/wiki/Evening_Shadows
...
...
Tera Mera Saath Rahen
https://en.wikipedia.org/wiki/Tera_Mera_Saath_...
Yeh Zindagi Ka Safar
https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...
Sabse Bada Sukh
https://en.wikipedia.org/wiki/Sabse_Bada_Sukh
Daaka
https://en.wikipedia.org/wiki/Daaka
Humsafar
https://en.wikipedia.org/wiki/Humsafar
```

```
                                             title_y  \
title_x
Uri: The Surgical Strike              Uri: The Surgical Strike
Battalion 609                                   Battalion 609
The Accidental Prime Minister (film)  The Accidental Prime Minister
Why Cheat India                                Why Cheat India
Evening Shadows                                Evening Shadows
...                                                        ...
Tera Mera Saath Rahen                     Tera Mera Saath Rahen
Yeh Zindagi Ka Safar                       Yeh Zindagi Ka Safar
Sabse Bada Sukh                                 Sabse Bada Sukh
Daaka                                                    Daaka
Humsafar                                              Humsafar

                                              original_title
is_adult  \
title_x

Uri: The Surgical Strike              Uri: The Surgical Strike
0
Battalion 609                                   Battalion 609
0
The Accidental Prime Minister (film)  The Accidental Prime Minister
0
Why Cheat India                                Why Cheat India
0
Evening Shadows                                Evening Shadows
0
...                                                        ...
...
Tera Mera Saath Rahen                     Tera Mera Saath Rahen
0
Yeh Zindagi Ka Safar                       Yeh Zindagi Ka Safar
0
Sabse Bada Sukh                                 Sabse Bada Sukh
0
Daaka                                                    Daaka
0
Humsafar                                              Humsafar
0

                                      year_of_release runtime  \
title_x
Uri: The Surgical Strike                         2019     138
Battalion 609                                    2019     131
The Accidental Prime Minister (film)             2019     112
Why Cheat India                                  2019     121
Evening Shadows                                  2018     102
...                                               ...     ...
```

```
Tera Mera Saath Rahen                        2001      148
Yeh Zindagi Ka Safar                         2001      146
Sabse Bada Sukh                              2018       \N
Daaka                                        2019      136
Humsafar                                     2011       35

                                          genres   imdb_rating   \
title_x
Uri: The Surgical Strike         Action|Drama|War           8.4
Battalion 609                                 War           4.1
The Accidental Prime Minister (film)  Biography|Drama       6.1
Why Cheat India                       Crime|Drama           6.0
Evening Shadows                             Drama           7.3
...                                           ...           ...
Tera Mera Saath Rahen                       Drama           4.9
Yeh Zindagi Ka Safar                        Drama           3.0
Sabse Bada Sukh                      Comedy|Drama           6.1
Daaka                                      Action           7.4
Humsafar                            Drama|Romance           9.0

                                      imdb_votes   \
title_x
Uri: The Surgical Strike                   35112
Battalion 609                                 73
The Accidental Prime Minister (film)        5549
Why Cheat India                             1891
Evening Shadows                              280
...                                          ...
Tera Mera Saath Rahen                        278
Yeh Zindagi Ka Safar                         133
Sabse Bada Sukh                               13
Daaka                                         38
Humsafar                                    2968


                          story  \
title_x

Uri: The Surgical Strike              Divided over five chapters  the
film chronicle...
Battalion 609                         The story revolves around a
cricket match betw...
The Accidental Prime Minister (film)  Based on the memoir by Indian
policy analyst S...
Why Cheat India                       The movie focuses on existing
malpractices in ...
Evening Shadows                       While gay rights and marriage
equality has bee...
...
...
```

```
Tera Mera Saath Rahen           Raj Dixit lives with his younger
brother  Rahu...
Yeh Zindagi Ka Safar            Hindi pop-star  Sarina Devan
lives a wealthy ...
Sabse Bada Sukh                 Village born Lalloo re-locates
to Bombay  and ...
Daaka                           Shinda tries robbing a bank so
he can be wealt...
Humsafar                        Sara and Ashar are childhood
friends who share...


                                summary  \
title_x

Uri: The Surgical Strike        Indian army special forces
execute a covert op...
Battalion 609                   The story of Battalion 609
revolves around a c...
The Accidental Prime Minister (film)  Explores Manmohan Singh's tenure
as the Prime ...
Why Cheat India                 The movie focuses on existing
malpractices in ...
Evening Shadows                 Under the 'Evening Shadows'
truth often plays...
...                             ...
Tera Mera Saath Rahen           A man is torn between his
handicapped brother ...
Yeh Zindagi Ka Safar            A singer finds out she was
adopted when the ed...
Sabse Bada Sukh                 Village born Lalloo re-locates
to Bombay  and ...
Daaka                           Shinda tries robbing a bank so
he can be wealt...
Humsafar                        Ashar and Khirad are forced to
get married due...

                                      tagline  \
title_x
Uri: The Surgical Strike                    NaN
Battalion 609                               NaN
The Accidental Prime Minister (film)        NaN
Why Cheat India                             NaN
Evening Shadows                             NaN
...                                         ...
Tera Mera Saath Rahen                       NaN
Yeh Zindagi Ka Safar                        NaN
Sabse Bada Sukh                             NaN
Daaka                                       NaN
```

```
Humsafar                               NaN


                                  actors  \
title_x

Uri: The Surgical Strike         Vicky Kaushal|Paresh Rawal|Mohit
Raina|Yami Ga...
Battalion 609                    Vicky Ahuja|Shoaib Ibrahim|
Shrikant Kamat|Elen...
The Accidental Prime Minister (film)  Anupam Kher|Akshaye Khanna|
Aahana Kumra|Atul S...
Why Cheat India                  Emraan Hashmi|Shreya
Dhanwanthary|Snighdadeep ...
Evening Shadows                  Mona Ambegaonkar|Ananth Narayan
Mahadevan|Deva...
...
...
Tera Mera Saath Rahen            Ajay Devgn|Sonali Bendre|Namrata
Shirodkar|Pre...
Yeh Zindagi Ka Safar             Ameesha Patel|Jimmy Sheirgill|
Nafisa Ali|Gulsh...
Sabse Bada Sukh                  Vijay Arora|Asrani|Rajni Bala|
Kumud Damle|Utpa...
Daaka                                                    Gippy
Grewal|Zareen Khan|
Humsafar
Fawad Khan|


                                      wins_nominations  \
title_x
Uri: The Surgical Strike                       4 wins
Battalion 609                                     NaN
The Accidental Prime Minister (film)              NaN
Why Cheat India                                   NaN
Evening Shadows               17 wins & 1 nomination
...                                               ...
Tera Mera Saath Rahen                             NaN
Yeh Zindagi Ka Safar                              NaN
Sabse Bada Sukh                                   NaN
Daaka                                             NaN
Humsafar                                          NaN


                                      release_date
title_x
Uri: The Surgical Strike           11 January 2019 (USA)
Battalion 609                      11 January 2019 (India)
The Accidental Prime Minister (film)  11 January 2019 (USA)
Why Cheat India                    18 January 2019 (USA)
Evening Shadows                    11 January 2019 (India)
```

```
...                                                     ...
Tera Mera Saath Rahen                 7 November 2001 (India)
Yeh Zindagi Ka Safar                 16 November 2001 (India)
Sabse Bada Sukh                                         NaN
Daaka                                 1 November 2019 (USA)
Humsafar                              TV Series (2011—2012)

[1629 rows x 17 columns]
```

hum index value ko bhi rename kar sakte hain

```python
movies.rename(index={'Uri: The Surgical Strike':'Uri','Battalion
609':'battalion'})
```

```
                                            imdb  \
title_x
Uri                                      tt8291224
battalion                                tt9472208
The Accidental Prime Minister (film)     tt6986710
Why Cheat India                          tt8108208
Evening Shadows                          tt6028796
...                                            ...
Tera Mera Saath Rahen                    tt0301250
Yeh Zindagi Ka Safar                     tt0298607
Sabse Bada Sukh                          tt0069204
Daaka                                   tt10833860
Humsafar                                 tt2403201


link  \
title_x

Uri
https://upload.wikimedia.org/wikipedia/en/thum...
battalion
NaN
The Accidental Prime Minister (film)
https://upload.wikimedia.org/wikipedia/en/thum...
Why Cheat India
https://upload.wikimedia.org/wikipedia/en/thum...
Evening Shadows
NaN
...
...
Tera Mera Saath Rahen
https://upload.wikimedia.org/wikipedia/en/2/2b...
Yeh Zindagi Ka Safar
https://upload.wikimedia.org/wikipedia/en/thum...
Sabse Bada Sukh
NaN
```

```
Daaka                                     https://upload.wikimedia.org/wikipedia/en/thum...
Humsafar                                  https://upload.wikimedia.org/wikipedia/en/thum...

