

```
import numpy as np
import pandas as pd
```

Creating Dataframe

- simply 2D data consisting rows and columns is called as Dataframe and each column is called as Series
- DataFrame ke each row ko bhi series kaha jata hai

```
# using lists
# agar aapko ek dataframe banana hai to 2d list ka need padega
# simply ek list banana chahate hain jisme ki store karenge IQ, Marks and package
student_data=[
    [100,80,10],
    [90,70,7],
    [120,100,14],
    [80,50,2]
]
```

```
pd.DataFrame(student_data, columns=["iq", 'marks', 'package'])
```

	iq	marks	package
0	100	80	10
1	90	70	7
2	120	100	14
3	80	50	2

```
# using dicts
```

```
student_dict={
    'name':['nitish','ankit','rupesh','rishabh','amit','ankita'],
    'iq':[100,90,120,80,0,0],
    'marks':[80,70,100,50,0,0],
    'package':[10,7,14,2,0,0]
}
```

```
students=pd.DataFrame(student_dict)
students
```

	name	iq	marks	package
0	nitish	100	80	10
1	ankit	90	70	7
2	rupesh	120	100	14
3	rishabh	80	50	2
4	amit	0	0	0
5	ankita	0	0	0

```
students.set_index('name', inplace=True) # abb name index ke tarah
kaam karne lagega and inplace iss change ko permanent kar dega
```

```
students
```

	iq	marks	package
name			
nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2
amit	0	0	0
ankita	0	0	0

```
# using read_csv
```

```
movies=pd.read_csv("movies.csv")  
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]
```

```
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 Maharoor ['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]
```

```
import pandas as pd
```

```
ipl['MatchNumber'].shape
```

```
(950,)
```

```
#shape
```

```
movies.shape #row and column bata deta hai
```

```
(1629, 18)
```

```
ipl.shape
```

```
(950, 20)
```

```
# dtypes
```

```
movies.dtypes # ye column ka types batayega qki dataframe me
multiple column hai and ye ek dtypes ka series return karta hai
```

```
title_x      object
imdb_id      object
poster_path  object
wiki_link    object
title_y      object
original_title  object
is_adult      int64
year_of_release  int64
runtime      object
genres       object
imdb_rating  float64
imdb_votes   int64
story        object
summary      object
tagline      object
actors       object
wins_nominations  object
release_date  object
dtype: object
```

```
ipl.dtypes
```

```
ID          int64
City        object
Date        object
Season      object
MatchNumber object
Team1       object
```



```
Team2          object
Venue          object
TossWinner     object
TossDecision   object
SuperOver      object
WinningTeam    object
WonBy          object
Margin         float64
method         object
Player_of_Match object
Team1Players   object
Team2Players   object
Umpire1        object
Umpire2        object
dtype: object
```

index

```
movies.index    # ye index ke range ko batata hai
```

```
RangeIndex(start=0, stop=1629, step=1)
```

```
ipl.index
```

```
RangeIndex(start=0, stop=950, step=1)
```

columns

```
movies.columns    # ek index object ke andar sare ke sare list form me index nikal ke de dega
```

```
Index(['title_x', 'imdb_id', 'poster_path', 'wiki_link', 'title_y',
       'original_title', 'is_adult', 'year_of_release', 'runtime',
       'genres',
       'imdb_rating', 'imdb_votes', 'story', 'summary', 'tagline',
       'actors',
       'wins_nominations', 'release_date'],
      dtype='object')
```

```
ipl.columns
```

```
Index(['ID', 'City', 'Date', 'Season', 'MatchNumber', 'Team1',
       'Team2',
       'Venue', 'TossWinner', 'TossDecision', 'SuperOver',
       'WinningTeam',
       'WonBy', 'Margin', 'method', 'Player_of_Match', 'Team1Players',
       'Team2Players', 'Umpire1', 'Umpire2'],
      dtype='object')
```

```

#values
students.values      # sare ke sare values ko fatch karke de dega 2D
numpy array ke form me

array([[100, 80, 10],
       [ 90, 70, 7],
       [120, 100, 14],
       [ 80, 50, 2],
       [ 0, 0, 0],
       [ 0, 0, 0]], dtype=int64)

ipl.values

array([[1312200, 'Ahmedabad', '2022-05-29', ...,
        "['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pandya', 'DA
Miller', 'R Tewatia', 'Rashid Khan', 'R Sai Kishore', 'LH Ferguson',
'Yash Dayal', 'Mohammed Shami']",
        'CB Gaffaney', 'Nitin Menon'],
       [1312199, 'Ahmedabad', '2022-05-27', ...,
        "['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D Padikkal', 'SO
Hetmyer', 'R Parag', 'R Ashwin', 'TA Boult', 'YS Chahal', 'M Prasidh
Krishna', 'OC McCoy']",
        'CB Gaffaney', 'Nitin Menon'],
       [1312198, 'Kolkata', '2022-05-25', ...,
        "['Q de Kock', 'KL Rahul', 'M Vohra', 'DJ Hooda', 'MP
Stoinis', 'E Lewis', 'KH Pandya', 'PVD Chameera', 'Mohsin Khan',
'Avesh Khan', 'Ravi Bishnoi']",
        'J Madanagopal', 'MA Gough'],
       ...,
       [335984, 'Delhi', '2008-04-19', ...,
        "['T Kohli', 'YK Pathan', 'SR Watson', 'M Kaif', 'DS Lehmann',
'RA Jadeja', 'M Rawat', 'D Salunkhe', 'SK Warne', 'SK Trivedi', 'MM
Patel']",
        'Aleem Dar', 'GA Pratapkumar'],
       [335983, 'Chandigarh', '2008-04-19', ...,
        "['PA Patel', 'ML Hayden', 'MEK Hussey', 'MS Dhoni', 'SK
Raina', 'JDP Oram', 'S Badrinath', 'Joginder Sharma', 'P Amarnath',
'MS Gony', 'M Muralitharan']",
        'MR Benson', 'SL Shastri'],
       [335982, 'Bangalore', '2008-04-18', ...,
        "['SC Ganguly', 'BB McCullum', 'RT Ponting', 'DJ Hussey',
'Mohammad Hafeez', 'LR Shukla', 'WP Saha', 'AB Agarkar', 'AB Dinda',
'M Kartik', 'I Sharma']",
        'Asad Rauf', 'RE Koertzen']], dtype=object)

#head and tail

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)
```

```
movies.head(8)
```

```
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
5 Soni (film) tt6078866
6 Fraud Saiyaan tt5013008
7 Bombairiya tt4971258
```

```
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
5 https://upload.wikimedia.org/wikipedia/en/thum...
6 https://upload.wikimedia.org/wikipedia/en/thum...
7 https://upload.wikimedia.org/wikipedia/en/thum...
```

	wiki_link \
0	https://en.wikipedia.org/wiki/Uri:_The_Surgical_Strike
1	https://en.wikipedia.org/wiki/Battalion_609
2	https://en.wikipedia.org/wiki/The_Accidental_Prime_Minister
3	https://en.wikipedia.org/wiki/Why_Cheat_India
4	https://en.wikipedia.org/wiki/Evening_Shadows
5	https://en.wikipedia.org/wiki/Soni_(film)
6	https://en.wikipedia.org/wiki/Fraud_Saiyaan
7	https://en.wikipedia.org/wiki/Bombairiya

	title_y	original_title
0	Uri: The Surgical Strike	Uri: The Surgical Strike
1	Battalion 609	Battalion 609
2	The Accidental Prime Minister	The Accidental Prime Minister
3	Why Cheat India	Why Cheat India
4	Evening Shadows	Evening Shadows
5	Soni	Soni
6	Fraud Saiyaan	Fraud Saiyyan
7	Bombairiya	Bombairiya

	year_of_release	runtime	genres	imdb_rating
0	2019	138	Action Drama War	8.4
1	2019	131	War	4.1
2	2019	112	Biography Drama	6.1
3	2019	121	Crime Drama	6.0
4	2018	102	Drama	7.3
5	2018	97	Drama	7.2
6	2019	109	Comedy Drama	4.2
7	2019	104	Comedy Crime Drama	4.3

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...
5 Soni a young policewoman in Delhi and her su...
6 Fraud Saiyyan is the story of a con artist in ...
7 It follows the story of Meghna who gets embro...

```

summary \

```

0 Indian army special forces execute a covert op...
1 The story of Battalion 609 revolves around a c...
2 Explores Manmohan Singh's tenure as the Prime ...
3 The movie focuses on existing malpractices in ...
4 Under the 'Evening Shadows' truth often plays...
5 While fighting crimes against women in Delhi ...
6 Fraud Saiyyan is the story of a con artist in ...
7 It follows the story of Meghna who gets embro...

```

tagline \

```

0 NaN
1 NaN
2 NaN
3 NaN
4 NaN
5 NaN
6 NaN
7 They didn't mean to change the world.

```

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
5 Geetika Vidya Ohlyan|Saloni Batra|Vikas Shukla... 3 wins & 5
nominations
6 Arshad Warsi|Saurabh Shukla|Flora Saini|Sara L...
NaN
7 Radhika Apte|Akshay Oberoi|Siddhanth Kapoor|Ra...
NaN

```

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)
5 18 January 2019 (USA)
6 18 January 2019 (India)
7 18 January 2019 (India)

```

```
ipl.tail()
```

	ID	City	Date	Season	MatchNumber	\
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	\
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 \		
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 \				
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 \
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 Maharoo  ['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 \
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
945   K Hariharan
946   DJ Harper
947   GA Pratapkumar
948   SL Shastri
949   RE Koertzen

```

```
ipl.tail(10)
```

```

ID      City      Date      Season MatchNumber \
940  335991  Chandigarh  2008-04-25  2007/08      10
941  335990  Hyderabad  2008-04-24  2007/08       9
942  335989   Chennai  2008-04-23  2007/08       8
943  335988  Hyderabad  2008-04-22  2007/08       7
944  335987   Jaipur  2008-04-21  2007/08       6
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 \
940      Kings XI Punjab      Mumbai Indians
941      Deccan Chargers      Rajasthan Royals
942      Chennai Super Kings      Mumbai Indians
943      Deccan Chargers      Delhi Daredevils
944      Rajasthan Royals      Kings XI Punjab
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 \		
940	Punjab Cricket Association Stadium, Mohali	Mumbai Indians
941	Rajiv Gandhi International Stadium, Uppal	Rajasthan Royals
942	MA Chidambaram Stadium, Chepauk	Mumbai Indians
943	Rajiv Gandhi International Stadium, Uppal	Deccan Chargers
944	Sawai Mansingh Stadium	Kings XI Punjab
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
Margin \	WonBy	
940	field	N
66.0	Kings XI Punjab	Runs
941	field	N
3.0	Rajasthan Royals	Wickets
942	field	N
6.0	Chennai Super Kings	Runs
943	bat	N
9.0	Delhi Daredevils	Wickets
944	bat	N
6.0	Rajasthan Royals	Wickets
945	bat	N
5.0	Kolkata Knight Riders	Wickets
946	bat	N
5.0	Royal Challengers Bangalore	Wickets
947	bat	N
9.0	Delhi Daredevils	Wickets
948	bat	N
33.0	Chennai Super Kings	Runs
949	field	N
140.0	Kolkata Knight Riders	Runs
method Player_of_Match		

