More Important Functions

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

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

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

```
1    3
2    2
3    1
dtype: int64
```

```
# value_counts(series and dataframe)
```

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

marks
```

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

```
marks.value_counts()
```

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

```
ipl = pd.read_csv('ipl-matches.csv')
ipl[~ipl['MatchNumber'].str.isdigit()]['Player_of_Match'].value_counts()
```

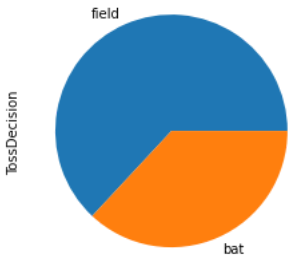
```
KA Pollard           3
F du Plessis         3
SK Raina             3
A Kumble             2
MK Pandey            2
YK Pathan            2
M Vijay              2
JJ Bumrah            2
AB de Villiers       2
```

```
SR Watson            2
HH Pandya            1
Harbhajan Singh      1
A Nehra              1
V Sehwag             1
UT Yadav             1
MS Bisla             1
BJ Hodge             1
MEK Hussey           1
MS Dhoni             1
CH Gayle             1
MM Patel             1
DE Bollinger         1
AC Gilchrist         1
RG Sharma            1
DA Warner            1
MC Henriques         1
JC Buttler           1
RM Patidar           1
DA Miller            1
VR Iyer              1
SP Narine            1
RD Gaikwad           1
TA Boult             1
MP Stoinis           1
KS Williamson        1
RR Pant              1
SA Yadav             1
Rashid Khan          1
AD Russell           1
KH Pandya            1
KV Sharma            1
NM Coulter-Nile      1
Washington Sundar    1
BCJ Cutting          1
M Ntini              1
Name: Player_of_Match, dtype: int64
```

```
# find which player has won most potm -> in finals and qualifiers
```

```
# Toss decision plot
ipl['TossDecision'].value_counts().plot(kind='pie')
```

```
<matplotlib.axes._subplots.AxesSubplot at 0x7f034efd49d0>
```




```
# how many matches each team has played
(ipl['Team2'].value_counts() + ipl['Team1'].value_counts()).sort_values(ascending=False)
```

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

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

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

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

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

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

```
movies = pd.read_csv('movies.csv')
movies.head(4)
```

	title_x	imdb_id	poster_path	wiki_link	title_y	original_title
0	Uri: The Surgical Strike	tt8291224	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Uri:_The_Surgica...	Uri: The Surgical Strike	Uri: The Surgical Strike
1	Battalion 609	tt9472208	NaN	https://en.wikipedia.org/wiki/Battalion_609	Battalion 609	Battalion 609
2	The Accidental Prime Minister (film)	tt6986710	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/The_Accidental_P...	The Accidental Prime Minister	The Accidental Prime Minister
3	Why Cheat India	tt8108208	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Why_Cheat_India	Why Cheat India	Why Cheat India

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

	title_x	imdb_id	poster_path	wiki_link	title_y	original_ti
1623	Zubeidaa	tt0255713	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Zubeidaa	Zubeidaa	Zube
939	Zor Lagaa Ke...Haiya!	tt1479857	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Zor_Lagaa_Ke...H...	Zor Lagaa Ke... Haiya!	Zor Lagaa H
756	Zokkomon	tt1605790	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Zokkomon	Zokkomon	Zokko
670	Zindagi Tere Naam	tt2164702	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Zindagi_Tere_Naam	Zindagi Tere Naam	Zindagi Tere N
778	Zindagi Na Milegi Dobara	tt1562872	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Zindagi_Na_Mileg...	Zindagi Na Milegi Dobara	Zindagi Na M Do
...	...	...	...	...	...	
1039	1971 (2007 film)	tt0983990	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/1971_(2007_film)	1971	1
723	1920: The Evil Returns	tt2222550	https://upload.wikimedia.org/wikipedia/en/e/e7...	https://en.wikipedia.org/wiki/1920:_The_Evil_R...	1920: Evil Returns	1920: Evil Ret
287	1920: London	tt5638500	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/1920_London	1920 London	1920 Lor
1021	1920 (film)	tt1301698	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/1920_(film)	1920	1
1498	16 December (film)	tt0313844	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/16_December_(film)	16-Dec	16·

1629 rows × 18 columns

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

    }
)
```

```
students
```