                                                                                wiki_link  \
title_x
Uri                                       https://en.wikipedia.org/wiki/Uri:_The_Surgica...
battalion                                 https://en.wikipedia.org/wiki/Battalion_609
The Accidental Prime Minister (film)      https://en.wikipedia.org/wiki/The_Accidental_P...
Why Cheat India                           https://en.wikipedia.org/wiki/Why_Cheat_India
Evening Shadows                           https://en.wikipedia.org/wiki/Evening_Shadows
...                                                                                     ...
Tera Mera Saath Rahen                     https://en.wikipedia.org/wiki/Tera_Mera_Saath_...
Yeh Zindagi Ka Safar                      https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...
Sabse Bada Sukh                           https://en.wikipedia.org/wiki/Sabse_Bada_Sukh
Daaka                                     https://en.wikipedia.org/wiki/Daaka
Humsafar                                  https://en.wikipedia.org/wiki/Humsafar

                                                                       title_y  \
title_x
Uri                                                      Uri: The Surgical Strike
battalion                                                             Battalion 609
The Accidental Prime Minister (film)      The Accidental Prime Minister
Why Cheat India                                                     Why Cheat India
Evening Shadows                                                     Evening Shadows
...                                                                           ...
Tera Mera Saath Rahen                                        Tera Mera Saath Rahen
Yeh Zindagi Ka Safar                                         Yeh Zindagi Ka Safar
Sabse Bada Sukh                                                 Sabse Bada Sukh
Daaka                                                                     Daaka
Humsafar                                                               Humsafar

                                                                    original_title
is_adult  \
title_x
```

```
Uri                                              Uri: The Surgical Strike
0
battalion                                                    Battalion 609
0
The Accidental Prime Minister (film)  The Accidental Prime Minister
0
Why Cheat India                                            Why Cheat India
0
Evening Shadows                                            Evening Shadows
0
...                                                                    ...
...
Tera Mera Saath Rahen                                Tera Mera Saath Rahen
0
Yeh Zindagi Ka Safar                                  Yeh Zindagi Ka Safar
0
Sabse Bada Sukh                                            Sabse Bada Sukh
0
Daaka                                                                Daaka
0
Humsafar                                                          Humsafar
0

                                      year_of_release runtime  \
title_x
Uri                                              2019      138
battalion                                        2019      131
The Accidental Prime Minister (film)             2019      112
Why Cheat India                                  2019      121
Evening Shadows                                  2018      102
...                                               ...      ...
Tera Mera Saath Rahen                            2001      148
Yeh Zindagi Ka Safar                             2001      146
Sabse Bada Sukh                                  2018       \N
Daaka                                            2019      136
Humsafar                                         2011       35

                                               genres  imdb_rating  \
title_x
Uri                                    Action|Drama|War          8.4
battalion                                           War          4.1
The Accidental Prime Minister (film)    Biography|Drama          6.1
Why Cheat India                              Crime|Drama          6.0
Evening Shadows                                   Drama          7.3
...                                                 ...          ...
Tera Mera Saath Rahen                             Drama          4.9
Yeh Zindagi Ka Safar                              Drama          3.0
Sabse Bada Sukh                            Comedy|Drama          6.1
Daaka                                            Action          7.4
```

```
Humsafar                           Drama|Romance          9.0

                                 imdb_votes  \
title_x
Uri                                    35112
battalion                                 73
The Accidental Prime Minister (film)    5549
Why Cheat India                         1891
Evening Shadows                          280
...                                      ...
Tera Mera Saath Rahen                    278
Yeh Zindagi Ka Safar                     133
Sabse Bada Sukh                           13
Daaka                                     38
Humsafar                                2968


story  \
title_x

Uri                                   Divided over five chapters  the
film chronicle...
battalion                             The story revolves around a
cricket match betw...
The Accidental Prime Minister (film)  Based on the memoir by Indian
policy analyst S...
Why Cheat India                       The movie focuses on existing
malpractices in ...
Evening Shadows                       While gay rights and marriage
equality has bee...
...
...
Tera Mera Saath Rahen                 Raj Dixit lives with his younger
brother  Rahu...
Yeh Zindagi Ka Safar                  Hindi pop-star  Sarina Devan
lives a wealthy ...
Sabse Bada Sukh                       Village born Lalloo re-locates
to Bombay  and ...
Daaka                                 Shinda tries robbing a bank so
he can be wealt...
Humsafar                              Sara and Ashar are childhood
friends who share...


summary  \
title_x

Uri                                   Indian army special forces
execute a covert op...
battalion                             The story of Battalion 609
```

```
                                                   revolves around a c...
The Accidental Prime Minister (film)   Explores Manmohan Singh's tenure
as the Prime ...
Why Cheat India                        The movie focuses on existing
malpractices in ...
Evening Shadows                        Under the 'Evening Shadows'
truth often plays...
...                                                               ...
Tera Mera Saath Rahen                  A man is torn between his
handicapped brother ...
Yeh Zindagi Ka Safar                   A singer finds out she was
adopted when the ed...
Sabse Bada Sukh                        Village born Lalloo re-locates
to Bombay  and ...
Daaka                                  Shinda tries robbing a bank so
he can be wealt...
Humsafar                               Ashar and Khirad are forced to
get married due...


                                                        tagline  \
title_x
Uri                                                         NaN
battalion                                                   NaN
The Accidental Prime Minister (film)                        NaN
Why Cheat India                                             NaN
Evening Shadows                                             NaN
...                                                         ...
Tera Mera Saath Rahen                                       NaN
Yeh Zindagi Ka Safar                                        NaN
Sabse Bada Sukh                                             NaN
Daaka                                                       NaN
Humsafar                                                    NaN


                                          actors  \
title_x

Uri                                    Vicky Kaushal|Paresh Rawal|Mohit
Raina|Yami Ga...
battalion                              Vicky Ahuja|Shoaib Ibrahim|
Shrikant Kamat|Elen...
The Accidental Prime Minister (film)   Anupam Kher|Akshaye Khanna|
Aahana Kumra|Atul S...
Why Cheat India                        Emraan Hashmi|Shreya
Dhanwanthary|Snighdadeep ...
Evening Shadows                        Mona Ambegaonkar|Ananth Narayan
Mahadevan|Deva...
...
...
```

```
Tera Mera Saath Rahen                    Ajay Devgn|Sonali Bendre|Namrata
Shirodkar|Pre...
Yeh Zindagi Ka Safar                     Ameesha Patel|Jimmy Sheirgill|
Nafisa Ali|Gulsh...
Sabse Bada Sukh                          Vijay Arora|Asrani|Rajni Bala|
Kumud Damle|Utpa...
Daaka                                                              Gippy
Grewal|Zareen Khan|
Humsafar
Fawad Khan|

                                              wins_nominations  \
title_x
Uri                                                      4 wins
battalion                                                   NaN
The Accidental Prime Minister (film)                        NaN
Why Cheat India                                             NaN
Evening Shadows                          17 wins & 1 nomination
...                                                         ...
Tera Mera Saath Rahen                                       NaN
Yeh Zindagi Ka Safar                                        NaN
Sabse Bada Sukh                                             NaN
Daaka                                                       NaN
Humsafar                                                    NaN