```

Team1Players \
940    NaN    KC Sangakkara  ['K Goel', 'IK Pathan', 'KC Sangakkara',
'Yuvr...
941    NaN          YK Pathan  ['AC Gilchrist', 'VVS Laxman', 'Shahid
Afridi'...
942    NaN          ML Hayden  ['PA Patel', 'ML Hayden', 'MEK Hussey',
'SK Ra...
943    NaN          V Sehwag  ['AC Gilchrist', 'Y Venugopal Rao', 'VVS
Laxma...
944    NaN          SR Watson  ['M Kaif', 'Kamran Akmal', 'YK Pathan',
'SR Wa...
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 Maharoo  ['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 \
940  ['L Ronchi', 'ST Jayasuriya', 'RV Uthappa', 'D...  Aleem Dar
941  ['Kamran Akmal', 'GC Smith', 'YK Pathan', 'SR ...  Asad Rauf
942  ['L Ronchi', 'ST Jayasuriya', 'RV Uthappa', 'S...  DJ Harper
943  ['G Gambhir', 'V Sehwag', 'S Dhawan', 'Shoaib ...  IL Howell
944  ['K Goel', 'JR Hopes', 'KC Sangakkara', 'DPMD ...  Aleem Dar
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
940    AM Saheba
941    MR Benson
942    GA Pratapkumar
943    AM Saheba
944    RB Tiffin
945    K Hariharan
946    DJ Harper
947    GA Pratapkumar
948    SL Shastri
949    RE Koertzen

```

sample => randomly row ko select kar dega(randomly jab aapko data ko dekhna hota hai to)

```
ipl.sample(5)
```

	ID	City	Date	Season	MatchNumber	
Team1 \						
711	501262	Mumbai	2011-05-19	2011	65	Pune
Warriors						
545	729291	NaN	2014-04-20	2014	7	Rajasthan
Royals						
242	1175366	Hyderabad	2019-03-31	2019	11	Sunrisers
Hyderabad						
675	548333	Delhi	2012-04-21	2012	27	Delhi
Daredevils						
588	598036	Jaipur	2013-04-29	2013	40	Rajasthan
Royals						
Team2						
Venue \						
711		Kolkata Knight Riders				Dr DY Patil Sports Academy
545		Kings XI Punjab				Sharjah Cricket Stadium
242		Royal Challengers Bangalore				Rajiv Gandhi International Stadium
675		Pune Warriors				Feroz Shah Kotla
588		Royal Challengers Bangalore				Sawai Mansingh Stadium
TossWinner TossDecision SuperOver \						
711		Kolkata Knight Riders		field		N
545		Kings XI Punjab		field		N
242		Royal Challengers Bangalore		field		N
675		Delhi Daredevils		field		N
588		Rajasthan Royals		field		N
WinningTeam WonBy Margin method Player_of_Match \						
711		Kolkata Knight Riders	Wickets	7.0	NaN	YK Pathan
545		Kings XI Punjab	Wickets	7.0	NaN	GJ Maxwell
242		Sunrisers Hyderabad	Runs	118.0	NaN	JM Bairstow
675		Pune Warriors	Runs	20.0	NaN	SC Ganguly
588		Rajasthan Royals	Wickets	4.0	NaN	SV Samson
Team1Players \						
711	['JD Ryder', 'MK Pandey', 'CJ Ferguson', 'SC G...					
545	['AM Nayar', 'AM Rahane', 'SV Samson', 'SR Wat...					
242	['JM Bairstow', 'DA Warner', 'V Shankar', 'YK ...					
675	['DPMD Jayawardene', 'V Sehwag', 'KP Pietersen...					
588	['R Dravid', 'AM Rahane', 'SV Samson', 'SR Wat...					
Team2Players						
Umpire1 \						
711	['G Gambhir', 'SP Goswami', 'MK Tiwary', 'YK P...					
S Ravi						

```

545 ['CA Pujara', 'V Sehwag', 'WP Saha', 'GJ Maxwe... BF
Bowden
242 ['PA Patel', 'SO Hetmyer', 'V Kohli', 'AB de V... KN
Ananthapadmanabhan
675 ['RV Uthappa', 'JD Ryder', 'SC Ganguly', 'SPD ...
Asad Rauf
588 ['A Mukund', 'CH Gayle', 'V Kohli', 'AB de Vil... M
Erasmus

```

```

    Umpire2
711 SJA Taufel
545 M Erasmus
242 S Ravi
675 S Das
588 K Srinath

```

info => ek summary provide kar deta hai like ki each column me kitne null ya not null values hai

```
movies.info()
```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1629 entries, 0 to 1628
Data columns (total 18 columns):
#   Column                Non-Null Count  Dtype
---  -
0   title_x               1629 non-null   object
1   imdb_id               1629 non-null   object
2   poster_path          1526 non-null   object
3   wiki_link             1629 non-null   object
4   title_y               1629 non-null   object
5   original_title        1629 non-null   object
6   is_adult              1629 non-null   int64
7   year_of_release       1629 non-null   int64
8   runtime               1629 non-null   object
9   genres                1629 non-null   object
10  imdb_rating           1629 non-null   float64
11  imdb_votes            1629 non-null   int64
12  story                 1609 non-null   object
13  summary               1629 non-null   object
14  tagline               557 non-null    object
15  actors                1624 non-null   object
16  wins_nominations       707 non-null    object
17  release_date          1522 non-null   object
dtypes: float64(1), int64(3), object(14)
memory usage: 229.2+ KB

ipl.info()

```

```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 950 entries, 0 to 949
Data columns (total 20 columns):
#   Column                Non-Null Count  Dtype
---  -
0   ID                    950 non-null   int64
1   City                  899 non-null   object
2   Date                  950 non-null   object
3   Season                950 non-null   object
4   MatchNumber           950 non-null   object
5   Team1                 950 non-null   object
6   Team2                 950 non-null   object
7   Venue                 950 non-null   object
8   TossWinner            950 non-null   object
9   TossDecision          950 non-null   object
10  SuperOver             946 non-null   object
11  WinningTeam           946 non-null   object
12  WonBy                 950 non-null   object
13  Margin                932 non-null   float64
14  method                19 non-null    object
15  Player_of_Match       946 non-null   object
16  Team1Players           950 non-null   object
17  Team2Players           950 non-null   object
18  Umpire1               950 non-null   object
19  Umpire2               950 non-null   object
dtypes: float64(1), int64(1), object(18)
memory usage: 148.6+ KB

```

describe #ek mathematical over view deta hai jo ki numerical column hai uske upar (mathematoical overview of numerical column)

```
movies.describe()
```

	is_adult	year_of_release	imdb_rating	imdb_votes
count	1629.0	1629.000000	1629.000000	1629.000000
mean	0.0	2010.263966	5.557459	5384.263352
std	0.0	5.381542	1.567609	14552.103231
min	0.0	2001.000000	0.000000	0.000000
25%	0.0	2005.000000	4.400000	233.000000
50%	0.0	2011.000000	5.600000	1000.000000
75%	0.0	2015.000000	6.800000	4287.000000
max	0.0	2019.000000	9.400000	310481.000000

```
iplt.describe()
```

	ID	Margin
count	9.500000e+02	932.000000
mean	8.304852e+05	17.056867
std	3.375678e+05	21.633109

min	3.359820e+05	1.000000
25%	5.012612e+05	6.000000
50%	8.297380e+05	8.000000
75%	1.175372e+06	19.000000
max	1.312200e+06	146.000000

isnull =>batata hai ki column me null value hai ki ki
 movies.isnull()

	title_x	imdb_id	poster_path	wiki_link	title_y
original_title \					
0	False	False	False	False	False
False					
1	False	False	True	False	False
False					
2	False	False	False	False	False
False					
3	False	False	False	False	False
False					
4	False	False	True	False	False
False					
...
.					
1624	False	False	False	False	False
False					
1625	False	False	False	False	False
False					
1626	False	False	True	False	False
False					
1627	False	False	False	False	False
False					
1628	False	False	False	False	False
False					

	is_adult	year_of_release	runtime	genres	imdb_rating
imdb_votes \					
0	False	False	False	False	False
False					
1	False	False	False	False	False
False					
2	False	False	False	False	False
False					
3	False	False	False	False	False
False					
4	False	False	False	False	False
False					
...
...					
1624	False	False	False	False	False
False					

```

1625      False      False      False      False      False
False
1626      False      False      False      False      False
False
1627      False      False      False      False      False
False
1628      False      False      False      False      False
False

```

	story	summary	tagline	actors	wins_nominations	release_date
0	False	False	True	False	False	False
1	False	False	True	False	True	False
2	False	False	True	False	True	False
3	False	False	True	False	True	False
4	False	False	True	False	False	False
...
1624	False	False	True	False	True	False
1625	False	False	True	False	True	False
1626	False	False	True	False	True	True
1627	False	False	True	False	True	False
1628	False	False	True	False	True	False

```
[1629 rows x 18 columns]
```

```
movies.isnull().sum()
```

```

title_x      0
imdb_id      0
poster_path  103
wiki_link    0
title_y      0
original_title  0
is_adult     0
year_of_release  0
runtime      0
genres       0
imdb_rating  0
imdb_votes   0
story       20

```

```
summary          0
tagline          1072
actors           5
wins_nominations 922
release_date     107
dtype: int64
```

#duplicated => batayega ki aapke data frame ke andar duplicate value hai ki nahi
movies.duplicated() *# false ka matlab hai ki ye row duplicate nahi hai*

```
0      False
1      False
2      False
3      False
4      False
...
1624   False
1625   False
1626   False
1627   False
1628   False
Length: 1629, dtype: bool
```

```
movies.duplicated().sum()
```

```
0
```

```
ipl.duplicated().sum()
```

```
0
```

```
students.duplicated()
```

```
name
nitish    False
ankit     False
rupesh    False
rishabh   False
amit      False
ankita    True
dtype: bool
```

```
students.duplicated().sum()
```

```
1
```

rename => dataframe ke column ke name ko change kar dega

```
students
```


	iq	marks	package
name			
nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2
amit	0	0	0
ankita	0	0	0

```
students.rename(columns={'marks':'percent','package':'lpa'}) #column
function ke andar pahle purana name and then new name dalte hai ek
dictionary ke andar
```

	iq	percent	lpa
name			
nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2
amit	0	0	0
ankita	0	0	0

students # ye ek permanent change nahi hai yadi aap permanent change
karna chahate hain to inplace=true kar do

	iq	marks	package
name			
nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2
amit	0	0	0
ankita	0	0	0

```
students.rename(columns={'marks':'percent','package':'lpa'},inplace=Tr
ue)
```

students

	iq	percent	lpa
name			
nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2
amit	0	0	0
ankita	0	0	0

