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

```

```

```
ipl18 = pd.DataFrame({'Team': ['SRH', 'CSK', 'KKR', 'RR', 'MI', 'RCB', 'KXIP', 'DD'],
                      'Matches': [14, 14, 14, 14, 14, 14, 14, 14],
                      'Won': [9, 9, 8, 7, 6, 6, 6, 5],
                      'Lost': [5, 5, 6, 7, 8, 8, 8, 9],
                      'Tied': [0, 0, 0, 0, 0, 0, 0, 0],
                      'N/R': [0, 0, 0, 0, 0, 0, 0, 0],
                      'Points': [18, 18, 16, 14, 12, 12, 12, 10],
                      'NRR': [0.284, 0.253, -0.070, -0.250, 0.317, 0.129, -0.502, -0.22
                      'For': [2230, 2488, 2363, 2130, 2380, 2322, 2210, 2297],
                      'Against': [2193, 2433, 2425, 2141, 2282, 2383, 2259, 2304]},
                     index = range(1,9)
                    )

ipl18
```

	Team	Matches	Won	Lost	Tied	N/R	Points	NRR	For	Against
1	SRH	14	9	5	0	0	18	0.284	2230	2193
2	CSK	14	9	5	0	0	18	0.253	2488	2433
3	KKR	14	8	6	0	0	16	-0.070	2363	2425
4	RR	14	7	7	0	0	14	-0.250	2130	2141
5	MI	14	6	8	0	0	12	0.317	2380	2282
6	RCB	14	6	8	0	0	12	0.129	2322	2383
7	KXIP	14	6	8	0	0	12	-0.502	2210	2259
8	DD	14	5	9	0	0	10	-0.222	2297	2304

```
ipl17 = pd.DataFrame({'Team': ['MI', 'RPS', 'SRH', 'KKR', 'KXIP', 'DD', 'GL', 'RCB'],
                      'Matches': [14, 14, 14, 14, 14, 14, 14, 14],
                      'Won': [10, 9, 8, 8, 7, 6, 4, 3],
                      'Lost': [4, 5, 5, 6, 7, 8, 10, 10],
                      'Tied': [0, 0, 0, 0, 0, 0, 0, 0],
                      'N/R': [0, 0, 1, 0, 0, 0, 0, 1],
                      'Points': [20, 18, 17, 16, 14, 12, 8, 7],
                      'NRR': [0.784, 0.176, 0.469, 0.641, 0.123, -0.512, -0.412, -1.299
                      'For': [2407, 2180, 2221, 2329, 2207, 2219, 2406, 1845],
                      'Against': [2242, 2165, 2118, 2300, 2229, 2255, 2472, 2033]},
                     index = range(1,9)
                    )

ipl17
```

	Team	Matches	Won	Lost	Tied	N/R	Points	NRR	For	Against
1	MI	14	10	4	0	0	20	0.784	2407	2242
2	RPS	14	9	5	0	0	18	0.176	2180	2165
3	SRH	14	8	5	0	1	17	0.469	2221	2118
4	KKR	14	8	6	0	0	16	0.641	2329	2300
5	KXIP	14	7	7	0	0	14	0.123	2207	2229
6	DD	14	6	8	0	0	12	-0.512	2219	2255
7	GL	14	4	10	0	0	8	-0.412	2406	2472
8	RCB	14	3	10	0	1	7	-1.299	1845	2033

Question-1: Suppose in 'ipl18', you want to filter out the teams that have an NRR greater than zero, and for which the 'For' score exceeds the 'Against' score, i.e. both the conditions should be satisfied. Which teams will be left after you perform the above filtration?

a) CSK, MI b) SRH,CSK, MI c) SRH,CSK, RCB d) SRK,CSK, MI,RCB

Answer-1: b)

```
res=ipl18[(ipl18['NRR']>0) & (ipl18['For']>ipl18['Against'])]
res['Team']
```

```
1    SRH
2    CSK
5     MI
Name: Team, dtype: object
```

