In [22]:
```
import pandas as pd
import numpy as np
samples=pd.read_csv('D:/IPL.csv')
samples
```

Out[22]:

	ID	SEASON	CITY	DATE	TEAM1	TEAM2`	TOSS WINNER	TOSS DECISION
0	1	2017	HYDERABAD	5/4/2017	SUNRISERS HYDERABAD	ROYAL CHALLENGERS BANGALORE	ROYAL CHALLENGERS BANGALORE	FIELD
1	2	2017	PUNE	6/4/2017	MUMBAI INDIANS	RISING PUNE SUPER GIANT	RISING PUNE SUPER GIANT	FILED
2	3	2017	Rajkot	4/7/2017	Gujarat Lions	Kolkata Knight Riders	Kolkata\nKnight\nRiders	FIELD
3	4	2017	INDORE	8/4/2017	RISING PUNE SUPER GIANT	KINGS XI PUNJAB	KINGS XI PUNJAB	FILED
4	5	2017	BANGALORE	8/4/2017	ROYAL CHALLENGERS BANGALORE	DELHI DAREDEVILS	ROYAL CHALLENGERS BANGALORE	BAT

In [2]:
```
import seaborn as sb
import matplotlib.pyplot as plt
```

In [5]:
```
samples.shape
```

Out[5]:
```
(5, 10)
```

In [6]:
```
samples['SEASON'].unique()
```

Out[6]:
```
array([2017], dtype=int64)
```

In [15]:
```
samples['ID'].max()
```

Out[15]:
```
5
```

In [7]:
```
samples.describe()
```

Out[7]:

	ID	SEASON	DL_APP
count	5.000000	5.0	0.0
mean	3.000000	2017.0	NaN
std	1.581139	0.0	NaN
min	1.000000	2017.0	NaN
25%	2.000000	2017.0	NaN
50%	3.000000	2017.0	NaN

	ID	SEASON	DL_APP
75%	4.000000	2017.0	NaN
max	5.000000	2017.0	NaN

In [8]:
```
print("\n missing values: ",samples.isnull().sum().values.sum())
```

```
 missing values:  5
```

In [23]:
```
samples.isnull().any()
```

Out[23]:
```
ID                False
SEASON            False
CITY              False
DATE              False
TEAM1             False
TEAM2`            False
TOSS WINNER       False
TOSS DECISION     False
RESULT            False
DL_APP             True
winners           False
win_by_wickets    False
dtype: bool
```

In [20]:
```
samples['TEAM1'].value_counts()
```

Out[20]:
```
ROYAL CHALLENGERS BANGALORE    1
MUMBAI INDIANS                 1
SUNRISERS HYDERABAD            1
Gujarat Lions                  1
RISING PUNE SUPER GIANT        1
Name: TEAM1, dtype: int64
```

In [24]:
```
samples.columns
```

Out[24]:
```
Index(['ID', 'SEASON', 'CITY', 'DATE', 'TEAM1', 'TEAM2`', 'TOSS WINNER',
       'TOSS DECISION', 'RESULT', 'DL_APP', 'winners', 'win_by_wickets'],
      dtype='object')
```

In [20]:
```
samples.isnull().any()
```

Out[20]:
```
ID                False
SEASON            False
CITY              False
DATE              False
TEAM1             False
TEAM2`            False
TOSS WINNER       False
TOSS DECISION     False
RESULT            False
DL_APP             True
dtype: bool
```

In [ ]:
```

```

In [26]:
```
samples.iloc[samples['win_by_wickets'].idxmax()]
```

Out[26]:
```
ID                                3
SEASON                         2017
CITY                         Rajkot
```

```
DATE                            4/7/2017
TEAM1                     Gujarat Lions
TEAM2`              Kolkata Knight Riders
TOSS WINNER       Kolkata\nKnight\nRiders
TOSS DECISION                      FIELD
RESULT                            NORMAL
DL_APP                               NaN
winners             KOLKATA KNIGHT RIDERS
win_by_wickets                         6
Name: 2, dtype: object
```

In [30]:
```
print(samples.groupby('SEASON')['winners'].value_counts())
```

```
SEASON  winners
2017    DELHI DARE DEVILS        1
        KINGS XI PUNJAB          1
        KOLKATA KNIGHT RIDERS    1
        MUMBAI INDIANS           1
        SUNRISERS                1
Name: winners, dtype: int64
```