Math Methods

```
# sum          =>will apply sum on all the column  
students.sum()
```

```
iq          390  
percent     300  
lpa         33  
dtype: int64
```

```
students
```

	iq	percent	lpa
name			
nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2
amit	0	0	0
ankita	0	0	0

```
# you can add row by passing axis parameter    but by default column  
wise add hota hai
```

```
students.sum(axis=1)
```

```
name  
nitish      190  
ankit       167  
rupesh      234  
rishabh     132  
amit         0  
ankita       0  
dtype: int64
```

```
# mean  
students.mean()
```

```
iq          65.0  
percent     50.0  
lpa         5.5  
dtype: float64
```

```
students.mean(axis=1)
```

```
name  
nitish      63.333333  
ankit       55.666667  
rupesh      78.000000  
rishabh     44.000000  
amit         0.000000  
ankita       0.000000  
dtype: float64
```

```
students.min()
```

```
iq          0
percent     0
lpa         0
dtype: int64
```

```
students.min(axis=1)
```

```
name
nitish    10
ankit      7
rupesh    14
rishabh   2
amit       0
ankita     0
dtype: int64
```

```
students.max()
```

```
iq          120
percent     100
lpa         14
dtype: int64
```

```
students.max(axis=1)
```

```
name
nitish    100
ankit      90
rupesh    120
rishabh   80
amit       0
ankita     0
dtype: int64
```

*# sab function jo ki series me padhe hain wo sab apply kar sakte hain
bass one change ki hum pandas me row wise bhi kaam kar sakte hain*

Selecting cols from a Dataframe

```
# single cols
```

```
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]

movies['title_x']

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

Name: title_x, Length: 1629, dtype: object

```
type(movies['title_x'])
```

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

```
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 Maharooft ['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]
```

```
ipl['Venue']
```

```

0      Narendra Modi Stadium, Ahmedabad
1      Narendra Modi Stadium, Ahmedabad
2      Eden Gardens, Kolkata
3      Eden Gardens, Kolkata
4      Wankhede Stadium, Mumbai

```

```

...
945      Eden Gardens
946      Wankhede Stadium
947      Feroz Shah Kotla
948      Punjab Cricket Association Stadium, Mohali
949      M Chinnaswamy Stadium

```

```
Name: Venue, Length: 950, dtype: object
```

```
# multiple cols
```

```

movies[['title_x', 'year_of_release', 'actors']] # fancy indexing use
karte hain ek list me sare columnn kax nanme pass kar do aur jiss
order me aap inddex pass karoge usi order me data aayega

```

```

                                title_x  year_of_release  \
0      Uri: The Surgical Strike                2019
1      Battalion 609                2019
2      The Accidental Prime Minister (film)        2019
3      Why Cheat India                2019
4      Evening Shadows                2018
...
1624      Tera Mera Saath Rahen                2001
1625      Yeh Zindagi Ka Safar                2001
1626      Sabse Bada Sukh                2018
1627      Daaka                2019
1628      Humsafar                2011

```

```

                                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|

```

```
[1629 rows x 3 columns]
```

```

# ye ek data frame hain sidhi baat hai ki agar multiple column
nikaloge to wo ek dataframe hoga aur yadi single column nikaloge to wo
ek series hoga

```

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

Margin \	TossDecision	SuperOver	WinningTeam	WonBy
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 Thorneily', '...	
947 NaN MF Maharoor ['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]
```

```
ipl[['Team1', 'Team2', 'WinningTeam']]
```

	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

          WinningTeam
0          Gujarat Titans
1          Rajasthan Royals
2      Royal Challengers Bangalore
3          Gujarat Titans
4          Punjab Kings
..          ...
945      Kolkata Knight Riders
946      Royal Challengers Bangalore
947          Delhi Daredevils
948          Chennai Super Kings
949      Kolkata Knight Riders

[950 rows x 3 columns]

```

Selecting rows from a Dataframe

- `iloc`- searches using index positions
- `loc`- searches using index labels

```

# single row
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]
```

```
movies.iloc[0]    # ye ek series return kar dega
```

```

title_x          Uri: The Surgical Strike
imdb_id          tt8291224
poster_path      https://upload.wikimedia.org/wikipedia/en/thum...
wiki_link        https://en.wikipedia.org/wiki/Uri:_The_Surgica...
title_y          Uri: The Surgical Strike
original_title   Uri: The Surgical Strike
is_adult         0
year_of_release  2019
runtime         138
genres           Action|Drama|War
imdb_rating      8.4
imdb_votes       35112
story            Divided over five chapters the film chronicle...
summary          Indian army special forces execute a covert op...
tagline          NaN
actors           Vicky Kaushal|Paresh Rawal|Mohit Raina|Yami Ga...
wins_nominations 4 wins
release_date     11 January 2019 (USA)
Name: 0, dtype: object

```

```
type(movies.iloc[0])
```

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

```
movies.iloc[3]
```

```

title_x                                Why Cheat India
imdb_id                                tt8108208
poster_path                            https://upload.wikimedia.org/wikipedia/en/thum...
wiki_link                              https://en.wikipedia.org/wiki/Why_Cheat_India
title_y                                Why Cheat India
original_title                          Why Cheat India
is_adult                                0
year_of_release                         2019
runtime                                121
genres                                  Crime|Drama
imdb_rating                             6.0
imdb_votes                              1891
story                                  The movie focuses on existing malpractices in ...
summary                                The movie focuses on existing malpractices in ...
tagline                                 NaN
actors                                  Emraan Hashmi|Shreya Dhanwanthary|Snighdadeep ...
wins_nominations                        NaN
release_date                            18 January 2019 (USA)
Name: 3, dtype: object

```

`movies.iloc[0:5]` *# 0th row se 4th row tak dataframe aa jayega*

```

              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)
```

```
type(movies.iloc[0:5])
```

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

```
movies.iloc[5:15:2] #simply slicing ke concept ke jaisa use kar lo
```

	title_x	imdb_id	\
5	Soni (film)	tt6078866	
7	Bombairiya	tt4971258	
9	Thackeray (film)	tt7777196	
11	Gully Boy	tt2395469	
13	Total Dhamaal	tt7639372	

	poster_path	\
5	https://upload.wikimedia.org/wikipedia/en/thum...	
7	https://upload.wikimedia.org/wikipedia/en/thum...	
9	https://upload.wikimedia.org/wikipedia/en/thum...	
11	https://upload.wikimedia.org/wikipedia/en/thum...	
13	https://upload.wikimedia.org/wikipedia/en/thum...	

	wiki_link	title_y	\
5	https://en.wikipedia.org/wiki/Soni_(film)	Soni	
7	https://en.wikipedia.org/wiki/Bombairiya	Bombairiya	
9	https://en.wikipedia.org/wiki/Thackeray_(film)	Thackeray	
11	https://en.wikipedia.org/wiki/Gully_Boy	Gully Boy	
13	https://en.wikipedia.org/wiki/Total_Dhamaal	Total Dhamaal	

	original_title	is_adult	year_of_release	runtime	genres	\
5	Soni	0	2018	97	Drama	
7	Bombairiya	0	2019	104	Comedy Crime Drama	
9	Thackeray	0	2019	120	Biography Drama	
11	Gully Boy	0	2019	153	Drama Music	
13	Total Dhamaal	0	2019	130	Action Adventure Comedy	

	imdb_rating	imdb_votes	\
5	7.2	1595	
7	4.3	295	
9	5.1	2301	
11	8.2	22440	
13	4.3	4817	

story \

```

5   Soni a young policewoman in Delhi and her su...
7   It follows the story of Meghna who gets embro...
9   Balasaheb Thackrey works as a cartoonist for a...
11  Gully Boy is a film about a 22-year-old boy "M...
13  Total Dhamaal is the third instalment in the D...

```

summary \

```

5   While fighting crimes against women in Delhi ...
7   It follows the story of Meghna who gets embro...
9   Biographical account of Shiv Sena Supremo Bal...
11  A coming-of-age story based on the lives of st...
13  A group of people learn about a hidden treasur...

```

tagline \

```

5   NaN
7   They didn't mean to change the world.
9   NaN
11  Apna Time Aayega!
13  The Wildest Adventure Ever

```

actors

wins_nominations \

```

5   Geetika Vidya Ohlyan|Saloni Batra|Vikas Shukla... 3 wins & 5
nominations
7   Radhika Apte|Akshay Oberoi|Siddhanth Kapoor|Ra...
NaN
9   Nawazuddin Siddiqui|Amrita Rao|Abdul Quadir Am...
NaN
11  Ranveer Singh|Alia Bhatt|Siddhant Chaturvedi|V... 6 wins & 3
nominations
13  Ajay Devgn|Madhuri Dixit|Anil Kapoor|Riteish D...
NaN

```

release_date

```

5   18 January 2019 (USA)
7   18 January 2019 (India)
9   25 January 2019 (India)
11  14 February 2019 (USA)
13  22 February 2019 (India)

```

fancy indexing

```
movies.iloc[[0,4,5]]
```

title_x imdb_id \

```

0   Uri: The Surgical Strike  tt8291224
4   Evening Shadows          tt6028796
5   Soni (film)              tt6078866

```

poster_path \

```
0   https://upload.wikimedia.org/wikipedia/en/thum...
```

```

4                                     NaN
5 https://upload.wikimedia.org/wikipedia/en/thum...

                                     wiki_link \
0 https://en.wikipedia.org/wiki/Uri:_The_Surgica...
4 https://en.wikipedia.org/wiki/Evening_Shadows
5 https://en.wikipedia.org/wiki/Soni_(film)

                                     title_y      original_title  is_adult \
0 Uri: The Surgical Strike  Uri: The Surgical Strike      0
4 Evening Shadows          Evening Shadows      0
5 Soni                      Soni                0

year_of_release runtime      genres  imdb_rating  imdb_votes
\
0      2019      138  Action|Drama|War      8.4      35112
4      2018      102      Drama      7.3      280
5      2018      97      Drama      7.2      1595

                                     story \
0 Divided over five chapters the film chronicle...
4 While gay rights and marriage equality has bee...
5 Soni a young policewoman in Delhi and her su...