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

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

```
students
```

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

```
movies.sort_values(['year_of_release','title_x'],ascending=[True,False])
```

	title_x	imdb_id	poster_path	wiki_link	title_y	original_ti
1623	Zubeidaa	tt0255713	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Zubeidaa	Zubeidaa	Zube
1625	Yeh Zindagi Ka Safar	tt0298607	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...	Yeh Zindagi Ka Safar	Yeh Zindag S
1622	Yeh Teraa Ghar Yeh Meraa Ghar	tt0298606	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Yeh_Teraa_Ghar_Y...	Yeh Teraa Ghar Yeh Meraa Ghar	Yeh Teraa (Yeh Meraa (
1620	Yeh Raaste Hain Pyaar Ke	tt0292740	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Yeh_Raaste_Hain_...	Yeh Raaste Hain Pyaar Ke	Yeh Raaste Pyaa
1573	Yaadein (2001 film)	tt0248617	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Yaadein_(2001_film)	Yaadein...	Yaade
...	...	...	...	...	...	
37	Article 15 (film)	tt10324144	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Article_15_(film)	Article 15	Articl
46	Arjun Patiala	tt7881524	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Arjun_Patiala	Arjun Patiala	Arjun Pa
10	Amavas	tt8396186	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Amavas	Amavas	Ama
26	Albert Pinto Ko Gussa Kyun Aata Hai?	tt4355838	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Albert_Pinto_Ko_...	Albert Pinto Ko Gussa Kyun Aata Hai?	Albert Pint Gussa Kyun

```
# rank(series)
batsman = pd.read_csv('batsman_runs_ipl.csv')
batsman.head()
```

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

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

	batter	batsman_run	batting_rank
569	V Kohli	6634	1.0
462	S Dhawan	6244	2.0
130	DA Warner	5883	3.0
430	RG Sharma	5881	4.0
493	SK Raina	5536	5.0
...	...	...	...
512	SS Cottrell	0	594.0
466	S Kaushik	0	594.0
203	IC Pandey	0	594.0
467	S Ladda	0	594.0
468	S Lamichhane	0	594.0

605 rows × 3 columns

```
# sort_index(series and dataframe)
```

```
marks = {
    'maths':67,
    'english':57,
    'science':89,
    'hindi':100
}

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

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

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

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

```
movies.sort_index(ascending=False)
```

	title_x	imdb_id	poster_path	wiki_link	title_y	original_t
1628	Humsafar	tt2403201	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Humsafar	Humsafar	Hum
1627	Daaka	tt10833860	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Daaka	Daaka	D
1626	Sabse Bada Sukh	tt0069204	NaN	https://en.wikipedia.org/wiki/Sabse_Bada_Sukh	Sabse Bada Sukh	Sabse Bada
1625	Yeh Zindagi Ka Safar	tt0298607	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...	Yeh Zindagi Ka Safar	Yeh Zinda
1624	Tera Mera Saath Rahen	tt0301250	https://upload.wikimedia.org/wikipedia/en/2/2b...	https://en.wikipedia.org/wiki/Tera_Mera_Saath_...	Tera Mera Saath Rahen	Tera Mera S R
...	...	...	...	...	...	
4	Evening Shadows	tt6028796	NaN	https://en.wikipedia.org/wiki/Evening_Shadows	Evening Shadows	Evening Sha
3	Why Cheat India	tt8108208	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Why_Cheat_India	Why Cheat India	Why Cheat
2	The Accidental Prime Minister (film)	tt6986710	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/The_Accidental_P...	The Accidental Prime Minister	The Accid Prime Mi
1	Battalion 609	tt9472208	NaN	https://en.wikipedia.org/wiki/Battalion_609	Battalion 609	Battalio

```
# set_index(dataframe) -> inplace
batsman.set_index('batter',inplace=True)
```

```
batsman
```

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

605 rows × 2 columns

```
# reset_index(series + dataframe) -> drop parameter
batsman.reset_index(inplace=True)
```

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

605 rows × 3 columns

```
batsman
```

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

605 rows × 2 columns

```
# how to replace existing index without loosing
batsman.reset_index().set_index('batting_rank')
```

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

605 rows × 2 columns

```
# series to dataframe using reset_index
marks_series.reset_index()
```

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