In [32]:
```
print(samples.groupby('SEASON')['win_by_wickets'].value_counts())
```

```
SEASON  win_by_wickets
2017    2                1
        3                1
        4                1
        5                1
        6                1
Name: win_by_wickets, dtype: int64
```

In [34]:
```
samples.groupby('SEASON')['CITY'].value_counts()
```

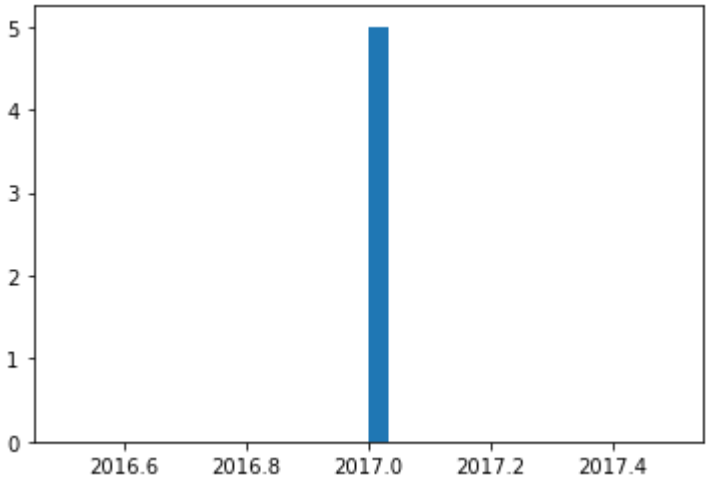
Out[34]:
```
SEASON  CITY
2017    BANGALORE    1
        HYDERABAD    1
        INDORE       1
        PUNE         1
        Rajkot       1
Name: CITY, dtype: int64
```

In [35]:
```
samples['CITY'].value_counts()
```

Out[35]:
```
BANGALORE    1
Rajkot       1
INDORE       1
HYDERABAD    1
PUNE         1
Name: CITY, dtype: int64
```

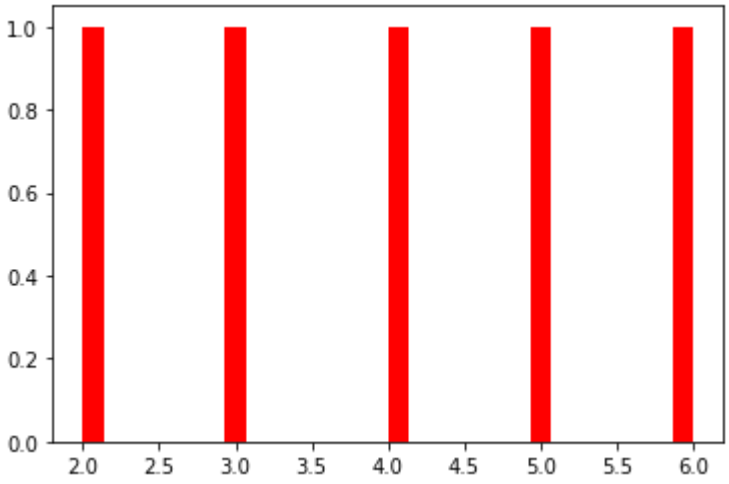
In [36]:
```
plt.hist(samples['SEASON'],bins=30)
```

Out[36]:
```
(array([0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 5., 0.,
        0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0., 0.]),
 array([2016.5       , 2016.53333333, 2016.56666667, 2016.6       ,
        2016.63333333, 2016.66666667, 2016.7       , 2016.73333333,
        2016.76666667, 2016.8       , 2016.83333333, 2016.86666667,
        2016.9       , 2016.93333333, 2016.96666667, 2017.        ,
        2017.03333333, 2017.06666667, 2017.1       , 2017.13333333,
        2017.16666667, 2017.2       , 2017.23333333, 2017.26666667,
        2017.3       , 2017.33333333, 2017.36666667, 2017.4       ,
        2017.43333333, 2017.46666667, 2017.5       ]),
 <BarContainer object of 30 artists>)
```