                                     summary tagline \
0 Indian army special forces execute a covert op...      NaN
4 Under the 'Evening Shadows' truth often plays...      NaN
5 While fighting crimes against women in Delhi ...      NaN

                                     actors
wins_nominations \
0 Vicky Kaushal|Paresh Rawal|Mohit Raina|Yami Ga...
4 wins
4 Mona Ambegaonkar|Ananth Narayan Mahadevan|Deva... 17 wins & 1
nomination
5 Geetika Vidya Ohlyan|Saloni Batra|Vikas Shukla... 3 wins & 5
nominations

release_date
0 11 January 2019 (USA)
4 11 January 2019 (India)
5 18 January 2019 (USA)

# loc => location
students

iq percent lpa
name

```

nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2
amit	0	0	0
ankita	0	0	0

```
students.loc['nitish']
```

```
iq          100
percent     80
lpa         10
Name: nitish, dtype: int64
```

```
students.loc['nitish':'rishabh'] # nitish se lekar risabh tak jo bhi
data hai sab nikal ke do
```

	iq	percent	lpa
name			
nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2

```
# iloc me last item included nahi hota hai balki loc me last index
included hota hai
```

```
students.loc['nitish':'rishabh':2]
```

	iq	percent	lpa
name			
nitish	100	80	10
rupesh	120	100	14

```
#fancy indexing
```

```
students.loc[['nitish','rishabh','rupesh']] # jiss bhi order me
likhenge usi order me milega
```

	iq	percent	lpa
name			
nitish	100	80	10
rishabh	80	50	2
rupesh	120	100	14

```
students.iloc[0] # hum iloc function bhi use kar sakte hain qki
pandas ka default indexing bhi available hai
```

```
iq          100
percent     80
lpa         10
Name: nitish, dtype: int64
```

```
students.iloc[0:5]
```

	iq	percent	lpa
name			
nitish	100	80	10
ankit	90	70	7
rupesh	120	100	14
rishabh	80	50	2
amit	0	0	0

```
students.iloc[0:5:2]
```

	iq	percent	lpa
name			
nitish	100	80	10
rupesh	120	100	14
amit	0	0	0

jab label available hai to loc ka use karo otherwise.iloc ka to use kar hi sakte ho

Selecting both rows and columns

```
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_Surgical_Strike
1	https://en.wikipedia.org/wiki/Battalion_609
2	https://en.wikipedia.org/wiki/The_Accidental_Prime_Minister
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_Rahen
1625	https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_Safar
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]

i want to fetch first 3 movies but 1st three column ka data chahiye

`movies.iloc[0:3,0:3]` *# pahle row then column*

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

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

with the help of loc

`movies.loc[0:2,'title_x':'poster_path']`

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

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

filtering a DataFrame

`ipl.head(2)`

	ID	City	Date	Season	MatchNumber	\
0	1312200	Ahmedabad	2022-05-29	2022	Final	

```

1 1312199 Ahmedabad 2022-05-27 2022 Qualifier 2

      Team1      Team2 \
0      Rajasthan Royals Gujarat Titans
1 Royal Challengers Bangalore Rajasthan Royals

      Venue      TossWinner TossDecision
SuperOver \
0 Narendra Modi Stadium, Ahmedabad Rajasthan Royals bat
N
1 Narendra Modi Stadium, Ahmedabad Rajasthan Royals field
N

      WinningTeam WonBy Margin method Player_of_Match \
0 Gujarat Titans Wickets 7.0 NaN HH Pandya
1 Rajasthan Royals Wickets 7.0 NaN JC Buttler

      Team1Players \
0 ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...
1 ['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...

      Team2Players      Umpire1
Umpire2
0 ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan... CB Gaffaney
Nitin Menon
1 ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ... CB Gaffaney
Nitin Menon

# find all the final winners
mask = ipl['MatchNumber']=='Final'
mask      #yaha se ek boolean data mil jayega jisme batayega ki kon sa
match final hai

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

new_df=ipl[mask]
new_df[['Season','WinningTeam']]

      Season      WinningTeam
0      2022      Gujarat Titans

```

74	2021	Chennai Super Kings
134	2020/21	Mumbai Indians
194	2019	Mumbai Indians
254	2018	Chennai Super Kings
314	2017	Mumbai Indians
373	2016	Sunrisers Hyderabad
433	2015	Mumbai Indians
492	2014	Kolkata Knight Riders
552	2013	Mumbai Indians
628	2012	Kolkata Knight Riders
702	2011	Chennai Super Kings
775	2009/10	Chennai Super Kings
835	2009	Deccan Chargers
892	2007/08	Rajasthan Royals

we can write complete code in single line

```
ipl[ipl['MatchNumber']=='Final'][['Season','WinningTeam']]
```

	Season	WinningTeam
0	2022	Gujarat Titans
74	2021	Chennai Super Kings
134	2020/21	Mumbai Indians
194	2019	Mumbai Indians
254	2018	Chennai Super Kings
314	2017	Mumbai Indians
373	2016	Sunrisers Hyderabad
433	2015	Mumbai Indians
492	2014	Kolkata Knight Riders
552	2013	Mumbai Indians
628	2012	Kolkata Knight Riders
702	2011	Chennai Super Kings
775	2009/10	Chennai Super Kings
835	2009	Deccan Chargers
892	2007/08	Rajasthan Royals

how many super over finishes have occurred

```
ipl['SuperOver']=='Y'
```

0	False
1	False
2	False
3	False
4	False
	...
945	False
946	False
947	False
948	False

```
949     False
Name: SuperOver, Length: 950, dtype: bool
```

```
ipl[ipl['SuperOver']=='Y']
```

	ID	City	Date	Season	MatchNumber	\
114	1254077	Chennai	2021-04-25	2021	20	
158	1216512	Abu Dhabi	2020-10-18	2020/21	35	
159	1216517	NaN	2020-10-18	2020/21	36	
184	1216547	NaN	2020-09-28	2020/21	10	
192	1216493	NaN	2020-09-20	2020/21	2	
203	1178426	Mumbai	2019-05-02	2019	51	
244	1175365	Delhi	2019-03-30	2019	10	
339	1082625	Rajkot	2017-04-29	2017	35	
474	829741	Ahmedabad	2015-04-21	2015	18	
533	729315	Abu Dhabi	2014-04-29	2014	19	
608	598017	Bangalore	2013-04-16	2013	21	
621	598004	Hyderabad	2013-04-07	2013	7	
819	419121	Chennai	2010-03-21	2009/10	16	
883	392190	Cape Town	2009-04-23	2009	10	

	Team1	Team2	\
114	Delhi Capitals	Sunrisers Hyderabad	
158	Kolkata Knight Riders	Sunrisers Hyderabad	
159	Mumbai Indians	Kings XI Punjab	
184	Royal Challengers Bangalore	Mumbai Indians	
192	Delhi Capitals	Kings XI Punjab	
203	Mumbai Indians	Sunrisers Hyderabad	
244	Kolkata Knight Riders	Delhi Capitals	
339	Gujarat Lions	Mumbai Indians	
474	Rajasthan Royals	Kings XI Punjab	
533	Kolkata Knight Riders	Rajasthan Royals	
608	Royal Challengers Bangalore	Delhi Daredevils	
621	Sunrisers Hyderabad	Royal Challengers Bangalore	
819	Chennai Super Kings	Kings XI Punjab	
883	Kolkata Knight Riders	Rajasthan Royals	

	Venue	
TossWinner \		
114	MA Chidambaram Stadium, Chepauk, Chennai	Delhi Capitals
158	Sheikh Zayed Stadium	Sunrisers Hyderabad
159	Dubai International Cricket Stadium	Mumbai Indians
184	Dubai International Cricket Stadium	Mumbai Indians
192	Dubai International Cricket Stadium	Kings XI Punjab
203	Wankhede Stadium	Mumbai

Indians		
244	Arun Jaitley Stadium	Delhi
Capitals		
339	Saurashtra Cricket Association Stadium	Gujarat
Lions		
474	Sardar Patel Stadium, Motera	Kings XI
Punjab		
533	Sheikh Zayed Stadium	Rajasthan
Royals		
608	M Chinnaswamy Stadium	Royal Challengers
Bangalore		
621	Rajiv Gandhi International Stadium, Uppal	Royal Challengers
Bangalore		
819	MA Chidambaram Stadium, Chepauk	Chennai Super
Kings		
883	Newlands	Kolkata Knight
Riders		

	TossDecision	SuperOver	WinningTeam	WonBy
Margin \				
114	bat	Y	Delhi Capitals	SuperOver
NaN				
158	field	Y	Kolkata Knight Riders	SuperOver
NaN				
159	bat	Y	Kings XI Punjab	SuperOver
NaN				
184	field	Y	Royal Challengers Bangalore	SuperOver
NaN				
192	field	Y	Delhi Capitals	SuperOver
NaN				
203	bat	Y	Mumbai Indians	SuperOver
NaN				
244	field	Y	Delhi Capitals	SuperOver
NaN				
339	bat	Y	Mumbai Indians	SuperOver
NaN				
474	field	Y	Kings XI Punjab	SuperOver
NaN				
533	bat	Y	Rajasthan Royals	SuperOver
NaN				
608	field	Y	Royal Challengers Bangalore	SuperOver
NaN				
621	bat	Y	Sunrisers Hyderabad	SuperOver
NaN				
819	field	Y	Kings XI Punjab	SuperOver
NaN				
883	field	Y	Rajasthan Royals	SuperOver
NaN				

	method	Player_of_Match	
Team1Players \			
114	NaN	PP Shaw	['PP Shaw', 'S Dhawan', 'RR Pant', 'SPD Smith'...
158	NaN	LH Ferguson	['Shubman Gill', 'RA Tripathi', 'N Rana', 'AD ...
159	NaN	KL Rahul	['RG Sharma', 'Q de Kock', 'SA Yadav', 'Ishan ...
184	NaN	AB de Villiers	['D Padikkal', 'AJ Finch', 'V Kohli', 'AB de V...
192	NaN	MP Stoinis	['PP Shaw', 'S Dhawan', 'SO Hetmyer', 'SS Iyer...
203	NaN	JJ Bumrah	['RG Sharma', 'Q de Kock', 'SA Yadav', 'E Lewi...
244	NaN	PP Shaw	['NS Naik', 'CA Lynn', 'RV Uthappa', 'N Rana',...
339	NaN	KH Pandya	['Ishan Kishan', 'BB McCullum', 'SK Raina', 'A...
474	NaN	SE Marsh	['AM Rahane', 'SR Watson', 'DJ Hooda', 'SPD Sm...
533	NaN	JP Faulkner	['G Gambhir', 'MS Bisla', 'JH Kallis', 'MK Pan...
608	NaN	V Kohli	['CH Gayle', 'KL Rahul', 'V Kohli', 'AB de Vil...
621	NaN	GH Vihari	['PA Reddy', 'PA Patel', 'CL White', 'GH Vihar...
819	NaN	J Theron	['PA Patel', 'ML Hayden', 'SK Raina', 'M Vijay...
883	NaN	YK Pathan	['CH Gayle', 'BB McCullum', 'LR Shukla', 'BJ H...
		Team2Players	
Umpire1 \			
114			['DA Warner', 'JM Bairstow', 'KS Williamson', ... CB Gaffaney
158			['JM Bairstow', 'KS Williamson', 'PK Garg', 'D... PG Pathak
159			['KL Rahul', 'MA Agarwal', 'CH Gayle', 'N Poor... Nitin Menon
184			['RG Sharma', 'Q de Kock', 'SA Yadav', 'Ishan ... Nitin Menon
192			['KL Rahul', 'MA Agarwal', 'KK Nair', 'N Poora... AK Chaudhary
203			['WP Saha', 'MJ Guptill', 'MK Pandey', 'KS Wil... CK Nandan
244			['PP Shaw', 'S Dhawan', 'SS Iyer', 'RR Pant', ... AY Dandekar
339			['PA Patel', 'JC Buttler', 'N Rana', 'RG Sharm... AK Chaudhary
474			['M Vijay', 'V Sehwag', 'SE Marsh', 'GJ Maxwel... M Erasmus