Question-2: If all the stats are taken for both 'ipl17' and 'ipl18', which team with its total points greater than 25 will have the highest win percentage?

```
result=ipl17.set_index('Team').add(ipl18.set_index('Team'),fill_value=0).reset_index()
print(result)
```

```
   Team  Matches   Won  Lost  Tied  N/R  Points    NRR     For  Against
0   CSK     14.0   9.0   5.0   0.0  0.0    18.0  0.253  2488.0   2433.0
1    DD     28.0  11.0  17.0   0.0  0.0    22.0 -0.734  4516.0   4559.0
2    GL     14.0   4.0  10.0   0.0  0.0     8.0 -0.412  2406.0   2472.0
3   KKR     28.0  16.0  12.0   0.0  0.0    32.0  0.571  4692.0   4725.0
4  KXIP     28.0  13.0  15.0   0.0  0.0    26.0 -0.379  4417.0   4488.0
5    MI     28.0  16.0  12.0   0.0  0.0    32.0  1.101  4787.0   4524.0
6   RCB     28.0   9.0  18.0   0.0  1.0    19.0 -1.170  4167.0   4416.0
7   RPS     14.0   9.0   5.0   0.0  0.0    18.0  0.176  2180.0   2165.0

8    RR     14.0   7.0   7.0   0.0  0.0    14.0 -0.250  2130.0   2141.0
9   SRH     28.0  17.0  10.0   0.0  1.0    35.0  0.753  4451.0   4311.0
```

```
max_=0
```

```
max_team=0

for team in result['Team']:
  d=result[result['Team']==team]
  if int(d['Points'])>25:
    win_percent=int( (d['Won']/d['Matches'])*100 )
    if win_percent>max_:
      max=win_percent
      max_team=team

print(max_team)
```

```
 SRH
```

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Problem **1**

Look at an overview of your data.

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
```

```
reviews=pd.read_csv('winemag-data-130k-v2.csv',index_col=0)
reviews.head()
```

	country	description	designation	points	price	province	region_1	region_2
0	Italy	Aromas include tropical fruit, broom, brimston...	Vulkà Bianco	87	NaN	Sicily & Sardinia	Etna	NaN
1	Portugal	This is ripe and fruity, a wine that is smooth...	Avidagos	87	15.0	Douro	NaN	NaN
2	US	Tart and snappy, the flavors of lime flesh and...	NaN	87	14.0	Oregon	Willamette Valley	Willamette Valley

Problem **2**

Select the `description` column from `reviews` and assign the result to the variable `desc`.

```
desc =reviews['description']
desc
```

```
0         Aromas include tropical fruit, broom, brimston...
1         This is ripe and fruity, a wine that is smooth...
2         Tart and snappy, the flavors of lime flesh and...
3         Pineapple rind, lemon pith and orange blossom ...
4         Much like the regular bottling from 2012, this...
                              ...
129966    Notes of honeysuckle and cantaloupe sweeten th...
129967    Citation is given as much as a decade of bottl...
129968    Well-drained gravel soil gives this wine its c...
129969    A dry style of Pinot Gris, this is crisp with ...
129970    Big, rich and off-dry, this is powered by inte...
```

```
Name: description, Length: 129971, dtype: object
```

Problem **3**

Select the first value from the description column of `reviews`, assigning it to variable `first_description`.

```
first_description=reviews.loc[0,'description']
first_description
```

```
'Aromas include tropical fruit, broom, brimstone and dried herb. The palate isn't
overly expressive, offering unripened apple, citrus and dried sage alongside bris
```

Problem **4**

Select the first row of data (the first record) from `reviews`, assigning it to the variable `first_row`.

```
first_row=reviews.loc[0]
first_row
```

```
country                                                    Italy
description             Aromas include tropical fruit, broom, brimston...
designation                                          Vulkà Bianco
points                                                       87
price                                                       NaN
province                                          Sicily & Sardinia
region_1                                                   Etna
region_2                                                    NaN
taster_name                                        Kerin O’Keefe
taster_twitter_handle                                 @kerinokeefe
title                                 Nicosia 2013 Vulkà Bianco  (Etna)
variety                                             White Blend
winery                                                  Nicosia
Name: 0, dtype: object
```

Problem **5**

Select the first 10 values from the `description` column in `reviews`, assigning the result to variable `first_descriptions`.