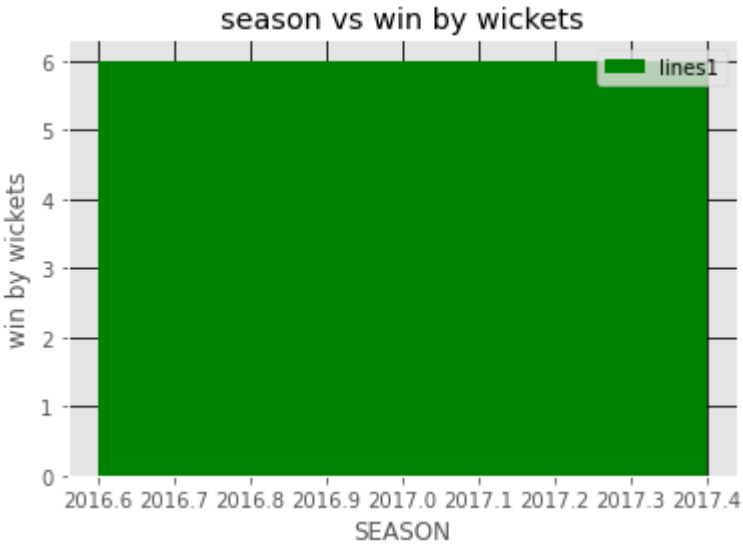
In [37]:
```
plt.hist(samples['win_by_wickets'],bins=30,color='red')
```

Out[37]:
```
(array([1., 0., 0., 0., 0., 0., 0., 1., 0., 0., 0., 0., 0., 0., 0., 1., 0.,
        0., 0., 0., 0., 0., 1., 0., 0., 0., 0., 0., 0., 1.]),
 array([2.        , 2.13333333, 2.26666667, 2.4       , 2.53333333,
        2.66666667, 2.8       , 2.93333333, 3.06666667, 3.2       ,
        3.33333333, 3.46666667, 3.6       , 3.73333333, 3.86666667,
        4.        , 4.13333333, 4.26666667, 4.4       , 4.53333333,
        4.66666667, 4.8       , 4.93333333, 5.06666667, 5.2       ,
        5.33333333, 5.46666667, 5.6       , 5.73333333, 5.86666667,
        6.        ]),
 <BarContainer object of 30 artists>)
```



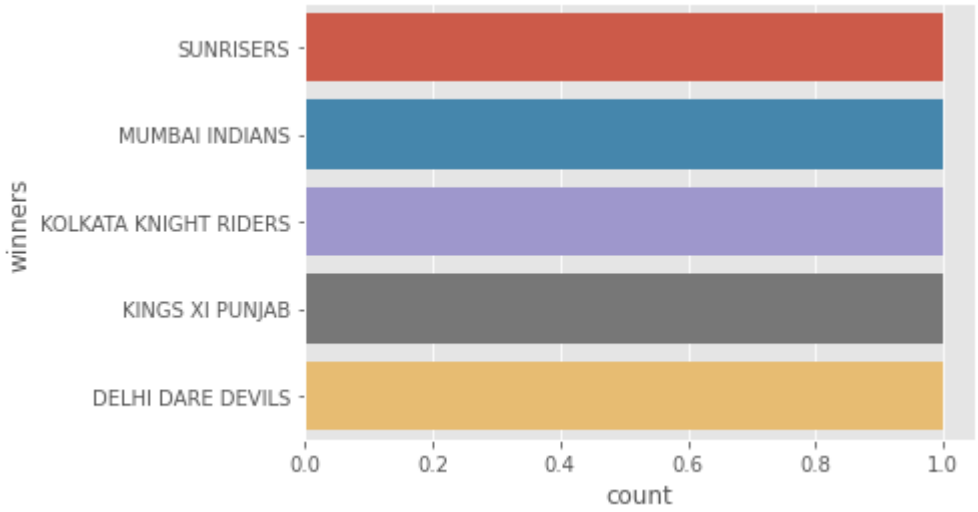
In [46]:
```
from matplotlib import style

style.use('ggplot')
x=samples['SEASON']
y=samples['win_by_wickets']
plt.bar(x,y,label='lines1',linewidth=2,color='g')
plt.title('season vs win by wickets')
plt.xlabel('SEASON')
plt.ylabel('win by wickets')
plt.legend()
plt.grid(True,color='black')
plt.show()
```



