In [60]:
```
#import libraries
import math
import statistics as st
import numpy as np
import scipy.stats
import pandas as pd
import numpy as np
import csv
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline
```

Part one:

- Read the data set, clean the data and prepare final dataset to be used for analysis.

In [61]:
```
#getting the data
df=pd.read_csv("DS - Part2 - Basketball.csv")
df.head()
```

Out[61]:

	Team	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven	Tou
0	Team 1	86	4385	2762	1647	552	563	5947	3140	
1	Team 2	86	4262	2762	1581	573	608	5900	3114	
2	Team 3	80	3442	2614	1241	598	775	4534	3309	
3	Team 4	82	3386	2664	1187	616	861	4398	3469	
4	Team 5	86	3368	2762	1209	633	920	4631	3700	

checking the data and make descriptive statistics.

In [62]:
```
df.shape
```

Out[62]:
```
(61, 13)
```

In [63]:
```
df.describe()
#here there are a lot of other columns should be numeric data type.
```

Out[63]:

	Tournament	HighestPositionHeld
count	61.000000	61.000000
mean	24.000000	7.081967
std	26.827225	5.276663
min	1.000000	1.000000
25%	4.000000	3.000000
50%	12.000000	6.000000

	Tournament	HighestPositionHeld
75%	38.000000	10.000000
max	86.000000	20.000000

In [64]:
```
df.dtypes
# only [team - tournament - highestpositionheid] are have right datatype.
```

Out[64]:
```
Team                   object
Tournament              int64
Score                  object
PlayedGames            object
WonGames               object
DrawnGames             object
LostGames              object
BasketScored           object
BasketGiven            object
TournamentChampion     object
Runner-up              object
TeamLaunch             object
HighestPositionHeld     int64
dtype: object
```

In [65]:
```
df.head(10)
```

Out[65]:

	Team	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven	Tou
0	Team 1	86	4385	2762	1647	552	563	5947	3140	
1	Team 2	86	4262	2762	1581	573	608	5900	3114	
2	Team 3	80	3442	2614	1241	598	775	4534	3309	
3	Team 4	82	3386	2664	1187	616	861	4398	3469	
4	Team 5	86	3368	2762	1209	633	920	4631	3700	
5	Team 6	73	2819	2408	990	531	887	3680	3373	
6	Team 7	82	2792	2626	948	608	1070	3609	3889	
7	Team 8	70	2573	2302	864	577	861	3228	3230	
8	Team 9	58	2109	1986	698	522	766	2683	2847	
9	Team 10	51	1884	1728	606	440	682	2159	2492	

cleaning :

- change columns'types to int
- replace TournamentChampion: from - to 0, and runner-up columns

- TeamLaunch column remove from - and rely on the first part as it is the start year

In [66]:
```
#replacing (-) to (0) in TournamentChampion and runner-up columns.
df["TournamentChampion"]=df["TournamentChampion"].replace("-","0")
```

In [67]:
```
df["Runner-up"].unique()
```

Out[67]:
```
array(['23', '25', '8', '6', '7', '4', '-', '3', '1', '5'], dtype=object)
```

In [68]:
```
df["Runner-up"]=df["Runner-up"].replace("-","0")
```

In [69]:
```
df.columns
```

Out[69]:
```
Index(['Team', 'Tournament', 'Score', 'PlayedGames', 'WonGames', 'DrawnGames',
       'LostGames', 'BasketScored', 'BasketGiven', 'TournamentChampion',
       'Runner-up', 'TeamLaunch', 'HighestPositionHeld'],
      dtype='object')
```

In [70]:
```
change_list=['Score', 'PlayedGames', 'WonGames', 'DrawnGames','LostGames', 'BasketScored',
       'Runner-up']
for i in change_list:
    print(i+":"+str(df[i].str.contains("-").any()))
```

```
Score:True
PlayedGames:True
WonGames:True
DrawnGames:True
LostGames:True
BasketScored:True
BasketGiven:True
TournamentChampion:False
Runner-up:False
```

In [71]:
```
change_list=['Score', 'PlayedGames', 'WonGames', 'DrawnGames','LostGames', 'BasketScored',
       'Runner-up']
for i in change_list:
    print(df[i].unique())
```

```
['4385' '4262' '3442' '3386' '3368' '2819' '2792' '2573' '2109' '1884'
 '1814' '1789' '1471' '1416' '1389' '1351' '1314' '1174' '1148' '1020'
 '970' '667' '662' '606' '553' '538' '510' '445' '421' '416' '375' '353'
 '343' '293' '285' '277' '242' '230' '190' '188' '168' '150' '148' '132'
 '107' '96' '91' '83' '81' '76' '71' '56' '52' '42' '40' '35' '34' '22'
 '19' '14' '-']
['2762' '2614' '2664' '2408' '2626' '2302' '1986' '1728' '1530' '1698'
 '1466' '1428' '1458' '1318' '1255' '1192' '988' '1096' '646' '742' '652'
 '678' '456' '628' '494' '586' '380' '402' '423' '426' '448' '346' '334'
 '270' '228' '282' '160' '186' '204' '180' '152' '114' '130' '116' '80'
 '108' '90' '72' '68' '54' '38' '30' '-']
['1647' '1581' '1241' '1187' '1209' '990' '948' '864' '698' '606' '563'
 '586' '463' '453' '471' '426' '390' '408' '333' '367' '266' '218' '189'
 '203' '147' '184' '155' '145' '125' '113' '123' '129' '104' '96' '103'
 '76' '62' '82' '52' '50' '59' '53' '37' '35' '43' '26' '34' '20' '19'
 '30' '29' '21' '17' '18' '13' '8' '7' '5' '-']
['552' '573' '598' '616' '633' '531' '608' '577' '522' '440' '392' '389'
 '384' '336' '358' '327' '330' '292' '256' '242' '172' '175' '148' '180'
 '112' '149' '128' '143' '81' '95' '102' '127' '92' '79' '76' '56' '63'
 '45' '46' '50' '44' '37' '27' '21' '16' '23' '24' '13' '14' '18' '6' '11'
 '10' '8' '5' '4' '-']
```

```
['563' '608' '775' '861' '920' '887' '1070' '766' '682' '575' '723' '619'
 '639' '629' '565' '535' '492' '399' '487' '208' '349' '305' '295' '197'
 '211' '298' '174' '194' '198' '202' '217' '158' '152' '118' '110' '137'
 '63' '90' '95' '83' '78' '52' '66' '44' '37' '62' '48' '33' '30' '41'
 '19' '20' '15' '18' '21' '-']
['5947' '5900' '4534' '4398' '4631' '3680' '3609' '3228' '2683' '2159'
 '2052' '2278' '1767' '1843' '1753' '1500' '1421' '1642' '1182' '1347'
 '892' '819' '760' '750' '520' '716' '619' '607' '458' '430' '422' '492'
 '393' '291' '419' '320' '244' '285' '199' '202' '216' '165' '155' '139'
 '227' '101' '181' '62' '70' '145' '121' '153' '71' '97' '36' '38' '37'
 '51' '34' '-']
['3140' '3114' '3309' '3469' '3700' '3373' '3889' '3230' '2847' '2492'
 '2188' '2624' '2180' '2368' '2152' '1834' '1763' '1951' '1371' '1746'
 '789' '1157' '1088' '1022' '633' '1050' '744' '992' '623' '632' '581'
 '720' '662' '489' '588' '410' '366' '430' '241' '296' '310' '221' '253'
 '167' '308' '139' '295' '117' '115' '252' '183' '184' '116' '131' '182'
 '55' '66' '57' '85' '65' '-']
['33' '25' '10' '6' '8' '1' '0' '2']
['23' '25' '8' '6' '7' '4' '0' '3' '1' '5']
```

In [72]:

```
change_list=['Score', 'PlayedGames', 'WonGames', 'DrawnGames','LostGames', 'BasketScored',
for i in change_list:
    df[i]=df[i][:-1]
```

In [73]:

```
change_list=['Score', 'PlayedGames', 'WonGames', 'DrawnGames','LostGames', 'BasketScored',
       'Runner-up']
for i in change_list:
    print(df[i].unique())
```

```
['4385' '4262' '3442' '3386' '3368' '2819' '2792' '2573' '2109' '1884'
 '1814' '1789' '1471' '1416' '1389' '1351' '1314' '1174' '1148' '1020'
 '970' '667' '662' '606' '553' '538' '510' '445' '421' '416' '375' '353'
 '343' '293' '285' '277' '242' '230' '190' '188' '168' '150' '148' '132'
 '107' '96' '91' '83' '81' '76' '71' '56' '52' '42' '40' '35' '34' '22'
 '19' '14' nan]
['2762' '2614' '2664' '2408' '2626' '2302' '1986' '1728' '1530' '1698'
 '1466' '1428' '1458' '1318' '1255' '1192' '988' '1096' '646' '742' '652'
 '678' '456' '628' '494' '586' '380' '402' '423' '426' '448' '346' '334'
 '270' '228' '282' '160' '186' '204' '180' '152' '114' '130' '116' '80'
 '108' '90' '72' '68' '54' '38' '30' nan]
['1647' '1581' '1241' '1187' '1209' '990' '948' '864' '698' '606' '563'
 '586' '463' '453' '471' '426' '390' '408' '333' '367' '266' '218' '189'
 '203' '147' '184' '155' '145' '125' '113' '123' '129' '104' '96' '103'
 '76' '62' '82' '52' '50' '59' '53' '37' '35' '43' '26' '34' '20' '19'
 '30' '29' '21' '17' '18' '13' '8' '7' '5' nan]
['552' '573' '598' '616' '633' '531' '608' '577' '522' '440' '392' '389'
 '384' '336' '358' '327' '330' '292' '256' '242' '172' '175' '148' '180'
 '112' '149' '128' '143' '81' '95' '102' '127' '92' '79' '76' '56' '63'
 '45' '46' '50' '44' '37' '27' '21' '16' '23' '24' '13' '14' '18' '6' '11'
 '10' '8' '5' '4' nan]
['563' '608' '775' '861' '920' '887' '1070' '766' '682' '575' '723' '619'
 '639' '629' '565' '535' '492' '399' '487' '208' '349' '305' '295' '197'
 '211' '298' '174' '194' '198' '202' '217' '158' '152' '118' '110' '137'
 '63' '90' '95' '83' '78' '52' '66' '44' '37' '62' '48' '33' '30' '41'
 '19' '20' '15' '18' '21' nan]
['5947' '5900' '4534' '4398' '4631' '3680' '3609' '3228' '2683' '2159'
 '2052' '2278' '1767' '1843' '1753' '1500' '1421' '1642' '1182' '1347'
 '892' '819' '760' '750' '520' '716' '619' '607' '458' '430' '422' '492'
 '393' '291' '419' '320' '244' '285' '199' '202' '216' '165' '155' '139'
 '227' '101' '181' '62' '70' '145' '121' '153' '71' '97' '36' '38' '37'
 '51' '34' nan]
['3140' '3114' '3309' '3469' '3700' '3373' '3889' '3230' '2847' '2492'
 '2188' '2624' '2180' '2368' '2152' '1834' '1763' '1951' '1371' '1746'
```

```
 '789' '1157' '1088' '1022' '633' '1050' '744' '992' '623' '632' '581'
 '720' '662' '489' '588' '410' '366' '430' '241' '296' '310' '221' '253'
 '167' '308' '139' '295' '117' '115' '252' '183' '184' '116' '131' '182'
 '55' '66' '57' '85' '65' nan]
['33' '25' '10' '6' '8' '1' '0' '2']
['23' '25' '8' '6' '7' '4' '0' '3' '1' '5']
```

In [74]:
```
# change columns type to int
change_list=['Score', 'PlayedGames', 'WonGames', 'DrawnGames','LostGames', 'BasketScored',
       'Runner-up']
for i in change_list:
    df[i]=df[i].fillna(0).astype(int)
```

In [75]:
```
df.dtypes
```

Out[75]:
```
Team                   object
Tournament              int64
Score                   int32
PlayedGames             int32
WonGames                int32
DrawnGames              int32
LostGames               int32
BasketScored            int32
BasketGiven             int32
TournamentChampion      int32
Runner-up               int32
TeamLaunch             object
HighestPositionHeld     int64
dtype: object
```

In [76]:
```
df["TeamLaunch"].unique()
```

Out[76]:
```
array(['1929', '1931to32', '1934-35', '1939-40', '1932-33', '1941to42',
       '1948-49', '1944_45', '1935-36', '1949_50', '1933to34', '1960-61',
       '1951-52', '1998-99', '1941-42', '1977-78', '1959-60', '2004to05',
       '1961-62', '1940-41', '1930-31', '1963-64', '1974-75', '1943-44',
       '1987-88', '1991_92', '2007-08', '1962-63', '1994-95', '1978-79',
       '1971-72', '1999to00', '2014-15', '1990-91', '1947-48', '1996-97',
       '1995-96', '1945-46', '1953-54', '1979-80', '1950-51', '2016_17',
       '2009-10', '1956-57', '1951~52', '1955-56', '2017~18'],
      dtype=object)
```

In [77]:
```
df["TeamLaunch"].replace("t","-")
```

Out[77]:
```
0         1929
1         1929
2         1929
3     1931to32
4         1929
        ...
56     2009-10
57     1956-57
58     1951~52
59     1955-56
60     2017~18
Name: TeamLaunch, Length: 61, dtype: object
```

In [78]:
```
df["TeamLaunch"]=df["TeamLaunch"].str[:4]
```

In [79]:
```
```

```
df["TeamLaunch"].unique()
```

Out[79]:
```
array(['1929', '1931', '1934', '1939', '1932', '1941', '1948', '1944',
       '1935', '1949', '1933', '1960', '1951', '1998', '1977', '1959',
       '2004', '1961', '1940', '1930', '1963', '1974', '1943', '1987',
       '1991', '2007', '1962', '1994', '1978', '1971', '1999', '2014',
       '1990', '1947', '1996', '1995', '1945', '1953', '1979', '1950',
       '2016', '2009', '1956', '1955', '2017'], dtype=object)
```

Save cleaned data to other csv file then use it in analysis

In [80]:
```
df.to_csv("file_after_cleaning.csv",index=False)
```

Part two:

In [81]:
```
#importing the final cleaned data
df_cl=pd.read_csv("file_after_cleaning.csv")
df_cl.head(2)
```

Out[81]:

	Team	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven	Tou
0	Team 1	86	4385	2762	1647	552	563	5947	3140	
1	Team 2	86	4262	2762	1581	573	608	5900	3114	

In [82]:
```
df_cl.describe()
```

Out[82]:

	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven
count	61.000000	61.000000	61.000000	61.000000	61.000000	61.000000	61.000000	61.000000
mean	24.000000	901.426230	796.819672	303.967213	188.934426	303.754098	1140.344262	1140.229508
std	26.827225	1134.899121	876.282765	406.991030	201.799477	294.708594	1506.740211	1163.710766
min	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
25%	4.000000	96.000000	114.000000	34.000000	24.000000	62.000000	153.000000	221.000000
50%	12.000000	375.000000	423.000000	123.000000	95.000000	197.000000	430.000000	632.000000
75%	38.000000	1351.000000	1318.000000	426.000000	330.000000	563.000000	1642.000000	1951.000000
max	86.000000	4385.000000	2762.000000	1647.000000	633.000000	1070.000000	5947.000000	3889.000000

In [83]:
```
df_cl.info()
```

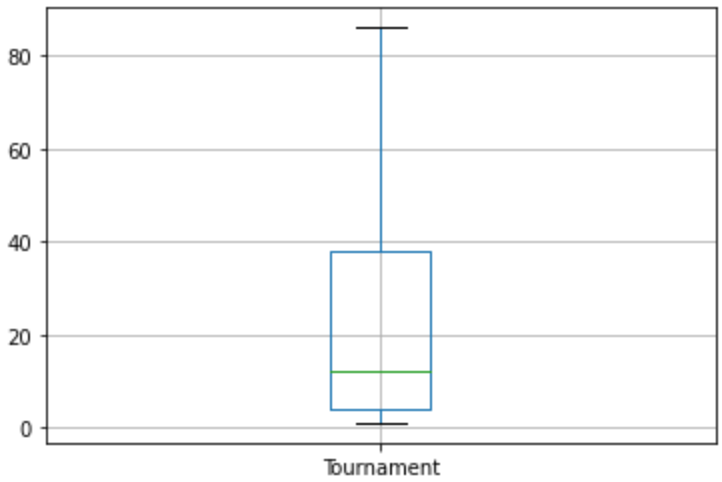
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 61 entries, 0 to 60
Data columns (total 13 columns):
 #   Column               Non-Null Count  Dtype
---  ------               --------------  -----
 0   Team                 61 non-null     object
 1   Tournament           61 non-null     int64
```

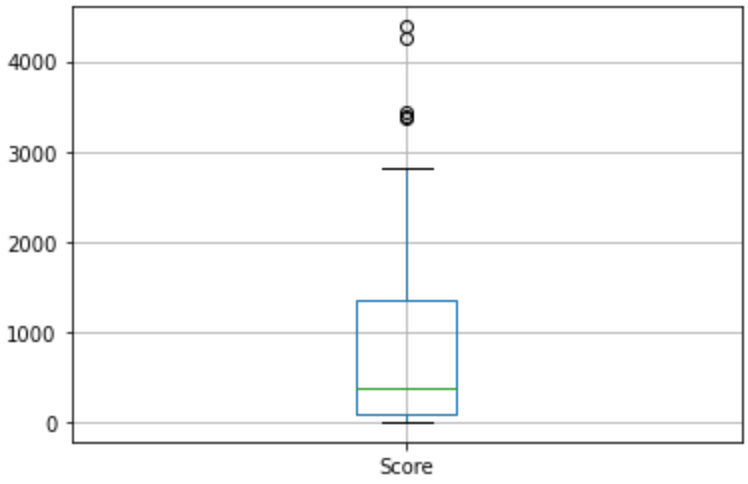
```
 2   Score                61 non-null     int64
 3   PlayedGames          61 non-null     int64
 4   WonGames             61 non-null     int64
 5   DrawnGames           61 non-null     int64
 6   LostGames            61 non-null     int64
 7   BasketScored         61 non-null     int64
 8   BasketGiven          61 non-null     int64
 9   TournamentChampion   61 non-null     int64
 10  Runner-up            61 non-null     int64
 11  TeamLaunch           61 non-null     int64
 12  HighestPositionHeld  61 non-null     int64
dtypes: int64(12), object(1)
memory usage: 6.3+ KB
```

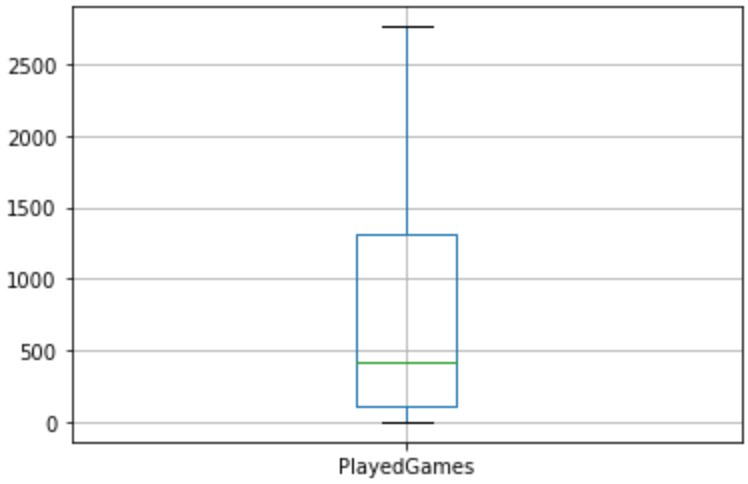
In [84]:
```
df_cl.columns
```

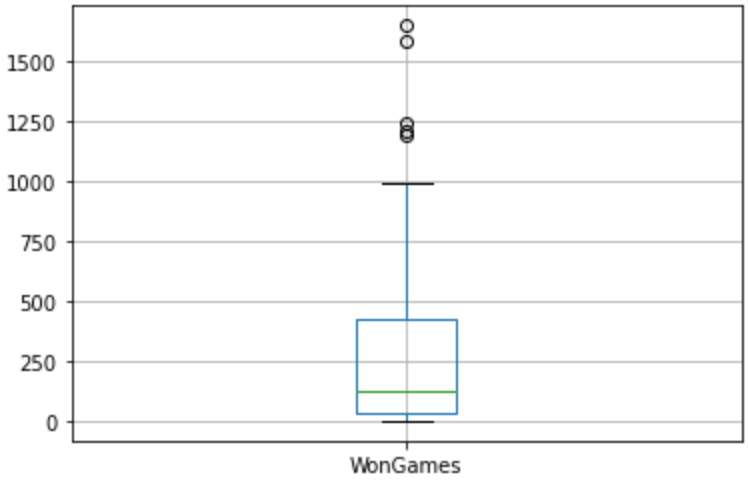
Out[84]:
```
Index(['Team', 'Tournament', 'Score', 'PlayedGames', 'WonGames', 'DrawnGames',
       'LostGames', 'BasketScored', 'BasketGiven', 'TournamentChampion',
       'Runner-up', 'TeamLaunch', 'HighestPositionHeld'],
      dtype='object')
```

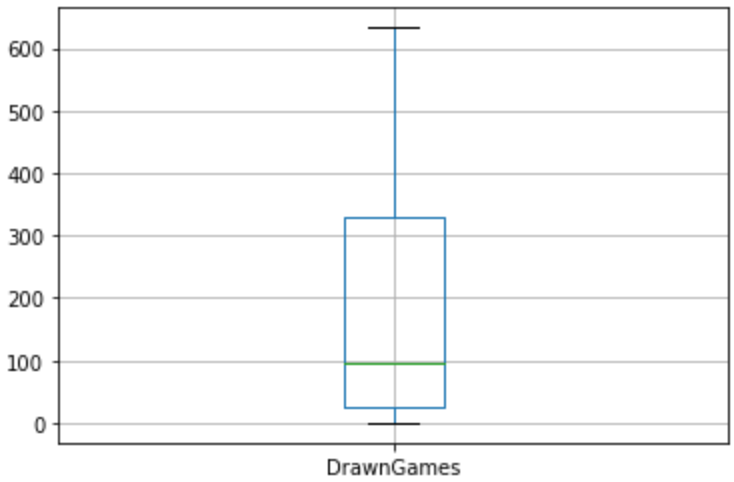
In [85]:
```
#box plot for each column to see the distribution and check if there are any outliers.
list_col=['Tournament', 'Score', 'PlayedGames', 'WonGames', 'DrawnGames',
       'LostGames', 'BasketScored', 'BasketGiven', 'TournamentChampion',
       'Runner-up', 'TeamLaunch']
for col in list_col:
    df_cl.boxplot(column=[col])
    plt.show()
```

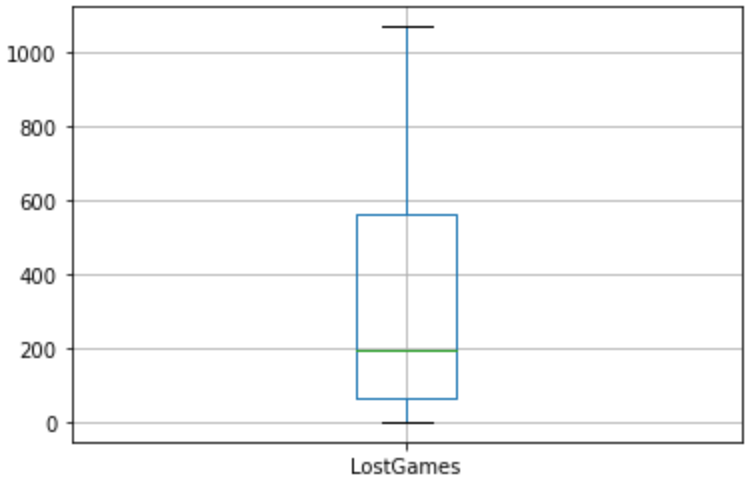


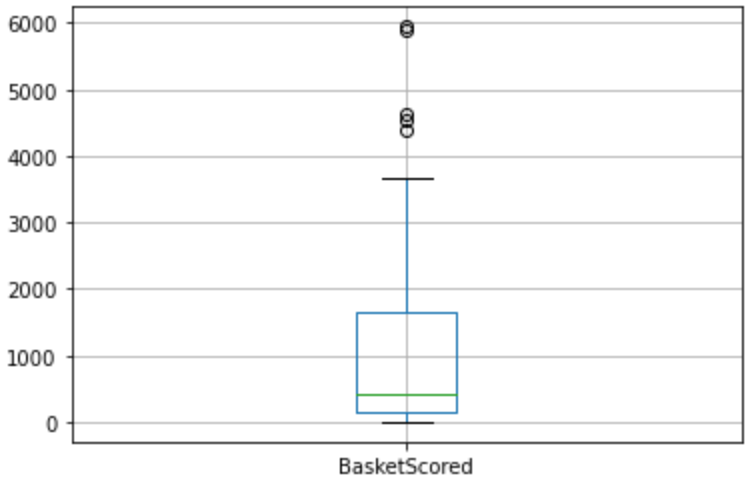


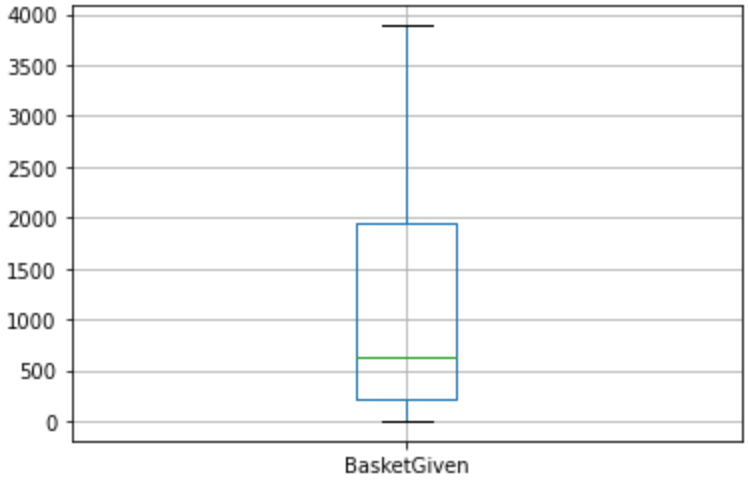

2500
2000
1500
1000
500
0
PlayedGames

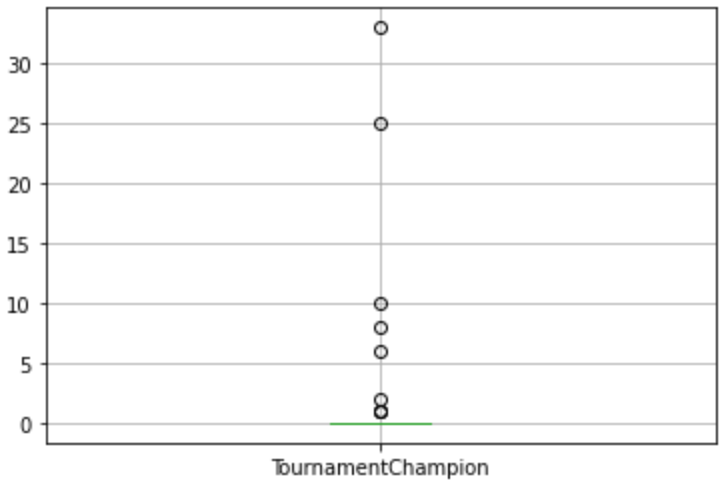

1500
1250
1000
750
500
250
0
WonGames

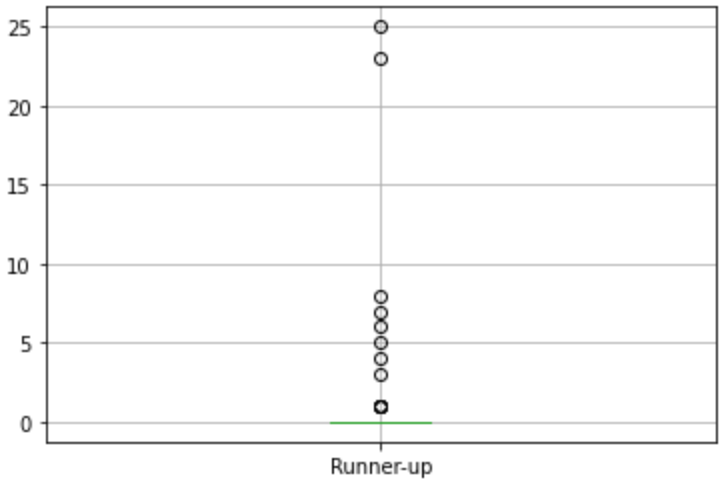

600
500
400
300
200
100
0
DrawnGames

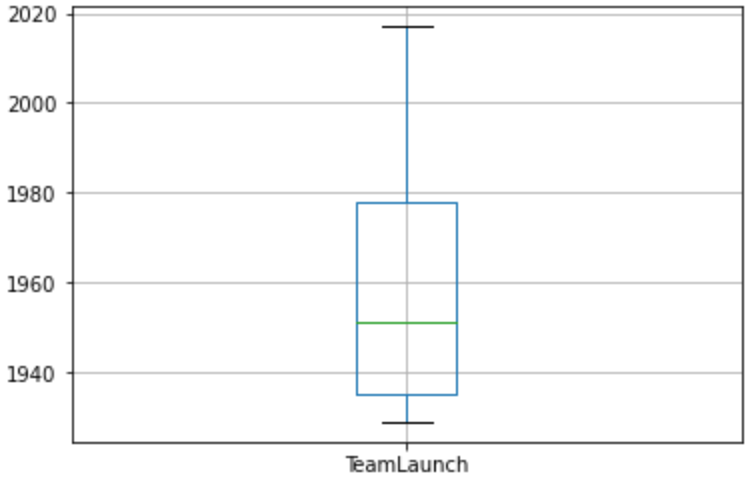

1000
800
600
400
200
0
LostGames


6000
5000
4000
3000
2000
1000
0
BasketScored


4000
3500
3000
2500
2000
1500
1000
500
0
BasketGiven


30
25
20
15
10
5
0
TournamentChampion


25
20
15
10
5
0
Runner-up



In [86]:
```
df_cl.head(2)
```

Out[86]:

	Team	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven	Tou
0	Team 1	86	4385	2762	1647	552	563	5947	3140	
1	Team 2	86	4262	2762	1581	573	608	5900	3114	

In [87]:
```
#creating new column as metric of success for each team according to played games.
df_cl["won_play"]=df_cl["WonGames"]/df_cl["PlayedGames"]
```

In [88]:
```
df_cl.head(2)
```

Out[88]:

	Team	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven	Tou
0	Team 1	86	4385	2762	1647	552	563	5947	3140	
1	Team 2	86	4262	2762	1581	573	608	5900	3114	

In [89]:
```
df_final=df_cl.nlargest(10,['won_play','TournamentChampion'])
df_final.head()
```

Out[89]:

	Team	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven	Tou
0	Team 1	86	4385	2762	1647	552	563	5947	3140	
1	Team 2	86	4262	2762	1581	573	608	5900	3114	
2	Team 3	80	3442	2614	1241	598	775	4534	3309	
3	Team 4	82	3386	2664	1187	616	861	4398	3469	

	Team	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven	Tou
4	Team 5	86	3368	2762	1209	633	920	4631	3700	

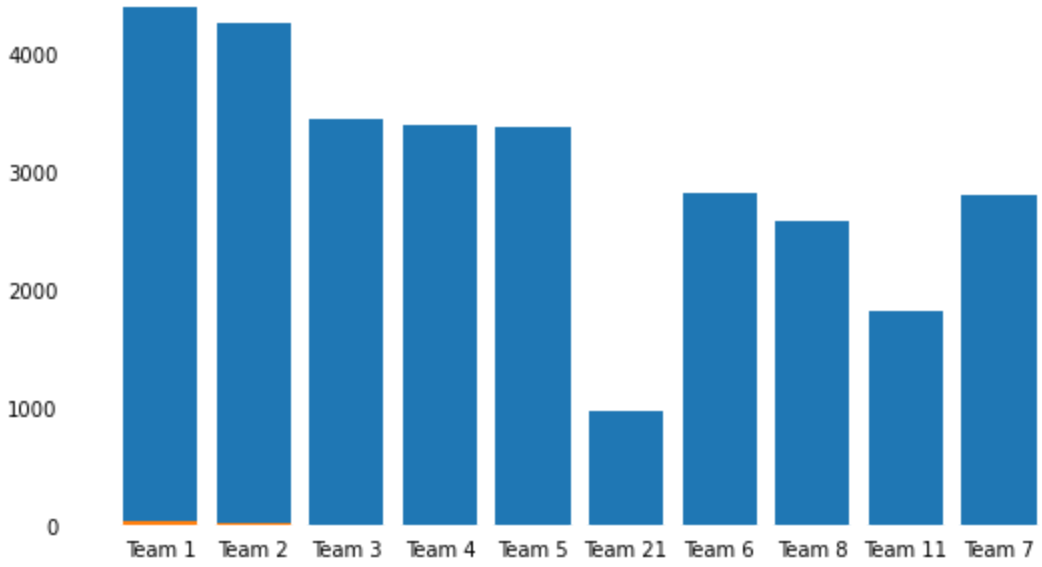
In [90]:
```
df_cl["won_play"].unique()
```

Out[90]:
```
array([0.59630702, 0.5724113 , 0.47475134, 0.44557057, 0.43772629,
       0.41112957, 0.36100533, 0.3753258 , 0.35146022, 0.35069444,
       0.36797386, 0.3451119 , 0.31582538, 0.31722689, 0.32304527,
       0.323217  , 0.31075697, 0.34228188, 0.33704453, 0.33485401,
       0.41176471, 0.29380054, 0.2898773 , 0.29941003, 0.32236842,
       0.29299363, 0.31376518, 0.24744027, 0.32894737, 0.28109453,
       0.29078014, 0.3028169 , 0.23214286, 0.27745665, 0.30838323,
       0.28148148, 0.27192982, 0.325     , 0.2688172 , 0.28921569,
       0.29444444, 0.24342105, 0.30701754, 0.33076923, 0.22807018,
       0.29310345, 0.25      , 0.2375    , 0.27777778, 0.32222222,
       0.29166667, 0.33333333, 0.19117647, 0.21052632, 0.23333333,
       0.16666667,        nan])
```

In [91]:
```
df_cl["TournamentChampion"].unique()
```

Out[91]:
```
array([33, 25, 10,  6,  8,  1,  0,  2], dtype=int64)
```

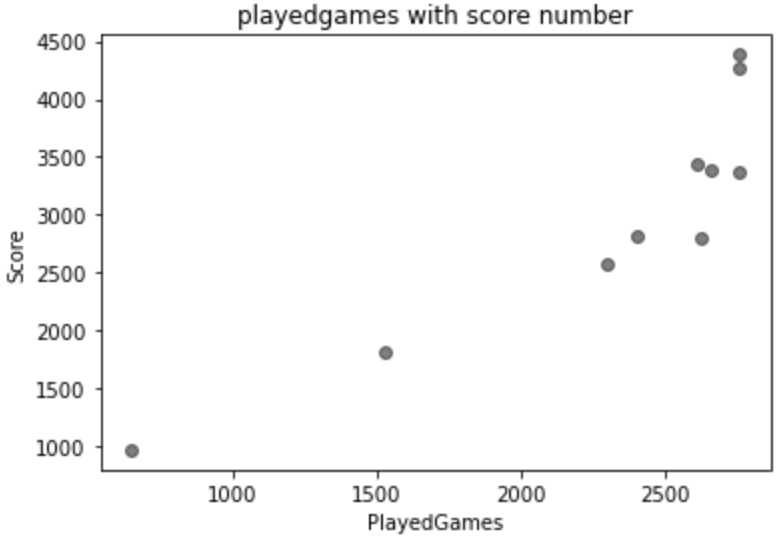
In [92]:
```
team=df_final["Team"]
score=df_final["Score"]
fig, ax = plt.subplots(figsize =(9,5))

# Remove axes splines
for s in ['top', 'bottom', 'left', 'right']:
    ax.spines[s].set_visible(False)
# Horizontal Bar Plot
ax.bar(team, score)


# Remove x, y Ticks
ax.xaxis.set_ticks_position('none')
ax.yaxis.set_ticks_position('none')

# Add padding between axes and labels
ax.xaxis.set_tick_params(pad = 3)
ax.yaxis.set_tick_params(pad = 6)


plt.bar(df_final["Team"], df_final["TournamentChampion"])
plt.show()
```



from the bar chart as we see team 1 is the top team which have bigger score then team3 etc.

In [93]:
```
colors = (0,0,0)
plt.scatter(df_final["PlayedGames"],df_final["Score"], c=colors, alpha=0.5)
plt.title('playedgames with score number')
plt.xlabel('PlayedGames')
plt.ylabel('Score')
plt.show()
```

```
*c* argument looks like a single numeric RGB or RGBA sequence, which should be avoided as
value-mapping will have precedence in case its length matches with *x* & *y*.  Please use
the *color* keyword-argument or provide a 2D array with a single row if you intend to spec
ify the same RGB or RGBA value for all points.
```

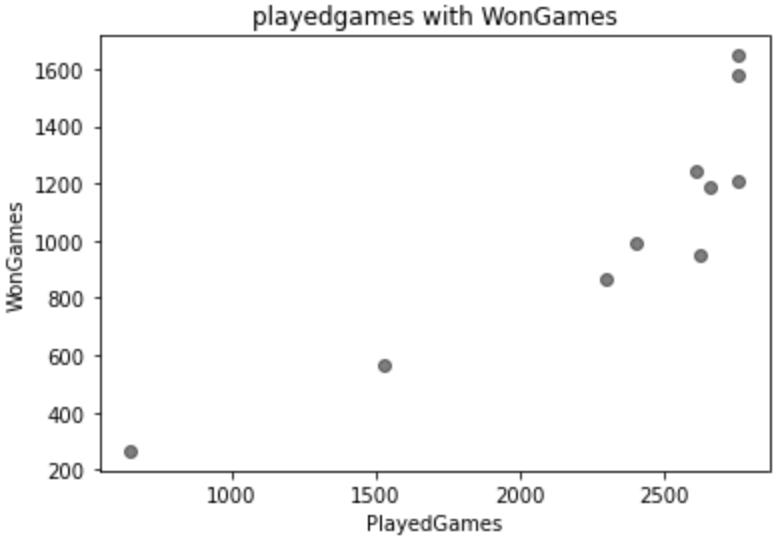


the more the team played ,the more score he get.

In [94]:
```
colors = (0,0,0)
plt.scatter(df_final["PlayedGames"],df_final["WonGames"], c=colors, alpha=0.5)
plt.title('playedgames with WonGames')
plt.xlabel('PlayedGames')
plt.ylabel('WonGames')
plt.show()
```

```
*c* argument looks like a single numeric RGB or RGBA sequence, which should be avoided as
value-mapping will have precedence in case its length matches with *x* & *y*.  Please use
```

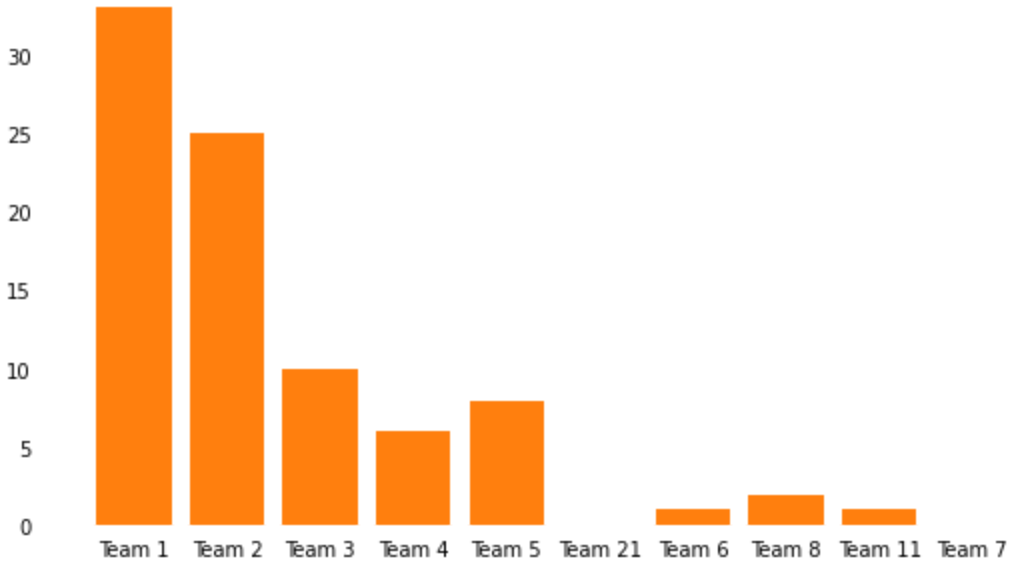
```
the *color* keyword-argument or provide a 2D array with a single row if you intend to spec
ify the same RGB or RGBA value for all points.
```



there a positive relation between number of playedgames ans the wongames.

In [95]:

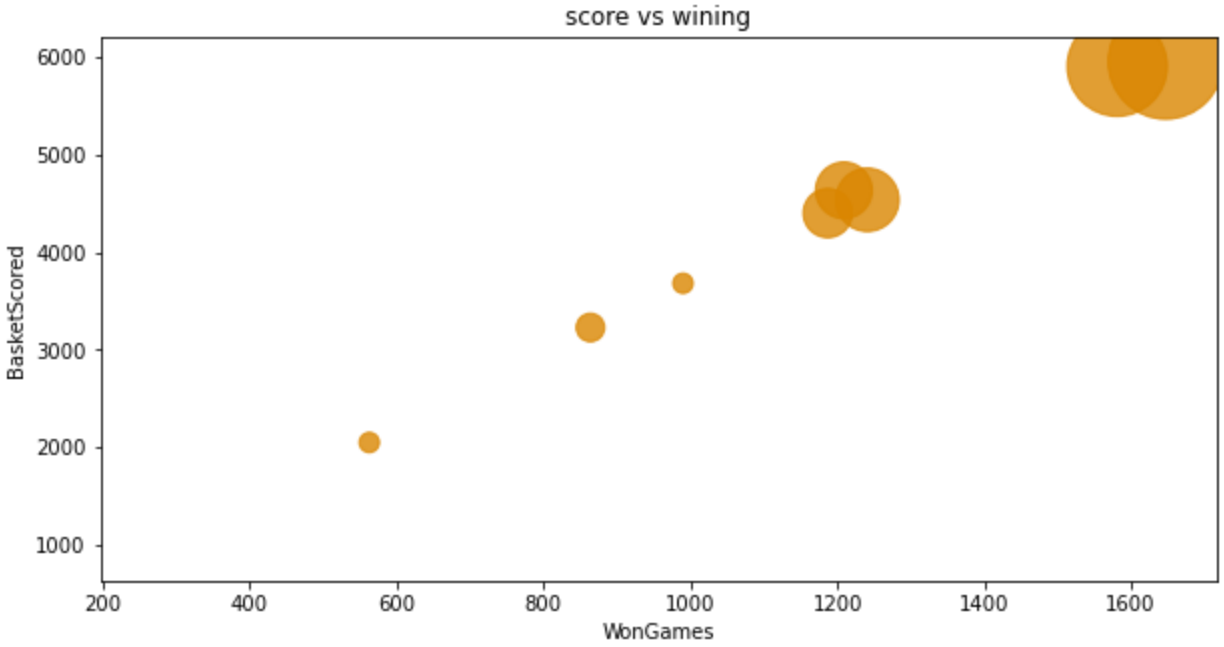
```
team=df_final["Team"]
score=df_final["TournamentChampion"]
fig, ax = plt.subplots(figsize =(9,5))

# Remove axes splines
for s in ['top', 'bottom', 'left', 'right']:
    ax.spines[s].set_visible(False)
# Horizontal Bar Plot
ax.bar(team, score)


# Remove x, y Ticks
ax.xaxis.set_ticks_position('none')
ax.yaxis.set_ticks_position('none')

# Add padding between axes and labels
ax.xaxis.set_tick_params(pad = 3)
ax.yaxis.set_tick_params(pad = 6)


plt.bar(df_final["Team"], df_final["TournamentChampion"])
plt.show()
```



team one is a top team , it gets 33 tournamentchampion which is amazinf and the team2 and tean3.

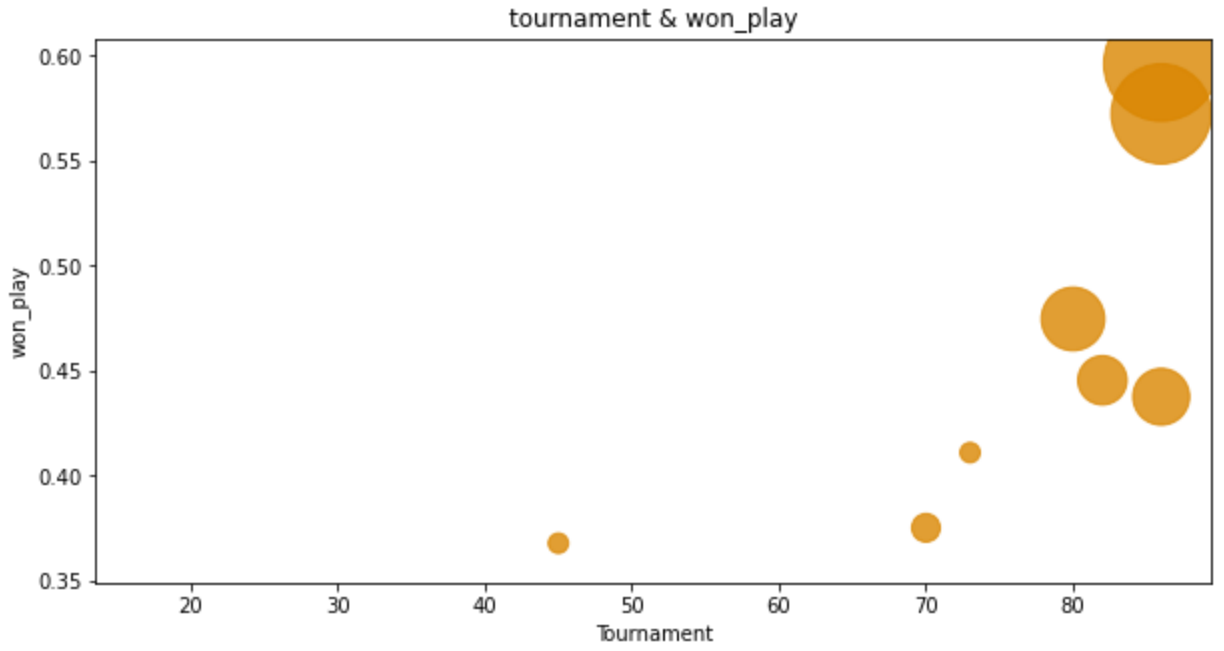
In [96]:
```
figure, ax = plt.subplots(figsize=(10,5))  #Creates empty plot
sns.regplot(data = df_final,x = 'WonGames',y = "BasketScored", fit_reg = False, color = '#
ax.set_xlabel("WonGames")
ax.set_ylabel("BasketScored")
ax.set_title("score vs wining")
#BasketScored   BasketGiven     TournamentChampion
```

Out[96]:
```
Text(0.5, 1.0, 'score vs wining')
```



In [97]:
```
figure, ax = plt.subplots(figsize=(10,5))  #Creates empty plot
sns.regplot(data = df_final,x = 'Tournament',y = "won_play", fit_reg = False, color = '#da
ax.set_xlabel("Tournament")
ax.set_ylabel("won_play")
ax.set_title("tournament & won_play")
```

Out[97]:
```
Text(0.5, 1.0, 'tournament & won_play')
```



In [98]:
```
#pie chart for team1 (rating all different part)
```

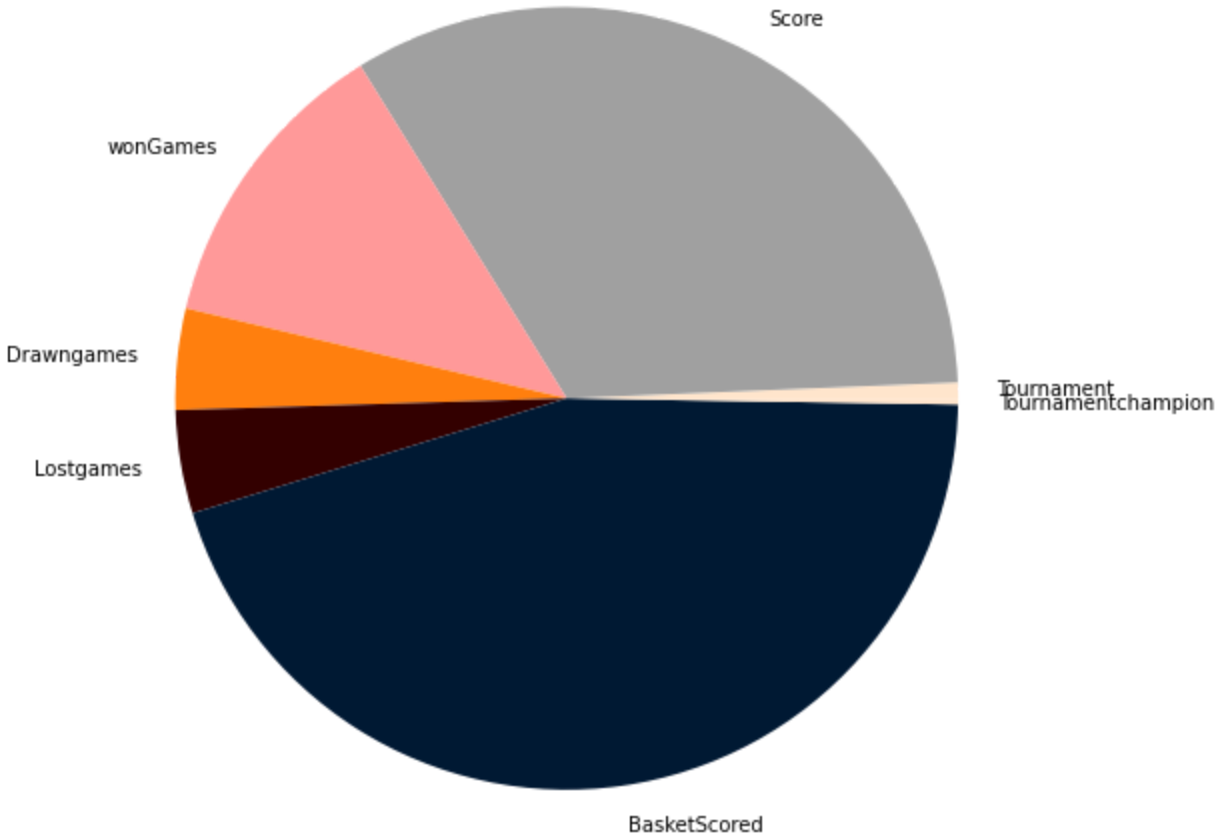
```
df_final.head(1)
```

Out[98]:

	Team	Tournament	Score	PlayedGames	WonGames	DrawnGames	LostGames	BasketScored	BasketGiven	Tou
0	Team 1	86	4385	2762	1647	552	563	5947	3140	

In [99]:

```
# Creating dataset
criteria= ['Tournament', 'Score', 'wonGames',
        'Drawngames', 'Lostgames', 'BasketScored',"Tournamentchampion"]

data = [86, 4385,1647, 552,563, 5947,33]
colors = ['#FFE5CC', '#A0A0A0', '#FF9999', 'tab:orange', '#330000',"#001933"]

# Creating plot
fig = plt.figure(figsize =(15, 9))
plt.pie(data, labels = criteria,colors=colors)

# show plot
plt.show()
```



From The EDA above , all the indicators refer to that Team1 is the best one then come team2 in the second position ,Team1 has the highest relative frequency number in wining games , it took 33 chamion so it is a great deal to collaporate with it.

Part three:

Suggestions:

- According to the data above it is perfect and satisfied for analysis ,but the point is any team have a couch so it should be data for every couch (name-nationality-age-the period of his working time) which lead the team .
- Each team's budget column to see if that affect on the team performance by providing more suitable conditions.