                                                    release_date
title_x
Uri                                        11 January 2019 (USA)
battalion                                11 January 2019 (India)
The Accidental Prime Minister (film)       11 January 2019 (USA)
Why Cheat India                            18 January 2019 (USA)
Evening Shadows                          11 January 2019 (India)
...                                                         ...
Tera Mera Saath Rahen                     7 November 2001 (India)
Yeh Zindagi Ka Safar                     16 November 2001 (India)
Sabse Bada Sukh                                             NaN
Daaka                                       1 November 2019 (USA)
Humsafar                                     TV Series (2011—2012)

[1629 rows x 17 columns]
```

```python
# unique (series)  # sari ki sari unique value nikal ke deta hai
temp = pd.Series([1,1,2,2,3,3,4,4,5,5,np.nan,np.nan])
print(temp)
```

```
0    1.0
1    1.0
2    2.0
3    2.0
4    3.0
```

```
5      3.0
6      4.0
7      4.0
8      5.0
9      5.0
10     NaN
11     NaN
dtype: float64
```

```
temp.unique()
```

```
array([ 1.,   2.,   3.,   4.,   5., nan])
```

```
ipl
```

```
          ID        City         Date     Season   MatchNumber  \
0     1312200    Ahmedabad  2022-05-29      2022        Final
1     1312199    Ahmedabad  2022-05-27      2022    Qualifier 2
2     1312198      Kolkata  2022-05-25      2022     Eliminator
3     1312197      Kolkata  2022-05-24      2022    Qualifier 1
4     1304116       Mumbai  2022-05-22      2022             70
..        ...          ...         ...       ...            ...
945    335986      Kolkata  2008-04-20   2007/08              4
946    335985       Mumbai  2008-04-20   2007/08              5
947    335984        Delhi  2008-04-19   2007/08              3
948    335983   Chandigarh  2008-04-19   2007/08              2
949    335982    Bangalore  2008-04-18   2007/08              1

                          Team1                        Team2  \
0               Rajasthan Royals              Gujarat Titans
1     Royal Challengers Bangalore           Rajasthan Royals
2     Royal Challengers Bangalore        Lucknow Super Giants
3               Rajasthan Royals              Gujarat Titans
4              Sunrisers Hyderabad               Punjab Kings
..                          ...                          ...
945          Kolkata Knight Riders             Deccan Chargers
946                Mumbai Indians   Royal Challengers Bangalore
947                Delhi Daredevils           Rajasthan Royals
948                Kings XI Punjab         Chennai Super Kings
949   Royal Challengers Bangalore        Kolkata Knight Riders

                                    Venue
TossWinner  \
0               Narendra Modi Stadium, Ahmedabad                Rajasthan
Royals
1               Narendra Modi Stadium, Ahmedabad                Rajasthan
Royals
2                         Eden Gardens, Kolkata          Lucknow Super
Giants
3                         Eden Gardens, Kolkata                  Gujarat
```

```
Titans
4                          Wankhede Stadium, Mumbai          Sunrisers
Hyderabad
..                                           ...
...
945                                 Eden Gardens               Deccan
Chargers
946                              Wankhede Stadium               Mumbai
Indians
947                              Feroz Shah Kotla            Rajasthan
Royals
948  Punjab Cricket Association Stadium, Mohali      Chennai Super
Kings
949                          M Chinnaswamy Stadium  Royal Challengers
Bangalore

    TossDecision SuperOver                   WinningTeam     WonBy
Margin  \
0            bat         N               Gujarat Titans  Wickets
7.0
1          field         N             Rajasthan Royals  Wickets
7.0
2          field         N  Royal Challengers Bangalore      Runs
14.0
3          field         N               Gujarat Titans  Wickets
7.0
4            bat         N                 Punjab Kings  Wickets
5.0
..           ...       ...                          ...      ...      .
..
945          bat         N         Kolkata Knight Riders  Wickets
5.0
946          bat         N  Royal Challengers Bangalore  Wickets
5.0
947          bat         N              Delhi Daredevils  Wickets
9.0
948          bat         N           Chennai Super Kings      Runs
33.0
949        field         N         Kolkata Knight Riders      Runs
140.0

    method Player_of_Match
Team1Players  \
0     NaN       HH Pandya  ['YBK Jaiswal', 'JC Buttler', 'SV Samson',
'D ...
1     NaN       JC Buttler  ['V Kohli', 'F du Plessis', 'RM Patidar',
'GJ ...
2     NaN       RM Patidar  ['V Kohli', 'F du Plessis', 'RM Patidar',
'GJ ...
```

```
3      NaN      DA Miller  ['YBK Jaiswal', 'JC Buttler', 'SV Samson',
'D ...
4      NaN   Harpreet Brar  ['PK Garg', 'Abhishek Sharma', 'RA
Tripathi', ...
..      ...            ...
...
945    NaN      DJ Hussey  ['WP Saha', 'BB McCullum', 'RT Ponting',
'SC G...
946    NaN     MV Boucher  ['L Ronchi', 'ST Jayasuriya', 'DJ
Thornely', '...
947    NaN     MF Maharoof  ['G Gambhir', 'V Sehwag', 'S Dhawan', 'MK
Tiwa...
948    NaN     MEK Hussey  ['K Goel', 'JR Hopes', 'KC Sangakkara',
'Yuvra...
949    NaN     BB McCullum  ['R Dravid', 'W Jaffer', 'V Kohli', 'JH
Kallis...

                                       Team2Players         Umpire1
\
0    ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...    CB Gaffaney

1    ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...    CB Gaffaney

2    ['Q de Kock', 'KL Rahul', 'M Vohra', 'DJ Hooda...  J Madanagopal

3    ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...   BNJ Oxenford

4    ['JM Bairstow', 'S Dhawan', 'M Shahrukh Khan',...   AK Chaudhary

..                                                ...            ...

945  ['AC Gilchrist', 'Y Venugopal Rao', 'VVS Laxma...      BF Bowden

946  ['S Chanderpaul', 'R Dravid', 'LRPL Taylor', '...       SJ Davis

947  ['T Kohli', 'YK Pathan', 'SR Watson', 'M Kaif'...      Aleem Dar

948  ['PA Patel', 'ML Hayden', 'MEK Hussey', 'MS Dh...      MR Benson

949  ['SC Ganguly', 'BB McCullum', 'RT Ponting', 'D...      Asad Rauf


          Umpire2
0       Nitin Menon
1       Nitin Menon
2         MA Gough
3         VK Sharma
4     NA Patwardhan
..            ...
945      K Hariharan
```

```
946        DJ Harper
947  GA Pratapkumar
948        SL Shastri
949      RE Koertzen

[950 rows x 20 columns]
```

```python
# ipl ke kitne season hue hain
ipl['Season'].unique()
```

```
array(['2022', '2021', '2020/21', '2019', '2018', '2017', '2016', '2015',
       '2014', '2013', '2012', '2011', '2009/10', '2009', '2007/08'],
      dtype=object)
```

```python
len(ipl['Season'].unique())
```

```
15
```

```python
# nunique (serries + dataframe) => unique value ka count bata deta hai
and nan ko count nahi karta hai
ipl['Season'].nunique()
```

```
15
```

```python
temp
```

```
0       1.0
1       1.0
2       2.0
3       2.0
4       3.0
5       3.0
6       4.0
7       4.0
8       5.0
9       5.0
10      NaN
11      NaN
dtype: float64
```