533	['AM Rahane', 'KK Nair', 'SV Samson', 'SR Wats...	Aleem Dar
608	['DA Warner', 'V Sehwag', 'MC Juneja', 'DPMD J...	M Erasmus
621	['CH Gayle', 'TM Dilshan', 'V Kohli', 'KK Nair...	AK Chaudhary
819	['RS Bopara', 'IK Pathan', 'KC Sangakkara', 'D...	K Hariharan
883	['GC Smith', 'PC Valthaty', 'RJ Quiney', 'YK P...	MR Benson

	Umpire2
114	KN Ananthapadmanabhan
158	S Ravi
159	PR Reiffel
184	PR Reiffel
192	Nitin Menon
203	S Ravi
244	Nitin Menon
339	CB Gaffaney
474	S Ravi
533	AK Chaudhary
608	VA Kulkarni
621	S Ravi
819	DJ Harper
883	M Erasmus

```
ipl[ipl['SuperOver']=='Y'].shape
```

```
(14, 20)
```

```
ipl[ipl['SuperOver']=='Y'].shape[0]
```

```
14
```

```
# how many matches has csk won in kolkata
```

```
ipl[(ipl['City'] == 'Kolkata') & (ipl['WinningTeam'] == 'Chennai Super  
Kings')].shape[0]
```

```
5
```

```
# toss winner is match winner in percentage
```

```
ipl['TossWinner']==ipl['WinningTeam']
```

0	False
1	True
2	False
3	True
4	False
	...

```

945    False
946    False
947    False
948     True
949    False

```

```
Length: 950, dtype: bool
```

```
ipl[ipl['TossWinner']==ipl['WinningTeam']]
```

	ID	City	Date	Season	MatchNumber \
1	1312199	Ahmedabad	2022-05-27	2022	Qualifier 2
3	1312197	Kolkata	2022-05-24	2022	Qualifier 1
5	1304115	Mumbai	2022-05-21	2022	69
8	1304112	Navi Mumbai	2022-05-18	2022	66
11	1304109	Mumbai	2022-05-15	2022	63
..
935	335996	Bangalore	2008-04-28	2007/08	15
937	335994	Mumbai	2008-04-27	2007/08	14
939	335992	Bangalore	2008-04-26	2007/08	12
941	335990	Hyderabad	2008-04-24	2007/08	9
948	335983	Chandigarh	2008-04-19	2007/08	2

	Team1	Team2 \
1	Royal Challengers Bangalore	Rajasthan Royals
3	Rajasthan Royals	Gujarat Titans
5	Delhi Capitals	Mumbai Indians
8	Lucknow Super Giants	Kolkata Knight Riders
11	Rajasthan Royals	Lucknow Super Giants
..
935	Royal Challengers Bangalore	Chennai Super Kings
937	Mumbai Indians	Deccan Chargers
939	Royal Challengers Bangalore	Rajasthan Royals
941	Deccan Chargers	Rajasthan Royals
948	Kings XI Punjab	Chennai Super Kings

	Venue	TossWinner
\		
1	Narendra Modi Stadium, Ahmedabad	Rajasthan Royals
3	Eden Gardens, Kolkata	Gujarat Titans
5	Wankhede Stadium, Mumbai	Mumbai Indians
8	Dr DY Patil Sports Academy, Mumbai	Lucknow Super Giants
11	Brabourne Stadium, Mumbai	Rajasthan Royals
..
935	M Chinnaswamy Stadium	Chennai Super Kings

937	Dr DY Patil Sports Academy			Deccan Chargers		
939	M Chinnaswamy Stadium			Rajasthan Royals		
941	Rajiv Gandhi International Stadium, Uppal			Rajasthan Royals		
948	Punjab Cricket Association Stadium, Mohali			Chennai Super Kings		
	TossDecision	SuperOver	WinningTeam	WonBy	Margin	
method \						
1	field	N	Rajasthan Royals	Wickets	7.0	
NaN						
3	field	N	Gujarat Titans	Wickets	7.0	
NaN						
5	field	N	Mumbai Indians	Wickets	5.0	
NaN						
8	bat	N	Lucknow Super Giants	Runs	2.0	
NaN						
11	bat	N	Rajasthan Royals	Runs	24.0	
NaN						
..	
..						
935	bat	N	Chennai Super Kings	Runs	13.0	
NaN						
937	field	N	Deccan Chargers	Wickets	10.0	
NaN						
939	field	N	Rajasthan Royals	Wickets	7.0	
NaN						
941	field	N	Rajasthan Royals	Wickets	3.0	
NaN						
948	bat	N	Chennai Super Kings	Runs	33.0	
NaN						
	Player_of_Match			Team1Players		
\						
1	JC Buttler	['V Kohli', 'F du Plessis', 'RM Patidar', 'GJ ...				
3	DA Miller	['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...				
5	JJ Bumrah	['PP Shaw', 'DA Warner', 'MR Marsh', 'RR Pant'...				
8	Q de Kock	['Q de Kock', 'KL Rahul', 'E Lewis', 'DJ Hooda...				
11	TA Boult	['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...				
..				
935	MS Dhoni	['B Chipli', 'W Jaffer', 'LRPL Taylor', 'JH Ka...				

```

937    AC Gilchrist  ['L Ronchi', 'ST Jayasuriya', 'AM Rahane', 'RV...
939        SR Watson  ['S Chanderpaul', 'R Dravid', 'LRPL Taylor', '...
941        YK Pathan  ['AC Gilchrist', 'VVS Laxman', 'Shahid Afridi'...
948        MEK Hussey  ['K Goel', 'JR Hopes', 'KC Sangakkara', 'Yuvra...

```

Team2Players

```

Umpire1 \
1      ['YBK Jaiswal', 'JC Buttler', 'SV Samson', 'D ...    CB Gaffaney
3      ['WP Saha', 'Shubman Gill', 'MS Wade', 'HH Pan...    BNJ Oxenford
5      ['Ishan Kishan', 'RG Sharma', 'D Breviss', 'Til...    Nitin Menon
8      ['VR Iyer', 'A Tomar', 'N Rana', 'SS Iyer', 'S...    R Pandit
11     ['Q de Kock', 'KL Rahul', 'A Badoni', 'DJ Hood...    PG Pathak
..
..
935     ['PA Patel', 'ML Hayden', 'MEK Hussey', 'SK Ra...    BR Doctrove
937     ['AC Gilchrist', 'VVS Laxman', 'A Symonds', 'R...    Asad Rauf
939     ['GC Smith', 'M Rawat', 'YK Pathan', 'SR Watso...    MR Benson
941     ['Kamran Akmal', 'GC Smith', 'YK Pathan', 'SR ...    Asad Rauf
948     ['PA Patel', 'ML Hayden', 'MEK Hussey', 'MS Dh...    MR Benson

```

Umpire2

```

1      Nitin Menon
3      VK Sharma
5      Tapan Sharma
8      YC Barde
11     Tapan Sharma
..
..
935     RB Tiffin
937     SL Shastri
939     IL Howell
941     MR Benson
948     SL Shastri

```

```
[489 rows x 20 columns]
```

```
ipl[ipl['TossWinner']==ipl['WinningTeam']].shape[0]
```

489

```
(ipl[ipl['TossWinner']==ipl['WinningTeam']].shape[0]/ipl.shape[0])*100
```

51.473684210526315

```
# movies with rating higher than 8 and votes>10000
```

```
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/thumb...	
1	NaN	
2	https://upload.wikimedia.org/wikipedia/en/thumb...	
3	https://upload.wikimedia.org/wikipedia/en/thumb...	
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)

```

```

(movies['imdb_rating'] > 8) & (movies['imdb_votes'] > 10000)

```

```

0 False
1 False
2 False
3 False
4 False
...
1624 False
1625 False
1626 False

```

```

1627     False
1628     False
Name: imdb_rating, Length: 1629, dtype: bool

movies[(movies['imdb_rating']>8) &
(movies['imdb_votes']>10000)].shape[0]  # multiple data

```

```
43
```

```
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

is_adult	title_y	original_title		
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				
imdb_votes	year_of_release	runtime	genres	imdb_rating
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]

```
# Action movies with rating higher than 7.5
# m1 : mask1=movies['genres'].str.split('|').apply(lambda x:'Action'
in x)# genres multiple type ke data se milke bana hai islye split kar
dye
```