```
first_descriptions=reviews.loc[0:9,'description']
first_descriptions
```

```
0    Aromas include tropical fruit, broom, brimston...
1    This is ripe and fruity, a wine that is smooth...
2    Tart and snappy, the flavors of lime flesh and...
3    Pineapple rind, lemon pith and orange blossom ...
4    Much like the regular bottling from 2012, this...
5    Blackberry and raspberry aromas show a typical...
```

```
6    Here's a bright, informal red that opens with ...
7    This dry and restrained wine offers spice in p...
8    Savory dried thyme notes accent sunnier flavor...
9    This has great depth of flavor with its fresh ...
Name: description, dtype: object
```

Problem **6**

Select the records with index labels `1`, `2`, `3`, `5`, and `8`, assigning the result to the variable `sample_reviews`.

```
sample_reviews=reviews.loc[[1,2,3,5,8]]
sample_reviews
```

	country	description	designation	points	price	province	region_1	regio
1	Portugal	This is ripe and fruity, a wine that is smooth...	Avidagos	87	15.0	Douro	NaN	
2	US	Tart and snappy, the flavors of lime flesh and...	NaN	87	14.0	Oregon	Willamette Valley	Willam Va
3	US	Pineapple rind, lemon pith and orange blossom ...	Reserve Late Harvest	87	13.0	Michigan	Lake Michigan Shore	
5	Spain	Blackberry and raspberry	Ars In Vitro	87	15.0	Northern	Navarra	

Problem **7**

Create a variable `df` containing the `country`, `province`, `region_1`, and `region_2` columns of the records with the index labels `0`, `1`, `10`, and `100`. In other words, generate the following DataFrame:

```
df=reviews.loc[[0,1,10,100],['country','province','region_1','region_2']]

df
```

	country	province	region_1	region_2
0	Italy	Sicily & Sardinia	Etna	NaN
1	Portugal	Douro	NaN	NaN
10	US	California	Napa Valley	Napa
100	US	New York	Finger Lakes	Finger Lakes

Problem **8**

Create a variable `df` containing the `country` and `variety` columns of the first 100 records.

```
df=reviews.loc[0:99,['country','variety']]
df
```

	country	variety
0	Italy	White Blend
1	Portugal	Portuguese Red
2	US	Pinot Gris
3	US	Riesling
4	US	Pinot Noir
...	...	...
95	France	Gamay
96	France	Gamay
97	US	Riesling
98	Italy	Sangiovese
99	US	Bordeaux-style Red Blend

100 rows × 2 columns

```

```

Problem **9**

Create a DataFrame `italian_wines` containing reviews of wines made in `Italy`.

```
italian_wines=(reviews['country']=='Italy')
reviews[italian_wines]
```

	country	description	designation	points	price	province	region_1	region
0	Italy	Aromas include tropical fruit, broom, brimston...	Vulkà Bianco	87	NaN	Sicily & Sardinia	Etna	N
6	Italy	Here's a bright, informal red that opens with ...	Belsito	87	16.0	Sicily & Sardinia	Vittoria	N
13	Italy	This is dominated by oak and oak-driven aromas...	Rosso	87	NaN	Sicily & Sardinia	Etna	N
22	Italy	Delicate aromas recall white flower and citrus...	Ficiligno	87	19.0	Sicily & Sardinia	Sicilia	N
24	Italy	Aromas of prune, blackcurrant, toast and oak c...	Aynat	87	35.0	Sicily & Sardinia	Sicilia	N
...	...	...	...	...	...	...	...	
129929	Italy	This luminous sparkler has a sweet, fruit-forw...	NaN	91	38.0	Veneto	Prosecco Superiore di Cartizze	N