```python
len(temp.unique())
```

```
6
```

```python
temp.nunique()
```

```
5
```

```python
# isnull (series + dataframe)
students
```

```
        name college branch    cgpa   package
0      nitish     bit    eee    6.66       4.0
1       ankit     iit     it    8.25       5.0
2      rupesh     vit    cse    6.41       6.0
3         NaN     NaN    NaN     NaN       NaN
4   mrityunjay    NaN     me    5.60       6.0
5         NaN    vlsi     ce    9.00       7.0
6     rishabh    ssit    civ    7.40       8.0
7         NaN     NaN    cse   10.00       9.0
8      aditya     NaN    bio    7.40       NaN
9         NaN     git    NaN     NaN       NaN
```

isnull ko jab series pe chalaoge to batayega ki value missing hai ki
nahi yadi missing hai to true se replace kar dega otherwise false se
students['name']

```
0        nitish
1         ankit
2        rupesh
3           NaN
4    mrityunjay
5           NaN
6       rishabh
7           NaN
8        aditya
9           NaN
Name: name, dtype: object
```

students['name'].isnull()

```
0    False
1    False
2    False
3     True
4    False
5     True
6    False
7     True
8    False
9     True
Name: name, dtype: bool
```

students['name'][students['name'].isnull()]

```
3    NaN
5    NaN
7    NaN
9    NaN
Name: name, dtype: object
```

```python
# notnull (series+dataframe) => just isnull ke opposite kaam karta hai
students['name'].notnull()
```

```
0     True
1     True
2     True
3    False
4     True
5    False
6     True
7    False
8     True
9    False
Name: name, dtype: bool
```

```python
students['name'][students['name'].notnull()]
```

```
0       nitish
1        ankit
2       rupesh
4    mrityunjay
6      rishabh
8       aditya
Name: name, dtype: object
```

```python
# hasnans (series )    => cheeck karta hai kya ek bhi missing value
hai pure series me
students['name'].hasnans
```

```
True
```

```python
# for dataframe
students
```

	name	college	branch	cgpa	package
0	nitish	bit	eee	6.66	4.0
1	ankit	iit	it	8.25	5.0
2	rupesh	vit	cse	6.41	6.0
3	NaN	NaN	NaN	NaN	NaN
4	mrityunjay	NaN	me	5.60	6.0
5	NaN	vlsi	ce	9.00	7.0
6	rishabh	ssit	civ	7.40	8.0
7	NaN	NaN	cse	10.00	9.0
8	aditya	NaN	bio	7.40	NaN
9	NaN	git	NaN	NaN	NaN

```python
students.isnull()   # pure dataframe ko single go me check kar dega
```

	name	college	branch	cgpa	package
0	False	False	False	False	False
1	False	False	False	False	False

```
2   False     False     False   False      False
3    True      True      True    True       True
4   False      True     False   False      False
5    True     False     False   False      False
6   False     False     False   False      False
7    True      True     False   False      False
8   False      True     False   False       True
9    True     False      True    True       True
```

students.notnull()

```
     name  college   branch    cgpa   package
0    True     True     True    True      True
1    True     True     True    True      True
2    True     True     True    True      True
3   False    False    False   False     False
4    True    False     True    True      True
5   False     True     True    True      True
6    True     True     True    True      True
7   False    False     True    True      True
8    True    False     True    True     False
9   False     True    False   False     False
```

```
# dropna (series + dataframe)  -> hoe parameter -> works like or   =>
sare missing value ko drop kar deta hai
students
```

```
          name  college  branch    cgpa  package
0       nitish      bit     eee    6.66      4.0
1        ankit      iit      it    8.25      5.0
2       rupesh      vit     cse    6.41      6.0
3          NaN      NaN     NaN     NaN      NaN
4   mrityunjay      NaN      me    5.60      6.0
5          NaN     vlsi      ce    9.00      7.0
6      rishabh     ssit     civ    7.40      8.0
7          NaN      NaN     cse   10.00      9.0
8       aditya      NaN     bio    7.40      NaN
9          NaN      git     NaN     NaN      NaN
```

students['name']

```
0        nitish
1         ankit
2        rupesh
3           NaN
4    mrityunjay
5           NaN
6       rishabh
7           NaN
```

```
8          aditya
9             NaN
Name: name, dtype: object

students['name'].dropna()

0          nitish
1           ankit
2          rupesh
4       mrityunjay
6         rishabh
8          aditya
Name: name, dtype: object
```

```python
# dropna on dataframe
students
```

```
         name college branch    cgpa  package
0       nitish     bit    eee    6.66      4.0
1        ankit     iit     it    8.25      5.0
2       rupesh     vit    cse    6.41      6.0
3          NaN     NaN    NaN     NaN      NaN
4    mrityunjay     NaN     me    5.60      6.0
5          NaN    vlsi     ce    9.00      7.0
6      rishabh    ssit    civ    7.40      8.0
7          NaN     NaN    cse   10.00      9.0
8       aditya     NaN    bio    7.40      NaN
9          NaN     git    NaN     NaN      NaN
```

```python
students.dropna()  # kisi bhi row me agar ek bhi jagah nan value hai
to wo hat jayega
```

```
      name college branch   cgpa  package
0   nitish     bit    eee   6.66      4.0
1    ankit     iit     it   8.25      5.0
2   rupesh     vit    cse   6.41      6.0
6  rishabh    ssit    civ   7.40      8.0
```

```python
students.dropna(how='any')  # ye default parameter hota hai
```

```
      name college branch   cgpa  package
0   nitish     bit    eee   6.66      4.0
1    ankit     iit     it   8.25      5.0
2   rupesh     vit    cse   6.41      6.0
6  rishabh    ssit    civ   7.40      8.0
```

```python
# hum bass uss row ko hatana chahate hain jaha pe sari ki sari value
missing hai
students.dropna(how='all')
```

```
          name college branch    cgpa   package
0        nitish    bit    eee    6.66       4.0
1         ankit    iit     it    8.25       5.0
2        rupesh    vit    cse    6.41       6.0
4    mrityunjay    NaN     me    5.60       6.0
5           NaN   vlsi     ce    9.00       7.0
6       rishabh   ssit    civ    7.40       8.0
7           NaN    NaN    cse   10.00       9.0
8        aditya    NaN    bio    7.40       NaN
9           NaN    git    NaN     NaN       NaN
```

 # agar aap chaho to kisi particular column ke basis pe bhi hata sakte ho
 # hum chahate hain ki wo sari row delate ho jaye jaha par name column me nan value hai
```python
students.dropna(subset=['name'])
```

```
          name college branch  cgpa   package
0        nitish    bit    eee  6.66       4.0
1         ankit    iit     it  8.25       5.0
2        rupesh    vit    cse  6.41       6.0
4    mrityunjay    NaN     me  5.60       6.0
6       rishabh   ssit    civ  7.40       8.0
8        aditya    NaN    bio  7.40       NaN
```

 # unn row ko hata do jaha pe ya to name bale column me missing value hai yaa to college bale me missing value hai

```python
students.dropna(subset=['name','college'])
```

```
        name college branch   cgpa   package
0    nitish    bit    eee   6.66       4.0
1     ankit    iit     it   8.25       5.0
2    rupesh    vit    cse   6.41       6.0
6   rishabh   ssit    civ   7.40       8.0
```

```python
students    # qki koi bhi permanent changes nahi hai but agar aap
```
karna chahate ho to inplace='True' kar do like
students.dropna(inplace=true)

```
          name college branch    cgpa   package
0        nitish    bit    eee    6.66       4.0
1         ankit    iit     it    8.25       5.0
2        rupesh    vit    cse    6.41       6.0
3           NaN    NaN    NaN     NaN       NaN
4    mrityunjay    NaN     me    5.60       6.0
5           NaN   vlsi     ce    9.00       7.0
6       rishabh   ssit    civ    7.40       8.0
7           NaN    NaN    cse   10.00       9.0
8        aditya    NaN    bio    7.40       NaN
9           NaN    git    NaN     NaN       NaN
```

```python
#fillna(series + dataframe)  => nan data ko kisi value se fill kar
deta hai
students['name']
```