```
mask1=movies['genres'].str.contains('Action')
```

```
mask1
```

```
0      True
1     False
2     False
3     False
4     False
```

```
...
1624   False
1625   False
1626   False
1627    True
1628   False
```

```
Name: genres, Length: 1629, dtype: bool
```

```
mask2=movies['imdb_rating']>7.5
```

```
mask2
```

```
0      True
1     False
2     False
3     False
4     False
```

```
...
1624   False
1625   False
1626   False
1627   False
1628    True
```

```
Name: imdb_rating, Length: 1629, dtype: bool
```

```
movies[mask1 & mask2]
```

	title_x	imdb_id \
0	Uri: The Surgical Strike	tt8291224
41	Family of Thakurganj	tt8897986
84	Mukkabaaz	tt7180544
106	Raazi	tt7098658
110	Parmanu: The Story of Pokhran	tt6826438
112	Bhavesh Joshi Superhero	tt6129302
169	The Ghazi Attack	tt6299040

219	Raag Desh (film)	tt6080746
258	Irudhi Suttru	tt5310090
280	Laal Rang	tt5600714
297	Udta Punjab	tt4434004
354	Dangal (film)	tt5074352
362	Bajrangi Bhaijaan	tt3863552
365	Baby (2015 Hindi film)	tt3848892
393	Detective Byomkesh Bakshy!	tt3447364
449	Titli (2014 film)	tt3019620
536	Haider (film)	tt3390572
589	Vishwaroopam	tt2199711
625	Madras Cafe	tt2855648
668	Paan Singh Tomar (film)	tt1620933
693	Gangs of Wasseypur	tt1954470
694	Gangs of Wasseypur – Part 2	tt1954470
982	Jodhaa Akbar	tt0449994
1039	1971 (2007 film)	tt0983990
1058	Black Friday (2007 film)	tt0400234
1188	Omkara (2006 film)	tt0488414
1293	Sarkar (2005 film)	tt0432047
1294	Sehar	tt0477857
1361	Lakshya (film)	tt0323013
1432	Gangaajal	tt0373856
1495	Company (film)	tt0296574
1554	The Legend of Bhagat Singh	tt0319736
1607	Nayak (2001 Hindi film)	tt0291376

	poster_path	\
0	https://upload.wikimedia.org/wikipedia/en/thum...	
41	https://upload.wikimedia.org/wikipedia/en/9/99...	
84	https://upload.wikimedia.org/wikipedia/en/thum...	
106	https://upload.wikimedia.org/wikipedia/en/thum...	
110	https://upload.wikimedia.org/wikipedia/en/thum...	
112	https://upload.wikimedia.org/wikipedia/en/thum...	
169	https://upload.wikimedia.org/wikipedia/en/thum...	
219	https://upload.wikimedia.org/wikipedia/en/thum...	
258	https://upload.wikimedia.org/wikipedia/en/f/fe...	
280	NaN	
297	https://upload.wikimedia.org/wikipedia/en/thum...	
354	https://upload.wikimedia.org/wikipedia/en/thum...	
362	https://upload.wikimedia.org/wikipedia/en/thum...	
365	https://upload.wikimedia.org/wikipedia/en/thum...	
393	https://upload.wikimedia.org/wikipedia/en/thum...	
449	https://upload.wikimedia.org/wikipedia/en/thum...	
536	https://upload.wikimedia.org/wikipedia/en/thum...	
589	https://upload.wikimedia.org/wikipedia/en/thum...	
625	https://upload.wikimedia.org/wikipedia/en/thum...	
668	https://upload.wikimedia.org/wikipedia/en/thum...	
693	https://upload.wikimedia.org/wikipedia/en/thum...	

694 https://upload.wikimedia.org/wikipedia/en/thum...
 982 https://upload.wikimedia.org/wikipedia/en/thum...
 1039 https://upload.wikimedia.org/wikipedia/en/thum...
 1058 https://upload.wikimedia.org/wikipedia/en/5/58...
 1188 https://upload.wikimedia.org/wikipedia/en/thum...
 1293 https://upload.wikimedia.org/wikipedia/en/thum...
 1294 https://upload.wikimedia.org/wikipedia/en/thum...
 1361 https://upload.wikimedia.org/wikipedia/en/thum...
 1432 https://upload.wikimedia.org/wikipedia/en/thum...
 1495 https://upload.wikimedia.org/wikipedia/en/thum...
 1554 https://upload.wikimedia.org/wikipedia/en/thum...
 1607 https://upload.wikimedia.org/wikipedia/en/thum...

	wiki_link \
0	https://en.wikipedia.org/wiki/Uri:_The_Surgica...
41	https://en.wikipedia.org/wiki/Family_of_Thakur...
84	https://en.wikipedia.org/wiki/Mukkabaaz
106	https://en.wikipedia.org/wiki/Raazi
110	https://en.wikipedia.org/wiki/Parmanu:_The_Sto...
112	https://en.wikipedia.org/wiki/Bhavesh_Joshi_Su...
169	https://en.wikipedia.org/wiki/The_Ghazi_Attack...
219	https://en.wikipedia.org/wiki/Raagdes
258	https://en.wikipedia.org/wiki/Saala_Khadoos
280	https://en.wikipedia.org/wiki/Laal_Rang
297	https://en.wikipedia.org/wiki/Udta_Punjab
354	https://en.wikipedia.org/wiki/Dangal_(film)
362	https://en.wikipedia.org/wiki/Bajrangi_Bhaijaan
365	https://en.wikipedia.org/wiki/Baby_(2015_Hindi...
393	https://en.wikipedia.org/wiki/Detective_Byomke...
449	https://en.wikipedia.org/wiki/Titli_(2014_film)
536	https://en.wikipedia.org/wiki/Haider_(film)
589	https://en.wikipedia.org/wiki/Vishwaroop_(Hind...
625	https://en.wikipedia.org/wiki/Madras_Cafe
668	https://en.wikipedia.org/wiki/Paan_Singh_Tomar...
693	https://en.wikipedia.org/wiki/Gangs_of_Wasseypur
694	https://en.wikipedia.org/wiki/Gangs_of_Wasseyp...
982	https://en.wikipedia.org/wiki/Jodhaa_Akbar
1039	https://en.wikipedia.org/wiki/1971_(2007_film)
1058	https://en.wikipedia.org/wiki/Black_Friday_(20...
1188	https://en.wikipedia.org/wiki/Omkara_(2006_film)
1293	https://en.wikipedia.org/wiki/Sarkar_(2005_film)
1294	https://en.wikipedia.org/wiki/Sehar
1361	https://en.wikipedia.org/wiki/Lakshya_(film)
1432	https://en.wikipedia.org/wiki/Gangaaajal
1495	https://en.wikipedia.org/wiki/Company_(film)
1554	https://en.wikipedia.org/wiki/The_Legend_of_Bh...
1607	https://en.wikipedia.org/wiki/Nayak_(2001_Hind...

title_y

original_title

is_adult \		
0	Uri: The Surgical Strike	Uri: The Surgical Strike
0		
41	Family of Thakurganj	Family of Thakurganj
0		
84	The Brawler	Mukkabaaz
0		
106	Raazi	Raazi
0		
110	Parmanu: The Story of Pokhran	Parmanu: The Story of Pokhran
0		
112	Bhavesh Joshi Superhero	Bhavesh Joshi Superhero
0		
169	The Ghazi Attack	The Ghazi Attack
0		
219	Raag Desh	Raag Desh
0		
258	Saala Khadoos	Saala Khadoos
0		
280	Laal Rang	Laal Rang
0		
297	Udta Punjab	Udta Punjab
0		
354	Dangal	Dangal
0		
362	Bajrangi Bhaijaan	Bajrangi Bhaijaan
0		
365	Baby	Baby
0		
393	Detective Byomkesh Bakshy!	Detective Byomkesh Bakshy!
0		
449	Titli	Titli
0		
536	Haider	Haider
0		
589	Vishwaroopam	Vishwaroopam
0		
625	Madras Cafe	Madras Cafe
0		
668	Paan Singh Tomar	Paan Singh Tomar
0		
693	Gangs of Wasseypur	Gangs of Wasseypur
0		
694	Gangs of Wasseypur	Gangs of Wasseypur
0		
982	Jodhaa Akbar	Jodhaa Akbar
0		
1039	1971	1971
0		

1058		Black Friday		Black Friday
0				
1188		Omkara		Omkara
0				
1293		Sarkar		Sarkar
0				
1294		Sehar		Sehar
0				
1361		Lakshya		Lakshya
0				
1432		Gangaaajal		Gangaaajal
0				
1495		Company		Company
0				
1554	The Legend of Bhagat Singh		The Legend of Bhagat Singh	
0				
1607	Nayak: The Real Hero		Nayak: The Real Hero	
0				
	year_of_release	runtime	genres	imdb_rating \
0	2019	138	Action Drama War	8.4
41	2019	127	Action Drama	9.4
84	2017	154	Action Drama Sport	8.1
106	2018	138	Action Drama Thriller	7.8
110	2018	129	Action Drama History	7.7
112	2018	154	Action Drama	7.6
169	2017	116	Action Thriller War	7.6
219	2017	135	Action Drama History	8.3
258	2016	109	Action Drama Sport	7.6
280	2016	147	Action Crime Drama	8.0
297	2016	148	Action Crime Drama	7.8
354	2016	161	Action Biography Drama	8.4
362	2015	163	Action Comedy Drama	8.0
365	2015	159	Action Thriller	8.0
393	2015	139	Action Mystery Thriller	7.6
449	2014	116	Action Drama Thriller	7.6
536	2014	160	Action Crime Drama	8.1
589	2013	148	Action Thriller	8.2
625	2013	130	Action Drama Thriller	7.7
668	2012	135	Action Biography Crime	8.2
693	2012	321	Action Comedy Crime	8.2
694	2012	321	Action Comedy Crime	8.2
982	2008	213	Action Drama History	7.6
1039	2007	160	Action Drama War	7.9
1058	2004	143	Action Crime Drama	8.5
1188	2006	155	Action Crime Drama	8.1
1293	2005	124	Action Crime Drama	7.6
1294	2005	125	Action Crime Drama	7.8
1361	2004	186	Action Drama Romance	7.9

1432	2003	157	Action Crime Drama	7.8
1495	2002	155	Action Crime Drama	8.0
1554	2002	155	Action Biography Drama	8.1
1607	2001	187	Action Drama Thriller	7.8

	imdb_votes	story \
0	35112	Divided over five chapters the film chronicle...
41	895	The film is based on small town of North India...
84	5434	A boxer (Shravan) belonging to upper cast tra...
106	20289	Hidayat Khan is the son of an Indian freedom f...
110	18292	Captain Ashwat Raina's efforts to turn India i...
112	4928	Bhavesh Joshi Superhero is an action film abou...
169	10332	In 1971 amid rising tensions between India an...
219	341	A period film based on the historic 1945 India...
258	10507	An under-fire boxing coach Prabhu is transfer...
280	3741	The friendship of two men is tested when thing...
297	23995	What on earth can a rock star a migrant labor...
354	131338	Biopic of Mahavir Singh Phogat who taught wre...
362	65877	A little mute girl from a Pakistani village ge...
365	49426	The country is perpetually under threat from t...
393	14674	CALCUTTA 1943 A WAR - A MYSTERY - and A DETECT...
449	3677	In the badlands of Delhi's dystopic underbelly...
536	46912	Vishal Bhardwaj's adaptation of William Shakes...
589	38016	Vishwanathan a Kathak dance teacher in New Yo...
625	21393	An Indian Intelligence agent (portrayed by Joh...
668	29994	Paan Singh Tomar is a Hindi-language film bas...
693	71636	Shahid Khan is exiled after impersonating the ...
694	71636	Shahid Khan is exiled after impersonating the ...
982	27541	Jodhaa Akbar is a sixteenth century love story...
1039	1121	Based on true facts the film revolves around ...
1058	16761	A dramatic presentation of the bomb blasts tha...
1188	17594	Advocate Raghunath Mishra has arranged the mar...
1293	14694	Meet Subhash Nagre - a wealthy and influential...
1294	1861	At the tender age of 8 Ajay Kumar is traumatiz...
1361	18777	Karan is a lazy good-for-nothing who lives on ...
1432	14295	An SP Amit Kumar who is given charge of Tezpur...
1495	13474	Mallik is a henchman of Aslam Bhai a Mumbai u...
1554	13455	Bhagat was born in British India during the ye...
1607	12522	Employed as a camera-man at a popular televisi...

	summary \
0	Indian army special forces execute a covert op...
41	The film is based on small town of North India...
84	A boxer struggles to make his mark in the boxi...
106	A Kashmiri woman agrees to marry a Pakistani a...
110	Ashwat Raina and his teammates arrive in Pokhr...
112	The origin story of Bhavesh Joshi an Indian s...
169	A Pakistani submarine Ghazi plans to secretly...
219	A period film based on the historic 1945 India...

258 The story of a former boxer who quits boxing f...
 280 The friendship of two men is tested when thing...
 297 A story that revolves around drug abuse in the...
 354 Former wrestler Mahavir Singh Phogat and his t...
 362 An Indian man with a magnanimous heart takes a...
 365 An elite counter-intelligence unit learns of a...
 393 While investigating the disappearance of a che...
 449 A Hindi feature film set in the lower depths o...
 536 A young man returns to Kashmir after his fathe...
 589 When a classical dancer's suspecting wife sets...
 625 An Indian intelligence agent journeys to a war...
 668 The story of Paan Singh Tomar an Indian athle...
 693 A clash between Sultan and Shahid Khan leads t...
 694 A clash between Sultan and Shahid Khan leads t...
 982 A sixteenth century love story about a marriag...
 1039 Based on true facts the film revolves around ...
 1058 Black Friday is a film about the investigation...
 1188 A politically-minded enforcer's misguided trus...
 1293 The authority of a man who runs a parallel go...
 1294 Ajay Kumar the newly appointed honest SSP of ...
 1361 An aimless jobless irresponsible grown man j...
 1432 An IPS officer motivates and leads a dysfuncti...
 1495 A small-time gangster named Chandu teams up wi...
 1554 The story of a young revolutionary who raised ...
 1607 A man accepts a challenge by the chief ministe...

	tagline \
0	NaN
41	NaN
84	NaN
106	An incredible true story
110	1998 India: one secret operation six Indians...
112	This year justice will have a new name.
169	The war you did not know about
219	NaN
258	NaN
280	Every job good or bad must be done with honesty.
297	NaN
354	You think our girls are any lesser than boys?
362	NaN
365	History Is Made By Those Who Give A Damn!
393	Expect The Unexpected
449	Daring Desireable Dangerous
536	NaN
589	NaN
625	NaN
668	NaN
693	NaN
694	NaN

982		NaN
1039	Honor the heroes.....	
1058	The story of the Bombay bomb blasts	
1188		NaN
1293	'There are no Rights and Wrongs. Only Power' -...	
1294		NaN
1361	It took him 24 years and 18000 feet to find hi...	
1432		NaN
1495	A law & order enterprise	
1554		NaN
1607	Fight the power	

		actors \
0	Vicky Kaushal Paresh Rawal Mohit Raina Yami Ga...	
41	Jimmy Sheirgill Mahie Gill Nandish Singh Prana...	
84	Viineet Kumar Jimmy Sheirgill Zoya Hussain Rav...	
106	Alia Bhatt Vicky Kaushal Rajit Kapoor Shishir ...	
110	John Abraham Boman Irani Diana Penty Anuja Sat...	
112	Harshvardhan Kapoor Priyanshu Painyuli Ashish ...	
169	Rana Daggubati Kay Kay Menon Atul Kulkarni Om ...	
219	Kunal Kapoor Amit Sadh Mohit Marwah Kenneth De...	
258	Madhavan Ritika Singh Mumtaz Sorcar Nassar Rad...	
280	Randeep Hooda Akshay Oberoi Rajniesh Duggall P...	
297	Shahid Kapoor Alia Bhatt Kareena Kapoor Diljit...	
354	Aamir Khan Fatima Sana Shaikh Sanya Malhotra S...	
362	Salman Khan Harshaali Malhotra Nawazuddin Sidd...	
365	Akshay Kumar Danny Denzongpa Rana Daggubati Ta...	
393	Sushant Singh Rajput Anand Tiwari Neeraj Kabi ...	
449	Nawazuddin Siddiqui Niharika Singh Anil George...	
536	Tabu Shahid Kapoor Shraddha Kapoor Kay Kay Men...	
589	Kamal Haasan Rahul Bose Shekhar Kapur Pooja Ku...	
625	John Abraham Nargis Fakhri Raashi Khanna Praka...	
668	Irrfan Khan	
693	Manoj Bajpayee Richa Chadha Nawazuddin Siddiqu...	
694	Manoj Bajpayee Richa Chadha Nawazuddin Siddiqu...	
982	Hrithik Roshan Aishwarya Rai Bachchan Sonu Soo...	
1039	Manoj Bajpayee Ravi Kishan Deepak Dobriyal	
1058	Kay Kay Menon Pavan Malhotra Aditya Srivastava...	
1188	Ajay Devgn Saif Ali Khan Vivek Oberoi Kareena ...	
1293	Amitabh Bachchan Abhishek Bachchan Kay Kay Men...	
1294	Arshad Warsi Pankaj Kapur Mahima Chaudhry Sush...	
1361	Hrithik Roshan Preity Zinta Amitabh Bachchan 0...	
1432	Ajay Devgn Gracy Singh Mohan Joshi Yashpal Sha...	
1495	Ajay Devgn Mohanlal Manisha Koirala Seema Bisw...	
1554	Ajay Devgn Sushant Singh D. Santosh Akhilendra...	
1607	Anil Kapoor Rani Mukerji Amrish Puri Johnny Le...	

	wins_nominations	release_date
0	4 wins	11 January 2019 (USA)

41		NaN	19 July 2019 (India)
84	3 wins & 6 nominations		12 January 2018 (USA)
106	21 wins & 26 nominations		11 May 2018 (USA)
110		NaN	25 May 2018 (USA)
112	2 nominations		1 June 2018 (USA)
169	1 win & 7 nominations		17 February 2017 (USA)
219		NaN	28 July 2017 (India)
258	9 wins & 2 nominations		29 January 2016 (USA)
280		NaN	22 April 2016 (India)
297	11 wins & 19 nominations		17 June 2016 (USA)
354	23 wins & 4 nominations		21 December 2016 (USA)
362	25 wins & 13 nominations		17 July 2015 (USA)
365	1 win		23 January 2015 (India)
393		NaN	3 April 2015 (USA)
449	4 wins & 5 nominations		20 June 2014 (USA)
536	28 wins & 24 nominations		2 October 2014 (USA)
589	5 wins & 11 nominations		25 January 2013 (India)
625	10 wins & 10 nominations		23 August 2013 (India)
668	10 wins & 11 nominations		2 March 2012 (USA)
693	12 wins & 43 nominations		2 August 2012 (Singapore)
694	12 wins & 43 nominations		2 August 2012 (Singapore)
982	32 wins & 21 nominations		15 February 2008 (USA)
1039	1 win		9 March 2007 (India)
1058	3 nominations		9 February 2007 (India)
1188	19 wins & 20 nominations		28 July 2006 (USA)
1293	2 wins & 10 nominations		1 July 2005 (India)
1294		NaN	29 July 2005 (India)
1361	4 wins & 10 nominations		18 June 2004 (USA)
1432	4 wins & 29 nominations		29 August 2003 (India)
1495	16 wins & 9 nominations		15 April 2002 (India)
1554	11 wins & 5 nominations		7 June 2002 (India)
1607	2 nominations		7 September 2001 (India)

Wrrite a function that can return the track record of 2 teams against each other

adding new column