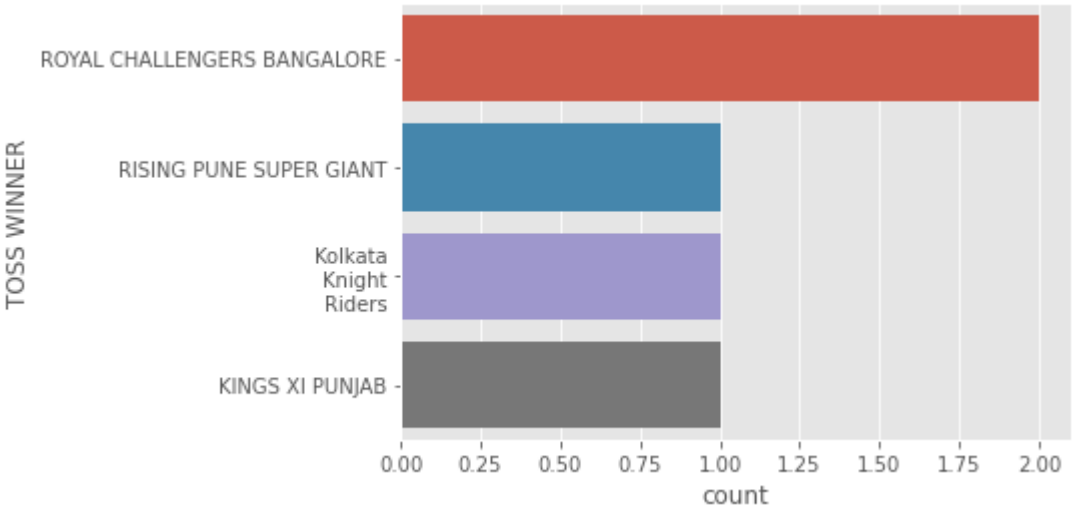
In [47]:
```
sb.countplot(y='winners',data=samples)
```

Out[47]: <AxesSubplot:xlabel='count', ylabel='winners'>



In [49]:
```
sb.countplot(y='TOSS WINNER',data=samples)
```

Out[49]: <AxesSubplot:xlabel='count', ylabel='TOSS WINNER'>



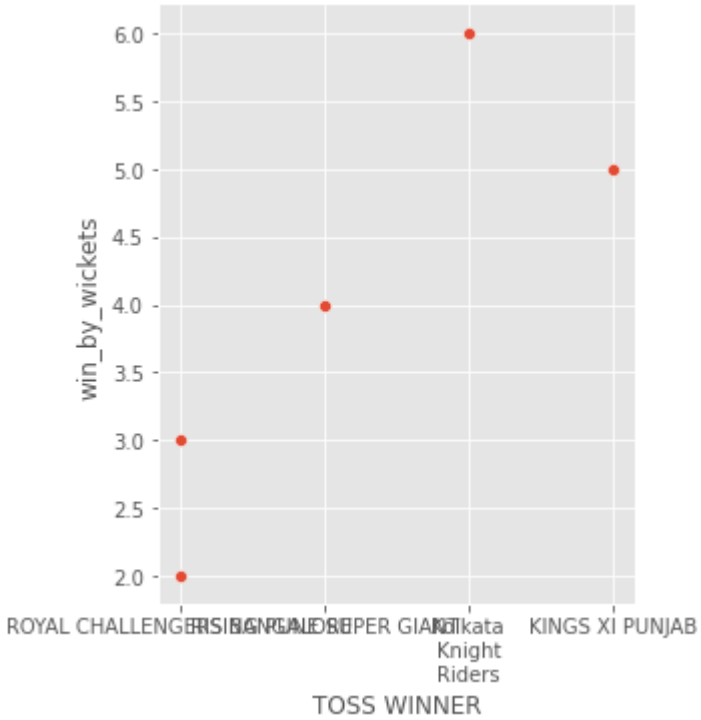
In [50]:
```
samples.head()
```

Out[50]:

	ID	SEASON	CITY	DATE	TEAM1	TEAM2`	TOSS WINNER	TOSS DECISION
0	1	2017	HYDERABAD	5/4/2017	SUNRISERS HYDERABAD	ROYAL CHALLENGERS BANGALORE	ROYAL CHALLENGERS BANGALORE	FIELD
1	2	2017	PUNE	6/4/2017	MUMBAI INDIANS	RISING PUNE SUPER GIANT	RISING PUNE SUPER GIANT	FILED
2	3	2017	Rajkot	4/7/2017	Gujarat Lions	Kolkata Knight Riders	Kolkata\nKnight\nRiders	FIELD
3	4	2017	INDORE	8/4/2017	RISING PUNE SUPER GIANT	KINGS XI PUNJAB	KINGS XI PUNJAB	FILED
4	5	2017	BANGALORE	8/4/2017	ROYAL CHALLENGERS BANGALORE	DELHI DAREDEVILS	ROYAL CHALLENGERS BANGALORE	BAT