```
0          nitish
1           ankit
2          rupesh
3             NaN
4      mrityunjay
5             NaN
6         rishabh
7             NaN
8          aditya
9             NaN
Name: name, dtype: object
```

```python
students['name'].fillna('unknown')
```

```
0          nitish
1           ankit
2          rupesh
3         unknown
4      mrityunjay
5         unknown
6         rishabh
7         unknown
8          aditya
9         unknown
Name: name, dtype: object
```

```python
# fordataframe
students
```

```
         name college branch    cgpa   package
0       nitish     bit    eee    6.66       4.0
1        ankit     iit     it    8.25       5.0
2       rupesh     vit    cse    6.41       6.0
3          NaN     NaN    NaN     NaN       NaN
4   mrityunjay     NaN     me    5.60       6.0
5          NaN    vlsi     ce    9.00       7.0
6      rishabh    ssit    civ    7.40       8.0
7          NaN     NaN    cse   10.00       9.0
8       aditya     NaN    bio    7.40       NaN
9          NaN     git    NaN     NaN       NaN
```

```python
students.fillna(0)   # jaha bhi missing value hai waha pe zero fill ho
jayega but not a good way hume column wise fill karna chahaiye
```

```
         name college branch    cgpa   package
0       nitish     bit    eee    6.66       4.0
1        ankit     iit     it    8.25       5.0
```

```
2      rupesh      vit     cse     6.41       6.0
3           0        0       0     0.00       0.0
4  mrityunjay        0      me     5.60       6.0
5           0     vlsi      ce     9.00       7.0
6     rishabh     ssit     civ     7.40       8.0
7           0        0     cse    10.00       9.0
8      aditya        0     bio     7.40       0.0
9           0      git       0     0.00       0.0
```

students['package'].fillna(students['package'].mean())

```
0     4.000000
1     5.000000
2     6.000000
3     6.428571
4     6.000000
5     7.000000
6     8.000000
7     9.000000
8     6.428571
9     6.428571
Name: package, dtype: float64
```

students['name']

```
0         nitish
1          ankit
2         rupesh
3            NaN
4     mrityunjay
5            NaN
6        rishabh
7            NaN
8         aditya
9            NaN
Name: name, dtype: object
```

students['name'].fillna(method='ffill') *# forward fill jo nan value hai usme pichle row kw value ko fill kar dega*

```
C:\Users\jayra\AppData\Local\Temp\ipykernel_15296\538422019.py:1:
FutureWarning: Series.fillna with 'method' is deprecated and will
raise in a future version. Use obj.ffill() or obj.bfill() instead.
  students['name'].fillna(method='ffill')
```

```
0         nitish
1          ankit
2         rupesh
3         rupesh
4     mrityunjay
5     mrityunjay
```

```
6        rishabh
7        rishabh
8         aditya
9         aditya
Name: name, dtype: object
```

```python
students['name'].fillna(method='bfill')  # backward fill jo nan value
hai usme agle row kw value ko fill kar dega
```

```
C:\Users\jayra\AppData\Local\Temp\ipykernel_15296\1941178041.py:1:
FutureWarning: Series.fillna with 'method' is deprecated and will
raise in a future version. Use obj.ffill() or obj.bfill() instead.
  students['name'].fillna(method='bfill')
```

```
0        nitish
1         ankit
2        rupesh
3    mrityunjay
4    mrityunjay
5       rishabh
6       rishabh
7        aditya
8        aditya
9           NaN
Name: name, dtype: object
```

```python
# drop_duplicates (series + dataframe) -> work like and  -
>duplicated()
marks
```

```
     iq  marks  package
0  100     80       10
1   90     70        7
2  120    100       14
3   80     70       14
4   80     70       14
```

```python
marks.duplicated()
```

```
0    False
1    False
2    False
3    False
4     True
dtype: bool
```

```python
marks.duplicated().sum()
```

```
1
```

```
temp = pd.Series([1,1,1,2,3,3,4,4])
temp.drop_duplicates()
```

```
0    1
3    2
4    3
6    4
dtype: int64
```

```
# for dataframe
marks
```

```
     iq  marks  package
0   100     80       10
1    90     70        7
2   120    100       14
3    80     70       14
4    80     70       14
```

```
marks.drop_duplicates()
```

```
     iq  marks  package
0   100     80       10
1    90     70        7
2   120    100       14
3    80     70       14
```

```
# keep parameter iske help se aap either firse occurrence ya phir last
occurrence ko rakh sakte hain  bydefault first hota hai
marks.drop_duplicates(keep='first')
```

```
     iq  marks  package
0   100     80       10
1    90     70        7
2   120    100       14
3    80     70       14
```

```
marks.drop_duplicates(keep='last')
```

```
     iq  marks  package
0   100     80       10
1    90     70        7
2   120    100       14
4    80     70       14
```

```
# find the last match played by virat kohli in delhi
ipl
```

```
          ID        City        Date   Season  MatchNumber  \
0    1312200   Ahmedabad  2022-05-29     2022        Final
1    1312199   Ahmedabad  2022-05-27     2022  Qualifier 2
2    1312198      Kolkata  2022-05-25     2022    Eliminator
```

```
3       1312197       Kolkata   2022-05-24       2022   Qualifier 1
4       1304116        Mumbai   2022-05-22       2022            70
..          ...           ...          ...        ...           ...
945      335986       Kolkata   2008-04-20    2007/08             4
946      335985        Mumbai   2008-04-20    2007/08             5
947      335984         Delhi   2008-04-19    2007/08             3
948      335983     Chandigarh  2008-04-19    2007/08             2
949      335982     Bangalore   2008-04-18    2007/08             1

                             Team1                            Team2  \
0              Rajasthan Royals                      Gujarat Titans
1    Royal Challengers Bangalore                  Rajasthan Royals
2    Royal Challengers Bangalore              Lucknow Super Giants
3              Rajasthan Royals                      Gujarat Titans
4             Sunrisers Hyderabad                      Punjab Kings
..                           ...                               ...
945          Kolkata Knight Riders                  Deccan Chargers
946                Mumbai Indians   Royal Challengers Bangalore
947               Delhi Daredevils                 Rajasthan Royals
948               Kings XI Punjab             Chennai Super Kings
949  Royal Challengers Bangalore         Kolkata Knight Riders

                                           Venue
TossWinner  \
0                 Narendra Modi Stadium, Ahmedabad                  Rajasthan
Royals
1                 Narendra Modi Stadium, Ahmedabad                  Rajasthan
Royals
2                          Eden Gardens, Kolkata          Lucknow Super
Giants
3                          Eden Gardens, Kolkata                  Gujarat
Titans
4                      Wankhede Stadium, Mumbai          Sunrisers
Hyderabad
..                                           ...
...
945                                  Eden Gardens                  Deccan
Chargers
946                              Wankhede Stadium                  Mumbai
Indians
947                               Feroz Shah Kotla                  Rajasthan
Royals
948  Punjab Cricket Association Stadium, Mohali          Chennai Super
Kings
949                         M Chinnaswamy Stadium   Royal Challengers
Bangalore

    TossDecision SuperOver              WinningTeam      WonBy
Margin  \
0              bat          N          Gujarat Titans   Wickets
```

```
7.0
1            field          N               Rajasthan Royals   Wickets
7.0
2            field          N   Royal Challengers Bangalore      Runs
14.0
3            field          N                  Gujarat Titans   Wickets
7.0
4              bat          N                    Punjab Kings   Wickets
5.0
..             ...        ...                             ...       ...     .
..
945            bat          N           Kolkata Knight Riders   Wickets
5.0
946            bat          N   Royal Challengers Bangalore   Wickets
5.0
947            bat          N                 Delhi Daredevils   Wickets
9.0
948            bat          N              Chennai Super Kings      Runs
33.0
949          field          N           Kolkata Knight Riders      Runs
140.0

    method Player_of_Match                                      Team1Players  \
0      NaN        HH Pandya   ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
1      NaN        JC Buttler   ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
2      NaN        RM Patidar   ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
3      NaN        DA Miller    ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
4      NaN     Harpreet Brar   ['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...
..     ...             ...                                              ...
945    NaN        DJ Hussey    ['WP Saha', 'BB McCullum', 'RT Ponting', 'SC G...
946    NaN        MV Boucher   ['L Ronchi', 'ST Jayasuriya', 'DJ Thornely', '...
947    NaN       MF Maharoof   ['G Gambhir', 'V Sehwag', 'S Dhawan', 'MK Tiwa...
948    NaN        MEK Hussey   ['K Goel', 'JR Hopes', 'KC Sangakkara', 'Yuvra...
949    NaN       BB McCullum   ['R Dravid', 'W Jaffer', 'V Kohli', 'JH Kallis...