```
# suppose mujhe ek column add karna hai jisme ki country ka name ho ki
movie kaha produced hua hai
movies['Country'] = 'India'      # sabse last me ek column add ho jayega
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
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 Country
0  11 January 2019 (USA)  India
1  11 January 2019 (India)  India
2  11 January 2019 (USA)  India
3  18 January 2019 (USA)  India
4  11 January 2019 (India)  India

```

from existing one

ek new column banana chahate hain jisme ki lead actor ka name ho aur wo name actor bale column se nikal ke aaye jo ki actor bale column me pahla name hai

```
movies['actors'].str.split('|').apply(lambda x :x[0])
```


TypeError Traceback (most recent call last)

Cell In[264], line 3

```

1 # from existing one
2 # ek new column banana chahate hain jisme ki lead actor ka
name ho aur wo name actor bale column se nikal ke aaye jo ki actor
bale column me pahla name hai

```

```
----> 3 movies['actors'].str.split('|').apply(lambda x :x[0])
```

File ~\anaconda3\Lib\site-packages\pandas\core\series.py:4924, in Series.apply(self, func, convert_dtype, args, by_row, **kwargs)

```

4789 def apply(
4790     self,
4791     func: AggFuncType,
4792     (...)
4796     **kwargs,
4797 ) -> DataFrame | Series:

```

```

4798     """
4799     Invoke function on values of Series.
4800     (...)
4915     dtype: float64
4916     """
4917     return SeriesApply(
4918         self,
4919         func,
4920         convert_dtype=convert_dtype,
4921         by_row=by_row,
4922         args=args,
4923         kwargs=kwargs,
-> 4924     ).apply()

```

```

File ~\anaconda3\Lib\site-packages\pandas\core\apply.py:1427, in
SeriesApply.apply(self)
    1424     return self.apply_compat()
    1426 # self.func is Callable
-> 1427 return self.apply_standard()

```

```

File ~\anaconda3\Lib\site-packages\pandas\core\apply.py:1507, in
SeriesApply.apply_standard(self)
    1501 # row-wise access
    1502 # apply doesn't have a `na_action` keyword and for backward
compat reasons
    1503 # we need to give `na_action="ignore"` for categorical data.
    1504 # TODO: remove the `na_action="ignore"` when that default has
been changed in
    1505 # Categorical (GH51645).
    1506 action = "ignore" if isinstance(obj.dtype, CategoricalDtype)
else None
-> 1507 mapped = obj._map_values(
    1508     mapper=curried, na_action=action,
convert=self.convert_dtype
    1509 )
    1511 if len(mapped) and isinstance(mapped[0], ABCSeries):
    1512     # GH#43986 Need to do list(mapped) in order to get treated
as nested
    1513     # See also GH#25959 regarding EA support
    1514     return obj._constructor_expanddim(list(mapped),
index=obj.index)

```

```

File ~\anaconda3\Lib\site-packages\pandas\core\base.py:921, in
IndexOpsMixin._map_values(self, mapper, na_action, convert)
    918 if isinstance(arr, ExtensionArray):
    919     return arr.map(mapper, na_action=na_action)
--> 921 return algorithms.map_array(arr, mapper, na_action=na_action,
convert=convert)

```

```

File ~\anaconda3\Lib\site-packages\pandas\core\algorithms.py:1743, in
map_array(arr, mapper, na_action, convert)
    1741 values = arr.astype(object, copy=False)
    1742 if na_action is None:
-> 1743     return lib.map_infer(values, mapper, convert=convert)
    1744 else:
    1745     return lib.map_infer_mask(
    1746         values, mapper, mask=isna(values).view(np.uint8),
convert=convert
    1747     )

```

```

File lib.pyx:2972, in pandas._libs.lib.map_infer()

```

```

Cell In[264], line 3, in <lambda>(x)

```

```

    1 # from existing one
    2 # ek new column banana chahate hain jisme ki lead actor ka
name ho aur wo name actor bale column se nikal ke aaye jo ki actor
bale column me pahla name hai
----> 3 movies['actors'].str.split('|').apply(lambda x :x[0])

```

```

TypeError: 'float' object is not subscriptable

```

```

# ye error islye aa raha hai qki dataframe ke actor column me kuch
missing values hai
movies.info()

```

```

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

```

```

RangeIndex: 1629 entries, 0 to 1628

```

```

Data columns (total 19 columns):

```

#	Column	Non-Null Count	Dtype
0	title_x	1629 non-null	object
1	imdb_id	1629 non-null	object
2	poster_path	1526 non-null	object
3	wiki_link	1629 non-null	object
4	title_y	1629 non-null	object
5	original_title	1629 non-null	object
6	is_adult	1629 non-null	int64
7	year_of_release	1629 non-null	int64
8	runtime	1629 non-null	object
9	genres	1629 non-null	object
10	imdb_rating	1629 non-null	float64
11	imdb_votes	1629 non-null	int64
12	story	1609 non-null	object
13	summary	1629 non-null	object
14	tagline	557 non-null	object
15	actors	1624 non-null	object
16	wins_nominations	707 non-null	object
17	release_date	1522 non-null	object
18	Country	1629 non-null	object

```
dtypes: float64(1), int64(3), object(15)
memory usage: 241.9+ KB
```

*# total movies 1629 hai but actor name 1624 me hi available hai to hum
pahle null value ko delete kar sakte hain*

movies.dropna(inplace=True) #ye nan value ko drop kar dega

```
movies.info()
```

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

```
Index: 298 entries, 11 to 1623
```

```
Data columns (total 19 columns):
```

#	Column	Non-Null Count	Dtype
0	title_x	298 non-null	object
1	imdb_id	298 non-null	object
2	poster_path	298 non-null	object
3	wiki_link	298 non-null	object
4	title_y	298 non-null	object
5	original_title	298 non-null	object
6	is_adult	298 non-null	int64
7	year_of_release	298 non-null	int64
8	runtime	298 non-null	object
9	genres	298 non-null	object
10	imdb_rating	298 non-null	float64
11	imdb_votes	298 non-null	int64
12	story	298 non-null	object
13	summary	298 non-null	object
14	tagline	298 non-null	object
15	actors	298 non-null	object
16	wins_nominations	298 non-null	object
17	release_date	298 non-null	object
18	Country	298 non-null	object

```
dtypes: float64(1), int64(3), object(15)
```

```
memory usage: 46.6+ KB
```

```
movies['lead_actor']=movies['actors'].str.split('|').apply(lambda  
x :x[0])
```

```
movies.head()
```

	title_x	imdb_id \
11	Gully Boy	tt2395469
34	Yeh Hai India	tt5525846
37	Article 15 (film)	tt10324144
87	Aiyaary	tt6774212
96	Raid (2018 film)	tt7363076

	poster_path \
11	https://upload.wikimedia.org/wikipedia/en/thum...
34	https://upload.wikimedia.org/wikipedia/en/thum...

```

37 https://upload.wikimedia.org/wikipedia/en/thum...
87 https://upload.wikimedia.org/wikipedia/en/thum...
96 https://upload.wikimedia.org/wikipedia/en/thum...

```

```

                                wiki_link      title_y \
11      https://en.wikipedia.org/wiki/Gully_Boy      Gully Boy
34      https://en.wikipedia.org/wiki/Yeh_Hai_India  Yeh Hai India
37      https://en.wikipedia.org/wiki/Article_15_(film)  Article 15
87      https://en.wikipedia.org/wiki/Aiyaary      Aiyaary
96      https://en.wikipedia.org/wiki/Raid_(2018_film)  Raid

```

```

original_title  is_adult  year_of_release  runtime
genres \
11      Gully Boy      0      2019      153
Drama|Music
34      Yeh Hai India      0      2017      128      Action|
Adventure|Drama
37      Article 15      0      2019      130
Crime|Drama
87      Aiyaary      0      2018      157      Action|
Thriller
96      Raid      0      2018      122      Action|
Crime|Drama

```

```

imdb_rating  imdb_votes \
11      8.2      22440
34      5.7      169
37      8.3      13417
87      5.2      3538
96      7.4      13159

```

```

                                story \
11      Gully Boy is a film about a 22-year-old boy "M...
34      Yeh Hai India follows the story of a 25 years...
37      In the rural heartlands of India an upright p...
87      General Gurinder Singh comes with a proposal t...
96      Set in the 80s in Uttar Pradesh India Raid i...

```

```

                                summary \
11      A coming-of-age story based on the lives of st...
34      Yeh Hai India follows the story of a 25 years...
37      In the rural heartlands of India an upright p...
87      After finding out about an illegal arms deal ...
96      A fearless income tax officer raids the mansio...

```

```

                                tagline \
11      Apna Time Aayega!
34      A Film for Every Indian
37      Farq Bahut Kar Liya| Ab Farq Laayenge.
87      The Ultimate Trickery

```


96 Heroes don't always come in uniform

actors

wins_nominations \

11 Ranveer Singh|Alia Bhatt|Siddhant Chaturvedi|V... 6 wins & 3 nominations

34 Gavie Chahal|Mohan Agashe|Mohan Joshi|Lom Harsh| 2 wins & 1 nomination

37 Ayushmann Khurrana|Nassar|Manoj Pahwa|Kumud Mi... 1 win

87 Sidharth Malhotra|Manoj Bajpayee|Rakul Preet S... 1 nomination

96 Ajay Devgn|Saurabh Shukla|Ileana D'Cruz|Amit S... 2 wins & 3 nominations

	release_date	Country	lead actor
11	14 February 2019 (USA)	India	Ranveer Singh
34	24 May 2019 (India)	India	Gavie Chahal
37	28 June 2019 (USA)	India	Ayushmann Khurrana
87	16 February 2018 (USA)	India	Sidharth Malhotra
96	16 March 2018 (India)	India	Ajay Devgn

Important DataFrame Function

astype =>basically ek given column ka datatype change karta hai
ipl.info()

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

RangeIndex: 950 entries, 0 to 949

Data columns (total 20 columns):

#	Column	Non-Null Count	Dtype
0	ID	950 non-null	int64
1	City	899 non-null	object
2	Date	950 non-null	object
3	Season	950 non-null	object
4	MatchNumber	950 non-null	object
5	Team1	950 non-null	object
6	Team2	950 non-null	object
7	Venue	950 non-null	object
8	TossWinner	950 non-null	object
9	TossDecision	950 non-null	object
10	SuperOver	946 non-null	object
11	WinningTeam	946 non-null	object
12	WonBy	950 non-null	object
13	Margin	932 non-null	float64
14	method	19 non-null	object
15	Player_of_Match	946 non-null	object
16	Team1Players	950 non-null	object

```

17 Team2Players      950 non-null    object
18 Umpire1           950 non-null    object
19 Umpire2           950 non-null    object

```

```
dtypes: float64(1), int64(1), object(18)
```

```
memory usage: 148.6+ KB
```

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

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 Maharoo  ['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]
```

```
ipl['ID'].astype('int32') # permanent change nahi hua hai
```

```
0      1312200
1      1312199
2      1312198
3      1312197
4      1304116
```

```
...
945     335986
946     335985
947     335984
948     335983
949     335982
```

```
Name: ID, Length: 950, dtype: int32
```

```
ipl['ID']=ipl['ID'].astype('int32') # same data me new value assign
kar do permanent change ho jayega
```

```
ipl.info()
```

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

```
RangeIndex: 950 entries, 0 to 949
```

```
Data columns (total 20 columns):
```

#	Column	Non-Null Count	Dtype
0	ID	950 non-null	int32
1	City	899 non-null	object
2	Date	950 non-null	object
3	Season	950 non-null	object
4	MatchNumber	950 non-null	object
5	Team1	950 non-null	object
6	Team2	950 non-null	object
7	Venue	950 non-null	object
8	TossWinner	950 non-null	object
9	TossDecision	950 non-null	object
10	SuperOver	946 non-null	object
11	WinningTeam	946 non-null	object
12	WonBy	950 non-null	object
13	Margin	932 non-null	float64
14	method	19 non-null	object
15	Player_of_Match	946 non-null	object
16	Team1Players	950 non-null	object
17	Team2Players	950 non-null	object
18	Umpire1	950 non-null	object
19	Umpire2	950 non-null	object

```
dtypes: float64(1), int32(1), object(18)
```

```
memory usage: 144.9+ KB
```

```
# pahle aur abhi bale memory uses ko observ karo change karne ke baad
memory usage reduce ho gya hai and ID pahle int64 tha abb int32 hai
```

```
ipl['Season']=ipl['Season'].astype('category') # matlab ki jata data
repeate ho raha hai usse categorical me convert kar sakte hain
ipl['Team1']=ipl['Team1'].astype('category')
ipl['Team2']=ipl['Team2'].astype('category')
```

```
ipl.info()
```

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

```
RangeIndex: 950 entries, 0 to 949
```

```
Data columns (total 20 columns):
```

#	Column	Non-Null Count	Dtype
0	ID	950 non-null	int32
1	City	899 non-null	object
2	Date	950 non-null	object
3	Season	950 non-null	category
4	MatchNumber	950 non-null	object
5	Team1	950 non-null	category
6	Team2	950 non-null	category
7	Venue	950 non-null	object
8	TossWinner	950 non-null	object
9	TossDecision	950 non-null	object
10	SuperOver	946 non-null	object
11	WinningTeam	946 non-null	object
12	WonBy	950 non-null	object
13	Margin	932 non-null	float64
14	method	19 non-null	object
15	Player_of_Match	946 non-null	object
16	Team1Players	950 non-null	object
17	Team2Players	950 non-null	object
18	Umpire1	950 non-null	object
19	Umpire2	950 non-null	object

```
dtypes: category(3), float64(1), int32(1), object(15)
```

```
memory usage: 127.4+ KB
```