```
# rename(dataframe) -> index

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

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

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

title_x	imdb	link	wiki_link	title_y	original_title
Uri	tt8291224	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Uri:_The_Surgica...	Uri: The Surgical Strike	Uri: The Surgical Strike
Battalion	tt9472208	NaN	https://en.wikipedia.org/wiki/Battalion_609	Battalion 609	Battalion 609
The Accidental Prime Minister (film)	tt6986710	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/The_Accidental_P...	The Accidental Prime Minister	The Accidental Prime Minister
Why Cheat India	tt8108208	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Why_Cheat_India	Why Cheat India	Why Cheat India
Evening Shadows	tt6028796	NaN	https://en.wikipedia.org/wiki/Evening_Shadows	Evening Shadows	Evening Shadows
...	...	...	...	...	...
Tera Mera Saath Rahen	tt0301250	https://upload.wikimedia.org/wikipedia/en/2/2b...	https://en.wikipedia.org/wiki/Tera_Mera_Saath_...	Tera Mera Saath Rahen	Tera Mera Saath Rahen
Yeh Zindagi Ka Safar	tt0298607	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Yeh_Zindagi_Ka_S...	Yeh Zindagi Ka Safar	Yeh Zindagi Ka Safar
Sabse Bada Sukh	tt0069204	NaN	https://en.wikipedia.org/wiki/Sabse_Bada_Sukh	Sabse Bada Sukh	Sabse Bada Sukh
Daaka	tt10833860	https://upload.wikimedia.org/wikipedia/en/thum...	https://en.wikipedia.org/wiki/Daaka	Daaka	Daaka

```
# unique(series)
temp = pd.Series([1,1,2,2,3,3,4,4,5,5,np.nan,np.nan])
print(temp)
```

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

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

```
6
```

```
temp.nunique()
```

```
5
```

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

```
15
```

```
# nunique(series + dataframe) -> does not count nan -> dropna parameter
ipl['Season'].nunique()
```

```
15
```

```
# isnull(series + dataframe)
students['name'][students['name'].isnull()]
```

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

```
# notnull(series + dataframe)
students['name'][students['name'].notnull()]
```

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

```
# hasnans(series)
students['name'].hasnans
```

```
True
```

```
students
```

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

```
students.isnull()
```

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

```
students.notnull()
```

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

```
# dropna(series + dataframe) -> how parameter -> works like or
students['name'].dropna()
```

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

```
students
```

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

```
students.dropna(how='any')
```

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

```
students.dropna(how='all')
```

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

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

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

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

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

```
students.dropna(inplace=True)
```

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

```
# fillna(series + dataframe)
students['name'].fillna('unknown')
```

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

```
students
```

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

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

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

```
students['name'].fillna(method='bfill')
```

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

```
# drop_duplicates(series + dataframe) -> works like and -> duplicated()
```

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

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

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

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

```
# find the last match played by virat kohli in Delhi
ipl['all_players'] = ipl['Team1Players'] + ipl['Team2Players']
ipl.head()
```

	ID	City	Date	Season	MatchNumber	Team1	Team2	Venue
0	1312200	Ahmedabad	2022-05-29	2022	Final	Rajasthan Royals	Gujarat Titans	Narendra Modi Stadium, Ahmedabad
1	1312199	Ahmedabad	2022-05-27	2022	Qualifier 2	Royal Challengers Bangalore	Rajasthan Royals	Narendra Modi Stadium, Ahmedabad
2	1312198	Kolkata	2022-05-25	2022	Eliminator	Royal Challengers Bangalore	Lucknow Super Giants	Eden Gardens, Kolkata
3	1312197	Kolkata	2022-05-24	2022	Qualifier 1	Rajasthan Royals	Gujarat Titans	Eden Gardens, Kolkata
4	1304116	Mumbai	2022-05-22	2022	70	Sunrisers Hyderabad	Punjab Kings	Wankhede Stadium, Mumbai

5 rows × 21 columns

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

```
ipl['did_kohli_play'] = ipl['all_players'].apply(did_kohli_play)
ipl[(ipl['City'] == 'Delhi') & (ipl['did_kohli_play'] == True)].drop_duplicates(subset=['City','did_kohli_play'],keep='first
```

	ID	City	Date	Season	MatchNumber	Team1	Team2	Venue	TossWi
208	1178421	Delhi	2019-04-28	2019	46	Delhi Capitals	Royal Challengers Bangalore	Arun Jaitley Stadium	Ca

1 rows × 22 columns

```
students.drop_duplicates()
```

```
# drop(series + dataframe)
temp = pd.Series([10,2,3,16,45,78,10])
temp
```

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