                                          Team2Players      Umpire1  \
```

```
0      ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...      CB Gaffaney

1      ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...      CB Gaffaney

2      ['Q de Kock', 'KL Rahul', 'M Vohra', 'DJ Hooda...   J Madanagopal

3      ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...      BNJ Oxenford

4      ['JM Bairstow', 'S Dhawan', 'M Shahrukh Khan',...      AK Chaudhary

..                                                    ...             ...

945    ['AC Gilchrist', 'Y Venugopal Rao', 'VVS Laxma...       BF Bowden

946    ['S Chanderpaul', 'R Dravid', 'LRPL Taylor', '...         SJ Davis

947    ['T Kohli', 'YK Pathan', 'SR Watson', 'M Kaif'...        Aleem Dar

948    ['PA Patel', 'ML Hayden', 'MEK Hussey', 'MS Dh...        MR Benson

949    ['SC Ganguly', 'BB McCullum', 'RT Ponting', 'D...        Asad Rauf


           Umpire2
0       Nitin Menon
1       Nitin Menon
2          MA Gough
3         VK Sharma
4     NA Patwardhan
..              ...
945      K Hariharan
946        DJ Harper
947  GA Pratapkumar
948       SL Shastri
949       RE Koertzen

[950 rows x 20 columns]
```

```python
# step -1 : find karo ki team me virat kohli khel raha tha ki nahi
ipl['all_players']=ipl['Team1Players']+ipl['Team2Players']  # hum ek
alag column bana lenge jisme ki total player hoga each match ka

ipl.head()
```

```
        ID       City        Date  Season  MatchNumber  \
0  1312200  Ahmedabad  2022-05-29    2022        Final
1  1312199  Ahmedabad  2022-05-27    2022  Qualifier 2
2  1312198    Kolkata  2022-05-25    2022   Eliminator
3  1312197    Kolkata  2022-05-24    2022  Qualifier 1
4  1304116     Mumbai  2022-05-22    2022           70
```

```
                              Team1                   Team2    \
0              Rajasthan Royals          Gujarat Titans
1   Royal Challengers Bangalore        Rajasthan Royals
2   Royal Challengers Bangalore    Lucknow Super Giants
3              Rajasthan Royals          Gujarat Titans
4            Sunrisers Hyderabad            Punjab Kings

                               Venue              TossWinner TossDecision
    ...   \
0  Narendra Modi Stadium, Ahmedabad        Rajasthan Royals          bat
...
1  Narendra Modi Stadium, Ahmedabad        Rajasthan Royals        field
...
2             Eden Gardens, Kolkata    Lucknow Super Giants        field
...
3             Eden Gardens, Kolkata          Gujarat Titans        field
...
4          Wankhede Stadium, Mumbai     Sunrisers Hyderabad          bat
...

      WonBy  Margin method   Player_of_Match  \
0  Wickets     7.0    NaN          HH Pandya
1  Wickets     7.0    NaN          JC Buttler
2     Runs    14.0    NaN          RM Patidar
3  Wickets     7.0    NaN          DA Miller
4  Wickets     5.0    NaN       Harpreet Brar

                                      Team1Players  \
0  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
1  ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
2  ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
3  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
4  ['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...

                                      Team2Players        Umpire1  \
0  ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...     CB Gaffaney
1  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...     CB Gaffaney
2  ['Q de Kock', 'KL Rahul', 'M Vohra', 'DJ Hooda...  J Madanagopal
3  ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...   BNJ Oxenford
4  ['JM Bairstow', 'S Dhawan', 'M Shahrukh Khan',...    AK Chaudhary

         Umpire2                                         all players  \
0     Nitin Menon   ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
1     Nitin Menon   ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
2        MA Gough   ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
3       VK Sharma   ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
4  NA Patwardhan   ['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...

                                      all_players
0  ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
```

```
1    ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
2    ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
3    ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
4    ['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...

[5 rows x 22 columns]

def did_kohli_play(players_list):
    return 'V Kohli' in players_list


ipl['all_players'].apply(did_kohli_play)

0      False
1       True
2       True
3      False
4      False
       ...
945    False
946     True
947    False
948    False
949     True
Name: all_players, Length: 950, dtype: bool

ipl['did_kohli_play']=ipl['all_players'].apply(did_kohli_play)

ipl

          ID       City        Date   Season   MatchNumber  \
0    1312200   Ahmedabad  2022-05-29     2022         Final
1    1312199   Ahmedabad  2022-05-27     2022   Qualifier 2
2    1312198     Kolkata  2022-05-25     2022     Eliminator
3    1312197     Kolkata  2022-05-24     2022   Qualifier 1
4    1304116      Mumbai  2022-05-22     2022            70
..       ...         ...         ...      ...           ...
945   335986     Kolkata  2008-04-20  2007/08             4
946   335985      Mumbai  2008-04-20  2007/08             5
947   335984       Delhi  2008-04-19  2007/08             3
948   335983  Chandigarh  2008-04-19  2007/08             2
949   335982   Bangalore  2008-04-18  2007/08             1

                          Team1                      Team2  \
0              Rajasthan Royals            Gujarat Titans
1    Royal Challengers Bangalore         Rajasthan Royals
2    Royal Challengers Bangalore      Lucknow Super Giants
3              Rajasthan Royals            Gujarat Titans
4            Sunrisers Hyderabad              Punjab Kings
..                          ...                       ...
945        Kolkata Knight Riders          Deccan Chargers
```

```
946             Mumbai Indians   Royal Challengers Bangalore
947           Delhi Daredevils            Rajasthan Royals
948             Kings XI Punjab         Chennai Super Kings
949  Royal Challengers Bangalore       Kolkata Knight Riders

                                           Venue
TossWinner  \
0              Narendra Modi Stadium, Ahmedabad           Rajasthan
Royals
1              Narendra Modi Stadium, Ahmedabad           Rajasthan
Royals
2                         Eden Gardens, Kolkata        Lucknow Super
Giants
3                         Eden Gardens, Kolkata             Gujarat
Titans
4                      Wankhede Stadium, Mumbai            Sunrisers
Hyderabad
..                                          ...
...
945                                Eden Gardens              Deccan
Chargers
946                            Wankhede Stadium              Mumbai
Indians
947                            Feroz Shah Kotla           Rajasthan
Royals
948  Punjab Cricket Association Stadium, Mohali        Chennai Super
Kings
949                       M Chinnaswamy Stadium  Royal Challengers
Bangalore

    TossDecision  ... Margin method Player_of_Match  \
0            bat  ...    7.0    NaN       HH Pandya
1          field  ...    7.0    NaN       JC Buttler
2          field  ...   14.0    NaN       RM Patidar
3          field  ...    7.0    NaN        DA Miller
4            bat  ...    5.0    NaN     Harpreet Brar
..           ...  ...    ...    ...             ...
945          bat  ...    5.0    NaN        DJ Hussey
946          bat  ...    5.0    NaN       MV Boucher
947          bat  ...    9.0    NaN       MF Maharoof
948          bat  ...   33.0    NaN        MEK Hussey
949        field  ...  140.0    NaN       BB McCullum

                                       Team1Players  \
0    ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
1    ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
2    ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
3    ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
4    ['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...
..                                                ...
```

```
945  ['WP Saha', 'BB McCullum', 'RT Ponting', 'SC G...
946  ['L Ronchi', 'ST Jayasuriya', 'DJ Thornely', '...
947  ['G Gambhir', 'V Sehwag', 'S Dhawan', 'MK Tiwa...
948  ['K Goel', 'JR Hopes', 'KC Sangakkara', 'Yuvra...
949  ['R Dravid', 'W Jaffer', 'V Kohli', 'JH Kallis...
```

	Team2Players	Umpire1
0	['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...	CB Gaffaney
1	['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...	CB Gaffaney
2	['Q de Kock', 'KL Rahul', 'M Vohra', 'DJ Hooda...	J Madanagopal
3	['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...	BNJ Oxenford
4	['JM Bairstow', 'S Dhawan', 'M Shahrukh Khan',...	AK Chaudhary
..	...	...
945	['AC Gilchrist', 'Y Venugopal Rao', 'VVS Laxma...	BF Bowden
946	['S Chanderpaul', 'R Dravid', 'LRPL Taylor', '...	SJ Davis
947	['T Kohli', 'YK Pathan', 'SR Watson', 'M Kaif'...	Aleem Dar
948	['PA Patel', 'ML Hayden', 'MEK Hussey', 'MS Dh...	MR Benson
949	['SC Ganguly', 'BB McCullum', 'RT Ponting', 'D...	Asad Rauf

	Umpire2	all players
0	Nitin Menon	['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
1	Nitin Menon	['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
2	MA Gough	['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...
3	VK Sharma	['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
4	NA Patwardhan	['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...
..	...	...
945	K Hariharan	['WP Saha', 'BB McCullum', 'RT Ponting', 'SC G...
946	DJ Harper	['L Ronchi', 'ST Jayasuriya', 'DJ Thornely', '...
947	GA Pratapkumar	['G Gambhir', 'V Sehwag', 'S Dhawan', 'MK Tiwa...

```
948      SL Shastri  ['K Goel', 'JR Hopes', 'KC Sangakkara', 'Yuvra...

949      RE Koertzen  ['R Dravid', 'W Jaffer', 'V Kohli', 'JH Kallis...


                                            all_players did_kohli_play

0    ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...              False

1    ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...               True

2    ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...               True

3    ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...              False

4    ['PK Garg', 'Abhishek Sharma', 'RA Tripathi', ...              False

..                                                   ...                ...

945  ['WP Saha', 'BB McCullum', 'RT Ponting', 'SC G...              False

946  ['L Ronchi', 'ST Jayasuriya', 'DJ Thornely', '...               True

947  ['G Gambhir', 'V Sehwag', 'S Dhawan', 'MK Tiwa...              False

948  ['K Goel', 'JR Hopes', 'KC Sangakkara', 'Yuvra...              False

949  ['R Dravid', 'W Jaffer', 'V Kohli', 'JH Kallis...               True


[950 rows x 23 columns]
(ipl['City'] =='Delhi') & (ipl['did_kohli_play']==True)

0      False
1      False
2      False
3      False
4      False
      ...
945    False
946    False
947    False
948    False
949    False
Length: 950, dtype: bool

ipl[(ipl['City'] =='Delhi') & (ipl['did_kohli_play']==True)]

          ID   City         Date   Season MatchNumber          Team1
\
208  1178421  Delhi  2019-04-28     2019          46   Delhi Capitals
```

```
269  1136605  Delhi  2018-05-12     2018            45  Delhi Daredevils

318  1082646  Delhi  2017-05-14     2017            56  Delhi Daredevils

467   829757  Delhi  2015-04-26     2015            26  Delhi Daredevils

571   598054  Delhi  2013-05-10     2013            57  Delhi Daredevils

638   548372  Delhi  2012-05-17     2012            67  Delhi Daredevils

746   501227  Delhi  2011-04-26     2011            30  Delhi Daredevils

801   419140  Delhi  2010-04-04  2009/10            35  Delhi Daredevils

933   335998  Delhi  2008-04-30  2007/08            17  Delhi Daredevils


                              Team2                 Venue  \
208  Royal Challengers Bangalore  Arun Jaitley Stadium
269  Royal Challengers Bangalore  Arun Jaitley Stadium
318  Royal Challengers Bangalore      Feroz Shah Kotla
467  Royal Challengers Bangalore      Feroz Shah Kotla
571  Royal Challengers Bangalore      Feroz Shah Kotla
638  Royal Challengers Bangalore      Feroz Shah Kotla
746  Royal Challengers Bangalore      Feroz Shah Kotla
801  Royal Challengers Bangalore      Feroz Shah Kotla
933  Royal Challengers Bangalore      Feroz Shah Kotla

                      TossWinner TossDecision  ... Margin method  \
208          Delhi Capitals          bat  ...   16.0    NaN
269  Royal Challengers Bangalore        field  ...    5.0    NaN
318  Royal Challengers Bangalore          bat  ...   10.0    NaN
467  Royal Challengers Bangalore        field  ...   10.0    NaN
571          Delhi Daredevils        field  ...    4.0    NaN
638          Delhi Daredevils        field  ...   21.0    NaN
746  Royal Challengers Bangalore        field  ...    3.0    NaN
801          Delhi Daredevils          bat  ...   37.0    NaN
933  Royal Challengers Bangalore        field  ...   10.0    NaN

    Player_of_Match                                        Team1Players
\
208        S Dhawan  ['PP Shaw', 'S Dhawan', 'SS Iyer', 'RR Pant', ...

269  AB de Villiers  ['PP Shaw', 'JJ Roy', 'SS Iyer', 'RR Pant', 'V...

318        HV Patel  ['SV Samson', 'KK Nair', 'SS Iyer', 'RR Pant',...

467        VR Aaron  ['MA Agarwal', 'SS Iyer', 'JP Duminy', 'Yuvraj...

571      JD Unadkat  ['DPMD Jayawardene', 'V Sehwag', 'UBT Chand', ...
```

```
638        CH Gayle  ['UBT Chand', 'DA Warner', 'Y Venugopal Rao', ...

746         V Kohli  ['DA Warner', 'V Sehwag', 'JR Hopes', 'MS Wade...

801  PD Collingwood  ['DA Warner', 'V Sehwag', 'G Gambhir', 'PD Col...

933      GD McGrath  ['G Gambhir', 'V Sehwag', 'S Dhawan', 'Shoaib ...


                                              Team2Players
Umpire1  \
208  ['PA Patel', 'V Kohli', 'AB de Villiers', 'S D...              BNJ
Oxenford
269  ['PA Patel', 'MM Ali', 'V Kohli', 'AB de Villi...  KN
Ananthapadmanabhan
318  ['CH Gayle', 'Vishnu Vinod', 'V Kohli', 'TM He...              CK
Nandan
467  ['CH Gayle', 'V Kohli', 'AB de Villiers', 'Man...               M
Erasmus
571  ['CA Pujara', 'CH Gayle', 'V Kohli', 'MC Henri...
NJ Llong
638  ['CH Gayle', 'TM Dilshan', 'V Kohli', 'AB de V...           HDPK
Dharmasena
746  ['CH Gayle', 'TM Dilshan', 'V Kohli', 'AB de V...               S
Asnani
801  ['JH Kallis', 'CL White', 'KP Pietersen', 'RV ...              BF
Bowden
933  ['P Kumar', 'W Jaffer', 'LRPL Taylor', 'JH Kal...
Aleem Dar


                  Umpire2                                            all
players  \
208  KN Ananthapadmanabhan  ['PP Shaw', 'S Dhawan', 'SS Iyer', 'RR
Pant', ...
269       HDPK Dharmasena  ['PP Shaw', 'JJ Roy', 'SS Iyer', 'RR
Pant', 'V...
318         C Shamshuddin  ['SV Samson', 'KK Nair', 'SS Iyer', 'RR
Pant',...
467                S Ravi  ['MA Agarwal', 'SS Iyer', 'JP Duminy',
'Yuvraj...
571             K Srinath  ['DPMD Jayawardene', 'V Sehwag', 'UBT
Chand', ...
638         C Shamshuddin  ['UBT Chand', 'DA Warner', 'Y Venugopal
Rao', ...
746             RJ Tucker  ['DA Warner', 'V Sehwag', 'JR Hopes', 'MS
Wade...
801             M Erasmus  ['DA Warner', 'V Sehwag', 'G Gambhir', 'PD
Col...
933             I Shivram  ['G Gambhir', 'V Sehwag', 'S Dhawan',
```

```
'Shoaib ...
```

```
                                      all_players did_kohli_play

208  ['PP Shaw', 'S Dhawan', 'SS Iyer', 'RR Pant', ...              True

269  ['PP Shaw', 'JJ Roy', 'SS Iyer', 'RR Pant', 'V...              True

318  ['SV Samson', 'KK Nair', 'SS Iyer', 'RR Pant',...              True

467  ['MA Agarwal', 'SS Iyer', 'JP Duminy', 'Yuvraj...              True

571  ['DPMD Jayawardene', 'V Sehwag', 'UBT Chand', ...              True

638  ['UBT Chand', 'DA Warner', 'Y Venugopal Rao', ...              True

746  ['DA Warner', 'V Sehwag', 'JR Hopes', 'MS Wade...              True

801  ['DA Warner', 'V Sehwag', 'G Gambhir', 'PD Col...              True

933  ['G Gambhir', 'V Sehwag', 'S Dhawan', 'Shoaib ...              True


[9 rows x 23 columns]
```

```python
# abb sabse recent match ko rakhna hai
ipl[(ipl['City'] =='Delhi') &
(ipl['did_kohli_play']==True)].drop_duplicates(subset=['City','did_koh
li_play'],keep='first')  # jaha pe city and did_kohli_play ka value
same
                                                    #hai sabko
drop karo and sirf first bale ko rakho
```

```
          ID   City        Date Season MatchNumber           Team1  \
208  1178421  Delhi  2019-04-28   2019            46  Delhi Capitals

                           Team2                 Venue        TossWinner
\
208  Royal Challengers Bangalore  Arun Jaitley Stadium  Delhi Capitals


    TossDecision  ... Margin method Player_of_Match  \
208          bat  ...    16.0    NaN       S Dhawan

                                       Team1Players  \
208  ['PP Shaw', 'S Dhawan', 'SS Iyer', 'RR Pant', ...

                                       Team2Players
Umpire1  \
208  ['PA Patel', 'V Kohli', 'AB de Villiers', 'S D...  BNJ Oxenford
```

```
                  Umpire2                                          all
players  \
208  KN Ananthapadmanabhan  ['PP Shaw', 'S Dhawan', 'SS Iyer', 'RR
Pant', ...

                                              all_players did_kohli_play

208  ['PP Shaw', 'S Dhawan', 'SS Iyer', 'RR Pant', ...          True


[1 rows x 23 columns]
```

```python
# drop(series + dataframe)  => rows ya column ko delete karte hai
temp = pd.Series([10,2,3,16,45,78,10])
temp
```

```
0    10
1     2
2     3
3    16
4    45
5    78
6    10
dtype: int64
```

```python
temp.drop(index=[0,6])  #0th and 6th inex colum ko delete kar dega
```

```
1     2
2     3
3    16
4    45
5    78
dtype: int64
```

```python
students
```

```
          name college branch    cgpa   package
0       nitish     bit    eee    6.66       4.0
1        ankit     iit     it    8.25       5.0
2       rupesh     vit    cse    6.41       6.0
3          NaN     NaN    NaN     NaN       NaN
4    mrityunjay     NaN     me    5.60       6.0
5          NaN    vlsi     ce    9.00       7.0
6      rishabh    ssit    civ    7.40       8.0
7          NaN     NaN    cse   10.00       9.0
8       aditya     NaN    bio    7.40       NaN
9          NaN     git    NaN     NaN       NaN
```

```python
students.drop(columns=['branch','cgpa'])  # ye dataframe ke branch and
cgpa column ko drop kar dega but ye permanent nahi hoga
```

```
       name college  package
0     nitish    bit      4.0
1      ankit    iit      5.0
2     rupesh    vit      6.0
3        NaN    NaN      NaN
4  mrityunjay    NaN      6.0
5        NaN   vlsi      7.0
6    rishabh   ssit      8.0
7        NaN    NaN      9.0
8     aditya    NaN      NaN
9        NaN    git      NaN
```

```
students.drop(index=[0,8])    # row delete karega
```

```
       name college branch    cgpa  package
1      ankit    iit     it    8.25      5.0
2     rupesh    vit    cse    6.41      6.0
3        NaN    NaN    NaN     NaN      NaN
4  mrityunjay    NaN     me    5.60      6.0
5        NaN   vlsi     ce    9.00      7.0
6    rishabh   ssit    civ    7.40      8.0
7        NaN    NaN    cse   10.00      9.0
9        NaN    git    NaN     NaN      NaN
```

```
students.set_index('name')
```

```
            college branch   cgpa  package
name
nitish          bit    eee   6.66      4.0
ankit           iit     it   8.25      5.0
rupesh          vit    cse   6.41      6.0
NaN             NaN    NaN    NaN      NaN
mrityunjay      NaN     me   5.60      6.0
NaN            vlsi     ce   9.00      7.0
rishabh        ssit    civ   7.40      8.0
NaN             NaN    cse  10.00      9.0
aditya          NaN    bio   7.40      NaN
NaN             git    NaN    NaN      NaN
```

```
students.set_index('name').drop(index=['nitish','aditya'])
```

```
            college branch   cgpa  package
name
ankit           iit     it   8.25      5.0
rupesh          vit    cse   6.41      6.0
NaN             NaN    NaN    NaN      NaN
mrityunjay      NaN     me   5.60      6.0
NaN            vlsi     ce   9.00      7.0
```

```
rishabh         ssit    civ    7.40        8.0
NaN             NaN     cse   10.00        9.0
NaN             git     NaN    NaN         NaN
```

```python
# apply (series + dataframe)
temp = pd.Series([10,20,30,40,50])

temp
```

```
0    10
1    20
2    30
3    40
4    50
dtype: int64
```

```python
def sigmoid(value):
    return 1/1+np.exp(-value)

temp.apply(sigmoid)
```

```
0    1.000045
1    1.000000
2    1.000000
3    1.000000
4    1.000000
dtype: float64
```

```python
# on dataframe
points_df = pd.DataFrame(
    {
        '1st point':[(3,4),(-6,5),(0,0),(-10,1),(4,5)],
        '2nd point':[(-3,4),(0,0),(2,2),(10,10),(1,1)]
    }
)

points_df
```

```
   1st point 2nd point
0     (3, 4)    (-3, 4)
1    (-6, 5)     (0, 0)
2     (0, 0)     (2, 2)
3   (-10, 1)   (10, 10)
4     (4, 5)     (1, 1)
```

```python
# suppose dono point ke bich ka euclidean distance nikal kar ek alag
column me store karna hai
# hum row ke upar bhi apply chala sakte hain

def euclidean(row):
```

```
    pt_A = row['1st point']
    pt_B = row['2nd point']

    return ((pt_A[0]-pt_B[0])**2 + (pt_A[1]-pt_B[1])**2)**0.5

points_df.apply(euclidean,axis=1)    # axis = 1 means oassing a row

0      6.000000
1      7.810250
2      2.828427
3     21.931712
4      5.000000
dtype: float64

points_df['distance']=points_df.apply(euclidean,axis=1)
points_df

   1st point 2nd point      distance
0     (3, 4)    (-3, 4)     6.000000
1    (-6, 5)     (0, 0)     7.810250
2     (0, 0)     (2, 2)     2.828427
3   (-10, 1)   (10, 10)    21.931712
4     (4, 5)     (1, 1)     5.000000
```