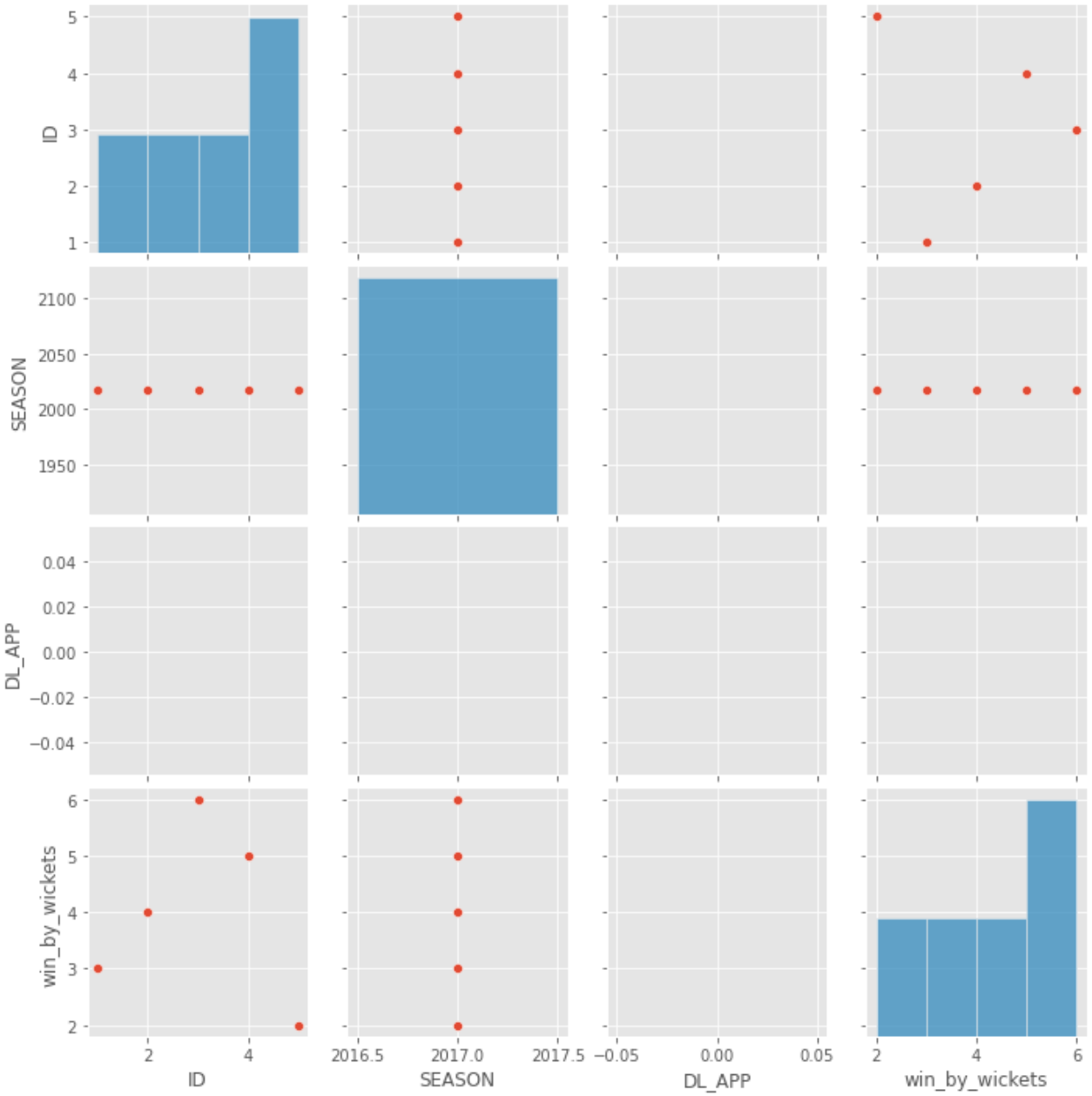
In [54]:
```
sb.relplot(x="TOSS WINNER",y="win_by_wickets",data=samples)
```

Out[54]:
```
<seaborn.axisgrid.FacetGrid at 0x24cfa491eb0>
```



In [55]:
```
sb.pairplot(samples)
```

Out[55]:
```
<seaborn.axisgrid.PairGrid at 0x24cfa5181c0>
```


ID
SEASON
DL_APP
win_by_wickets
1
2
3
4
5
1950
2000
2050
2100
−0.04
−0.02
0.00
0.02
0.04
2
3
4
5
6
2016.5
2017.0
2017.5
−0.05
0.00
0.05

In [ ]: