In [1]:
```
import pandas as pd
import numpy as np
```

In [2]:
```
mvps = pd.read_csv('mvps.csv',header=[1])
```

In [3]:
```
mvps['Year'] = mvps['Unnamed: 21']
```

In [4]:
```
mvps.drop('Unnamed: 21',axis=1)
```

Out[4]:

	Unnamed: 0	Rank	Player	Age	Tm	First	Pts Won	Pts Max	Share	G	...	TRB	AST	STL	BLK	FG%	3P%	FT%	WS	WS/48
0	0	1	Michael Jordan	27	CHI	77.0	891.0	960	0.928	82	...	6.0	5.5	2.7	1.0	0.539	0.312	0.851	20.3	0.321
1	1	2	Magic Johnson	31	LAL	10.0	497.0	960	0.518	79	...	7.0	12.5	1.3	0.2	0.477	0.320	0.906	15.4	0.251
2	2	3	David Robinson	25	SAS	6.0	476.0	960	0.496	82	...	13.0	2.5	1.5	3.9	0.552	0.143	0.762	17.0	0.264
3	3	4	Charles Barkley	27	PHI	2.0	222.0	960	0.231	67	...	10.1	4.2	1.6	0.5	0.570	0.284	0.722	13.4	0.258
4	4	5	Karl Malone	27	UTA	0.0	142.0	960	0.148	82	...	11.8	3.3	1.1	1.0	0.527	0.286	0.770	15.5	0.225
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
469	10	11	Russell Westbrook	32	WAS	0.0	5.0	1010	0.005	65	...	11.5	11.7	1.4	0.4	0.439	0.315	0.656	3.7	0.075
470	11	12	Ben Simmons	24	PHI	0.0	3.0	1010	0.003	58	...	7.2	6.9	1.6	0.6	0.557	0.300	0.613	6.0	0.153
471	12	13T	James Harden	31	TOT	0.0	1.0	1010	0.001	44	...	7.9	10.8	1.2	0.8	0.466	0.362	0.861	7.0	0.208
472	13	13T	LeBron James	36	LAL	0.0	1.0	1010	0.001	45	...	7.7	7.8	1.1	0.6	0.513	0.365	0.698	5.6	0.179
473	14	13T	Kawhi Leonard	29	LAC	0.0	1.0	1010	0.001	52	...	6.5	5.2	1.6	0.4	0.512	0.398	0.885	8.8	0.238

474 rows × 22 columns

In [5]:
```
mvps = mvps.set_index('Rank').drop(['Unnamed: 21','Unnamed: 0'],axis=1)
```

In [6]:
```
mvps.columns
```

Out[6]:
```
Index(['Player', 'Age', 'Tm', 'First', 'Pts Won', 'Pts Max', 'Share', 'G',
       'MP', 'PTS', 'TRB', 'AST', 'STL', 'BLK', 'FG%', '3P%', 'FT%', 'WS',
       'WS/48', 'Year'],
      dtype='object')
```

In [7]:
```
mvps.columns
```

Out[7]:
```
Index(['Player', 'Age', 'Tm', 'First', 'Pts Won', 'Pts Max', 'Share', 'G',
       'MP', 'PTS', 'TRB', 'AST', 'STL', 'BLK', 'FG%', '3P%', 'FT%', 'WS',
       'WS/48', 'Year'],
      dtype='object')
```

In [8]:
```
# select columns for combine dataset
mvps = mvps[['Player','Year','Pts Won','Pts Max','Share']]
```

In [9]:
```
mvps.shape
```

Out[9]:
```
(474, 5)
```

In [10]:
```
mvps.head()
```

Out[10]:

Rank	Player	Year	Pts Won	Pts Max	Share
1	Michael Jordan	1991	891.0	960	0.928
2	Magic Johnson	1991	497.0	960	0.518
3	David Robinson	1991	476.0	960	0.496
4	Charles Barkley	1991	222.0	960	0.231
5	Karl Malone	1991	142.0	960	0.148

In [19]:
```
mvps
```

Out[19]:

Rank	Player	Year	Pts Won	Pts Max	Share
1	Michael Jordan	1991	891.0	960	0.928
2	Magic Johnson	1991	497.0	960	0.518
3	David Robinson	1991	476.0	960	0.496
4	Charles Barkley	1991	222.0	960	0.231
5	Karl Malone	1991	142.0	960	0.148
...	...	...	...	...	...
11	Russell Westbrook	2021	5.0	1010	0.005
12	Ben Simmons	2021	3.0	1010	0.003
13T	James Harden	2021	1.0	1010	0.001
13T	LeBron James	2021	1.0	1010	0.001
13T	Kawhi Leonard	2021	1.0	1010	0.001

474 rows × 5 columns

In [24]:
```
player = pd.read_csv('Player_stats.csv')
```

In [12]:
```
#del player['Rk']
del player['Unnamed: 0']
```

In [25]:
```
player
```

Out[25]:

	Unnamed: 0	Rk	Player	Pos	Age	Tm	G	GS	MP	FG	...	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS	Year
0	0	1	Alaa Abdelnaby	PF	22	POR	43	0	6.7	1.3	...	0.6	1.4	2.1	0.3	0.1	0.3	0.5	0.9	3.1	1991
1	1	2	Mahmoud Abdul-Rauf	PG	21	DEN	67	19	22.5	6.2	...	0.5	1.3	1.8	3.1	0.8	0.1	1.6	2.2	14.1	1991
2	2	3	Mark Acres	C	28	ORL	68	0	19.3	1.6	...	2.1	3.2	5.3	0.4	0.4	0.4	0.6	3.2	4.2	1991
3	3	4	Michael Adams	PG	28	DEN	66	66	35.5	8.5	...	0.9	3.0	3.9	10.5	2.2	0.1	3.6	2.5	26.5	1991
4	4	5	Mark Aguirre	SF	31	DET	78	13	25.7	5.4	...	1.7	3.1	4.8	1.8	0.6	0.3	1.6	2.7	14.2	1991
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18039	725	536	Delon Wright	PG	28	SAC	27	8	25.8	3.9	...	1.0	2.9	3.9	3.6	1.6	0.4	1.3	1.1	10.0	2021
18040	726	537	Thaddeus Young	PF	32	CHI	68	23	24.3	5.4	...	2.5	3.8	6.2	4.3	1.1	0.6	2.0	2.2	12.1	2021
18041	727	538	Trae Young	PG	22	ATL	63	63	33.7	7.7	...	0.6	3.3	3.9	9.4	0.8	0.2	4.1	1.8	25.3	2021
18042	728	539	Cody Zeller	C	28	CHO	48	21	20.9	3.8	...	2.5	4.4	6.8	1.8	0.6	0.4	1.1	2.5	9.4	2021
18043	729	540	Ivica Zubac	C	23	LAC	72	33	22.3	3.6	...	2.6	4.6	7.2	1.3	0.3	0.9	1.1	2.6	9.0	2021

18044 rows × 32 columns

In [111]:
```
pd.set_option('display.max_rows',50)
```

In [34]:
```
player['Player'] = player['Player'].str.replace('*',"",regex=False) #do not use regex
```

In [35]:
```
merged = pd.merge(player,mvps,on=['Player','Year'])
```

In [70]:
```
pd.set_option('display.max_rows',50)
player['Player'].head(50)
```

Out[70]:
```
0          Alaa Abdelnaby
1      Mahmoud Abdul-Rauf
2             Mark Acres
3          Michael Adams
4           Mark Aguirre
5            Danny Ainge
6            Mark Alarie
7           Steve Alford
8          Greg Anderson
9          Greg Anderson
10         Greg Anderson
11         Greg Anderson
12         Nick Anderson
13          Ron Anderson
14       Willie Anderson
15        Michael Ansley
16        B.J. Armstrong
17         Vincent Askew
18          Keith Askins
19           Miloš Babić
20         Thurl Bailey
21          Cedric Ball
22        Ken Bannister
23       Charles Barkley
24           Dana Barros
25           John Battle
26          Kenny Battle
27          Kenny Battle
28          Kenny Battle
29       William Bedford
30       Benoit Benjamin
31       Benoit Benjamin
32       Benoit Benjamin
33       Winston Bennett
34            Larry Bird
35      Rolando Blackman
36          Lance Blanks
37       Mookie Blaylock
38         Muggsy Bogues
```

```
39            Manute Bol
40         Anthony Bonner
41              Sam Bowie
42           Randy Breuer
43       Frank Brickowski
44           Scott Brooks
45           Chucky Brown
46              Dee Brown
47                 Player
48            Mike Brown
49            Tony Brown
Name: Player, dtype: object
```

In [79]:
```
# check duplicated row
player[player[['Player','Year']].duplicated()]
```

Out[79]:

	Unnamed: 0	Rk	Player	Pos	Age	Tm	G	GS	MP	FG	...	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS	Year
9	9	9	Greg Anderson	PF	26	MIL	26	0	9.5	1.0	...	1.0	1.9	2.9	0.1	0.3	0.3	0.8	1.1	2.7	1991
10	10	9	Greg Anderson	PF	26	NJN	1	0	18.0	4.0	...	4.0	2.0	6.0	1.0	2.0	0.0	1.0	4.0	8.0	1991
11	11	9	Greg Anderson	PF	26	DEN	41	2	16.1	2.1	...	1.6	4.1	5.8	0.3	0.6	0.9	1.5	2.6	5.2	1991
27	27	24	Kenny Battle	SG	26	PHO	16	4	16.4	2.4	...	1.3	2.0	3.3	0.9	1.2	0.4	1.1	1.6	6.0	1991
28	28	24	Kenny Battle	SG	26	DEN	40	4	17.1	2.4	...	1.6	1.5	3.1	1.2	1.0	0.3	0.9	2.1	6.1	1991
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18024	710	525	Lou Williams	PG	34	ATL	24	1	21.0	3.5	...	0.3	1.8	2.1	3.4	0.3	0.1	1.8	0.8	10.0	2021
18029	715	529	D.J. Wilson	PF	24	MIL	12	0	8.8	1.3	...	0.3	1.8	2.1	0.3	0.1	0.3	0.3	1.1	3.6	2021
18030	716	529	D.J. Wilson	PF	24	HOU	23	1	14.3	2.3	...	0.7	3.0	3.8	0.9	0.4	0.5	0.8	1.3	6.1	2021
18038	724	536	Delon Wright	SG	28	DET	36	31	29.2	3.8	...	1.0	3.5	4.6	5.0	1.6	0.5	1.3	1.3	10.4	2021
18039	725	536	Delon Wright	PG	28	SAC	27	8	25.8	3.9	...	1.0	2.9	3.9	3.6	1.6	0.4	1.3	1.1	10.0	2021

3916 rows × 32 columns

In [59]:
```
player.groupby(['Player','Year']).get_group(("Greg Anderson",1991))
def single_row(df):
    if df.shape[0] == 1:
        return df
    else:
        row = df[df['Tm'] == 'TOT']
        row['Tm'] = df.iloc[-1:1]['Tm']
        return row
players = player.groupby(['Player','Year']).apply(single_row)
```

In [60]:
```
players.index = players.index.droplevel()
```

In [62]:
```
players.index = players.index.droplevel()
```

In [66]:
```
players = players.drop('Unnamed: 0',axis=1)
```

In [67]:
```
players
```

Out[67]:

	Rk	Player	Pos	Age	Tm	G	GS	MP	FG	FGA	...	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS	Year
164	135	A.C. Green	PF	27	LAL	82	21	26.4	3.1	6.6	...	2.5	3.8	6.3	0.9	0.7	0.3	1.2	1.4	9.1	1991
633	141	A.C. Green	PF	28	LAL	82	53	35.4	4.7	9.8	...	3.7	5.6	9.3	1.4	1.1	0.4	1.4	1.7	13.6	1992
1092	137	A.C. Green	PF	29	LAL	82	55	34.4	4.6	8.6	...	3.5	5.2	8.7	1.4	1.1	0.5	1.4	1.8	12.8	1993
1579	149	A.C. Green	PF	30	PHO	82	55	34.5	5.7	11.3	...	3.4	5.8	9.2	1.7	0.9	0.5	1.2	1.7	14.7	1994
2067	142	A.C. Green	SF	31	PHO	82	52	32.8	3.8	7.5	...	2.4	5.8	8.2	1.5	0.7	0.4	1.4	1.8	11.2	1995
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
6095	336	Željko Rebrača	C	29	DET	74	4	15.9	2.6	5.1	...	1.1	2.8	3.9	0.5	0.4	1.0	1.1	2.6	6.9	2002
6595	316	Željko Rebrača	C	30	DET	30	12	16.3	2.7	4.8	...	0.9	2.2	3.1	0.3	0.2	0.6	1.0	2.6	6.6	2003
7176	338	Željko Rebrača	C	31	NaN	24	2	11.4	1.4	3.2	...	1.0	1.5	2.4	0.3	0.2	0.5	0.7	2.2	3.8	2004
7776	350	Željko Rebrača	C	32	LAC	58	2	16.0	2.3	4.0	...	0.8	2.3	3.2	0.4	0.2	0.7	0.8	2.2	5.8	2005
8370	344	Željko Rebrača	C	33	LAC	29	2	14.2	1.8	3.3	...	0.4	1.8	2.2	0.3	0.2	0.7	0.8	2.0	4.7	2006

14092 rows × 31 columns

In [145]:
```
player[player['Tm'] == 'TOT']
```

Out[145]:

	Player	Pos	Age	Tm	G	GS	MP	FG	FGA	FG%	...	ORB	DRB	TRB	AST	STL	BLK	TOV	PF	PTS	Year
8	Greg Anderson	PF	26	TOT	68	2	13.6	1.7	4.0	.430	...	1.4	3.3	4.7	0.2	0.5	0.7	1.2	2.1	4.3	1991
26	Kenny Battle	SG	26	TOT	56	8	16.9	2.4	5.0	.472	...	1.5	1.7	3.1	1.1	1.1	0.3	0.9	1.9	6.1	1991
30	Benoit Benjamin	C	26	TOT	70	65	31.9	5.5	11.1	.496	...	2.2	8.1	10.3	1.7	0.8	2.1	3.4	2.6	14.0	1991
49	Tony Brown	SG-SF	30	TOT	30	0	9.8	1.0	2.7	.375	...	0.8	0.6	1.4	0.5	0.1	0.0	0.5	1.6	2.8	1991
77	Lester Conner	PG	31	TOT	74	4	13.6	1.3	2.8	.464	...	0.3	1.2	1.5	2.2	1.1	0.0	0.8	1.0	3.5	1991
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17997	Moritz Wagner	C	23	TOT	45	24	16.0	2.3	5.1	.454	...	0.6	2.6	3.2	1.1	0.6	0.4	1.0	2.4	6.9	2021
18004	Brad Wanamaker	PG	31	TOT	61	0	17.3	1.9	4.9	.385	...	0.3	1.4	1.7	2.9	0.7	0.2	1.2	1.5	5.5	2021
18022	Lou Williams	PG	34	TOT	66	4	21.6	4.0	9.8	.410	...	0.3	1.8	2.1	3.4	0.7	0.1	1.6	0.9	11.3	2021
18028	D.J. Wilson	PF	24	TOT	35	1	12.4	1.9	4.8	.405	...	0.6	2.6	3.2	0.7	0.3	0.5	0.6	1.3	5.2	2021
18037	Delon Wright	SG-PG	28	TOT	63	39	27.7	3.8	8.2	.463	...	1.0	3.2	4.3	4.4	1.6	0.5	1.3	1.2	10.2	2021

1586 rows × 30 columns

In [82]:
```
combined = players.merge(mvps,how='outer',on=['Year','Player'])
```

In [83]:
```
combined.head(5)
```

Out[83]:

	Rk	Player	Pos	Age	Tm	G	GS	MP	FG	FGA	...	AST	STL	BLK	TOV	PF	PTS	Year	Pts Won	Pts Max	Share
0	135	A.C. Green	PF	27	LAL	82	21	26.4	3.1	6.6	...	0.9	0.7	0.3	1.2	1.4	9.1	1991	NaN	NaN	NaN
1	141	A.C. Green	PF	28	LAL	82	53	35.4	4.7	9.8	...	1.4	1.1	0.4	1.4	1.7	13.6	1992	NaN	NaN	NaN
2	137	A.C. Green	PF	29	LAL	82	55	34.4	4.6	8.6	...	1.4	1.1	0.5	1.4	1.8	12.8	1993	NaN	NaN	NaN
3	149	A.C. Green	PF	30	PHO	82	55	34.5	5.7	11.3	...	1.7	0.9	0.5	1.2	1.7	14.7	1994	NaN	NaN	NaN
4	142	A.C. Green	SF	31	PHO	82	52	32.8	3.8	7.5	...	1.5	0.7	0.4	1.4	1.8	11.2	1995	NaN	NaN	NaN

5 rows × 34 columns

In [85]:
```
combined[combined['Pts Won'] > 0]
```

Out[85]:

	Rk	Player	Pos	Age	Tm	G	GS	MP	FG	FGA	...	AST	STL	BLK	TOV	PF	PTS	Year	Pts Won	Pts Max	Share
187	231	Al Jefferson	C	29	CHA	73	73	35.0	9.6	18.8	...	2.1	0.9	1.1	1.7	2.4	21.8	2014	34.0	1250.0	0.027
329	178	Allen Iverson	PG	21	PHI	76	74	40.1	8.2	19.8	...	7.5	2.1	0.3	4.4	3.1	23.5	1997	1.0	1150.0	0.001
331	178	Allen Iverson	SG	23	PHI	48	48	41.5	9.1	22.0	...	4.6	2.3	0.1	3.5	2.0	26.8	1999	319.0	1180.0	0.270
332	187	Allen Iverson	SG	24	PHI	70	70	40.8	10.4	24.8	...	4.7	2.1	0.1	3.3	2.3	28.4	2000	132.0	1210.0	0.109
333	186	Allen Iverson	SG	25	PHI	71	71	42.0	10.7	25.5	...	4.6	2.5	0.3	3.3	2.1	31.1	2001	1121.0	1240.0	0.904
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13587	70	Vince Carter	SF	23	TOR	82	82	38.1	9.6	20.7	...	3.9	1.3	1.1	2.2	3.2	25.7	2000	51.0	1210.0	0.042
13588	65	Vince Carter	SF	24	TOR	75	75	39.7	10.2	22.1	...	3.9	1.5	1.1	2.2	2.7	27.6	2001	7.0	1240.0	0.006
13592	75	Vince Carter	SF-SG	28	NaN	77	76	36.7	9.0	20.0	...	4.2	1.4	0.6	2.2	3.2	24.5	2005	3.0	1270.0	0.002
13952	276	Yao Ming	C	23	HOU	82	82	32.8	6.5	12.5	...	1.5	0.3	1.9	2.5	3.3	17.5	2004	1.0	1230.0	0.001
13957	283	Yao Ming	C	28	HOU	77	77	33.6	7.4	13.4	...	1.8	0.4	1.9	3.0	3.3	19.7	2009	1.0	1210.0	0.001

474 rows × 34 columns

In [86]:
```
# need to fix NaN: make 0 or zero value
```

In [105]:
```
# check the columns has NaN value
#def check_and_fix_NaN(df):
    #if df.

combined[['Pts Won','Pts Max','Share']] = combined[['Pts Won','Pts Max','Share']].fillna(0)
```

In [106]:
```
combined
```

Out[106]:

	Rk	Player	Pos	Age	Tm	G	GS	MP	FG	FGA	...	AST	STL	BLK	TOV	PF	PTS	Year	Pts Won	Pts Max	Share
0	135	A.C. Green	PF	27	LAL	82	21	26.4	3.1	6.6	...	0.9	0.7	0.3	1.2	1.4	9.1	1991	0.0	0.0	0.0
1	141	A.C. Green	PF	28	LAL	82	53	35.4	4.7	9.8	...	1.4	1.1	0.4	1.4	1.7	13.6	1992	0.0	0.0	0.0
2	137	A.C. Green	PF	29	LAL	82	55	34.4	4.6	8.6	...	1.4	1.1	0.5	1.4	1.8	12.8	1993	0.0	0.0	0.0
3	149	A.C. Green	PF	30	PHO	82	55	34.5	5.7	11.3	...	1.7	0.9	0.5	1.2	1.7	14.7	1994	0.0	0.0	0.0
4	142	A.C. Green	SF	31	PHO	82	52	32.8	3.8	7.5	...	1.5	0.7	0.4	1.4	1.8	11.2	1995	0.0	0.0	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14087	336	Željko Rebrača	C	29	DET	74	4	15.9	2.6	5.1	...	0.5	0.4	1.0	1.1	2.6	6.9	2002	0.0	0.0	0.0
14088	316	Željko Rebrača	C	30	DET	30	12	16.3	2.7	4.8	...	0.3	0.2	0.6	1.0	2.6	6.6	2003	0.0	0.0	0.0
14089	338	Željko Rebrača	C	31	NaN	24	2	11.4	1.4	3.2	...	0.3	0.2	0.5	0.7	2.2	3.8	2004	0.0	0.0	0.0
14090	350	Željko Rebrača	C	32	LAC	58	2	16.0	2.3	4.0	...	0.4	0.2	0.7	0.8	2.2	5.8	2005	0.0	0.0	0.0
14091	344	Željko Rebrača	C	33	LAC	29	2	14.2	1.8	3.3	...	0.3	0.2	0.7	0.8	2.0	4.7	2006	0.0	0.0	0.0

14092 rows × 34 columns

In [163]:
```
team = pd.read_csv('team_')
```

In [157]:
```
team = team.drop('Unnamed: 0',axis=1)
```

In [158]:
```
team.head(50)
```

Out[158]:

	W	L	W/L%	GB	PS/G	PA/G	SRS	Year	Team
0	56	26	.683	—	111.5	105.7	5.22	1991	Boston Celtics*
1	44	38	.537	12.0	105.4	105.6	-0.39	1991	Philadelphia 76ers*
2	39	43	.476	17.0	103.1	103.3	-0.43	1991	New York Knicks*
3	30	52	.366	26.0	101.4	106.4	-4.84	1991	Washington Bullets
4	26	56	.317	30.0	102.9	107.5	-4.53	1991	New Jersey Nets
5	24	58	.293	32.0	101.8	107.8	-5.91	1991	Miami Heat
6	Central Division	Central Division	Central Division	Central Division	Central Division	Central Division	Central Division	1991	Central Division
7	61	21	.744	—	110.0	101.0	8.57	1991	Chicago Bulls*
8	50	32	.610	11.0	100.1	96.8	3.08	1991	Detroit Pistons*
9	48	34	.585	13.0	106.4	104.0	2.33	1991	Milwaukee Bucks*
10	43	39	.524	18.0	109.8	109.0	0.72	1991	Atlanta Hawks*
11	41	41	.500	20.0	111.7	112.1	-0.37	1991	Indiana Pacers*
12	33	49	.402	28.0	101.7	104.2	-2.33	1991	Cleveland Cavaliers
13	26	56	.317	35.0	102.8	108.0	-4.95	1991	Charlotte Hornets
14	Midwest Division	Midwest Division	Midwest Division	Midwest Division	Midwest Division	Midwest Division	Midwest Division	1991	Midwest Division
15	55	27	.671	—	107.1	102.6	4.30	1991	San Antonio Spurs*
16	54	28	.659	1.0	104.0	100.7	3.18	1991	Utah Jazz*
17	52	30	.634	3.0	106.7	103.2	3.27	1991	Houston Rockets*
18	31	51	.378	24.0	105.9	109.9	-3.79	1991	Orlando Magic
19	29	53	.354	26.0	99.6	103.5	-3.75	1991	Minnesota Timberwolves
20	28	54	.341	27.0	99.9	104.5	-4.27	1991	Dallas Mavericks
21	20	62	.244	35.0	119.9	130.8	-10.31	1991	Denver Nuggets
22	Pacific Division	Pacific Division	Pacific Division	Pacific Division	Pacific Division	Pacific Division	Pacific Division	1991	Pacific Division

	W	L	W/L%	GB	PS/G	PA/G	SRS	Year	Team
23	63	19	.768	—	114.7	106.0	8.47	1991	Portland Trail Blazers*
24	58	24	.707	5.0	106.3	99.6	6.73	1991	Los Angeles Lakers*
25	55	27	.671	8.0	114.0	107.5	6.49	1991	Phoenix Suns*
26	44	38	.537	19.0	116.6	115.0	1.72	1991	Golden State Warriors*
27	41	41	.500	22.0	106.6	105.4	1.31	1991	Seattle SuperSonics*
28	31	51	.378	32.0	103.5	107.0	-3.16	1991	Los Angeles Clippers
29	25	57	.305	38.0	96.7	103.5	-6.27	1991	Sacramento Kings
30	51	31	.622	—	106.6	103.0	3.41	1992	Boston Celtics*
31	51	31	.622	—	101.6	97.7	3.67	1992	New York Knicks*
32	40	42	.488	11.0	105.4	107.1	-1.54	1992	New Jersey Nets*
33	38	44	.463	13.0	105.0	109.2	-3.94	1992	Miami Heat*
34	35	47	.427	16.0	101.9	103.2	-1.34	1992	Philadelphia 76ers
35	25	57	.305	26.0	102.4	106.8	-4.35	1992	Washington Bullets
36	21	61	.256	30.0	101.6	108.5	-6.52	1992	Orlando Magic
37	Central Division	Central Division	Central Division	Central Division	Central Division	Central Division	Central Division	1992	Central Division
38	67	15	.817	—	109.9	99.5	10.07	1992	Chicago Bulls*
39	57	25	.695	10.0	108.9	103.4	5.34	1992	Cleveland Cavaliers*
40	48	34	.585	19.0	98.9	96.9	2.06	1992	Detroit Pistons*
41	40	42	.488	27.0	112.2	110.3	1.85	1992	Indiana Pacers*
42	38	44	.463	29.0	106.2	107.7	-1.15	1992	Atlanta Hawks
43	31	51	.378	36.0	105.0	106.7	-1.46	1992	Milwaukee Bucks
44	31	51	.378	36.0	109.5	113.4	-3.57	1992	Charlotte Hornets
45	Midwest Division	Midwest Division	Midwest Division	Midwest Division	Midwest Division	Midwest Division	Midwest Division	1992	Midwest Division
46	55	27	.671	—	108.3	101.9	5.70	1992	Utah Jazz*
47	47	35	.573	8.0	104.0	100.6	2.81	1992	San Antonio Spurs*

	W	L	W/L%	GB	PS/G	PA/G	SRS	Year	Team
48	42	40	.512	13.0	102.0	103.7	-1.94	1992	Houston Rockets
49	24	58	.293	31.0	99.7	107.6	-7.59	1992	Denver Nuggets

In [164]:
```
team = team[~team['W'].str.contains('Division')]
```

In [165]:
```
team['Team'] = team['Team'].str.replace('*',"",regex = False)
```

In [167]:
```
team.head(5)
```

Out[167]:

	Unnamed: 0	W	L	W/L%	GB	PS/G	PA/G	SRS	Year	Team
0	0	56	26	.683	—	111.5	105.7	5.22	1991	Boston Celtics
1	1	44	38	.537	12.0	105.4	105.6	-0.39	1991	Philadelphia 76ers
2	2	39	43	.476	17.0	103.1	103.3	-0.43	1991	New York Knicks
3	3	30	52	.366	26.0	101.4	106.4	-4.84	1991	Washington Bullets
4	4	26	56	.317	30.0	102.9	107.5	-4.53	1991	New Jersey Nets

In [169]:
```
team['Team'].unique()
```

Out[169]:
```
array(['Boston Celtics', 'Philadelphia 76ers', 'New York Knicks',
       'Washington Bullets', 'New Jersey Nets', 'Miami Heat',
       'Chicago Bulls', 'Detroit Pistons', 'Milwaukee Bucks',
       'Atlanta Hawks', 'Indiana Pacers', 'Cleveland Cavaliers',
       'Charlotte Hornets', 'San Antonio Spurs', 'Utah Jazz',
       'Houston Rockets', 'Orlando Magic', 'Minnesota Timberwolves',
       'Dallas Mavericks', 'Denver Nuggets', 'Portland Trail Blazers',
       'Los Angeles Lakers', 'Phoenix Suns', 'Golden State Warriors',
       'Seattle SuperSonics', 'Los Angeles Clippers', 'Sacramento Kings',
       'Toronto Raptors', 'Vancouver Grizzlies', 'Washington Wizards',
       'Memphis Grizzlies', 'New Orleans Hornets', 'Charlotte Bobcats',
       'New Orleans/Oklahoma City Hornets', 'Oklahoma City Thunder',
       'Brooklyn Nets', 'New Orleans Pelicans'], dtype=object)
```

In [172]:
```
combined['Tm']
```

Out[172]:
```
0         LAL
1         LAL
2         LAL
3         PHO
4         PHO
         ...
14087     DET
14088     DET
14089     NaN
14090     LAC
14091     LAC
Name: Tm, Length: 14092, dtype: object
```

In [194]:
```
nickname_team = pd.read_csv('https://raw.githubusercontent.com/danielfrg/espn-nba-scrapy/master/data/tea
```

In [195]:
```
nickname_team = nickname_team.drop('prefix_2',axis=1).set_axis(nickname_team['name']).drop('name',axis=1
```

In [197]:
```
nickname_team.rename({'prefix_1':'Abbre'},axis=1,inplace=True)
```

In [200]:
```
nickname_team = nickname_team.Abbre.str.upper()
```

In [207]:
```
# use map
combined['Team'] = combined['Tm'].map(nickname_team)
```

In [208]:
```
combined
```

Out[208]:

	Rk	Player	Pos	Age	Tm	G	GS	MP	FG	FGA	...	STL	BLK	TOV	PF	PTS	Year	Pts Won	Pts Max	Share	Team
0	135	A.C. Green	PF	27	LAL	82	21	26.4	3.1	6.6	...	0.7	0.3	1.2	1.4	9.1	1991	0.0	0.0	0.0	NaN
1	141	A.C. Green	PF	28	LAL	82	53	35.4	4.7	9.8	...	1.1	0.4	1.4	1.7	13.6	1992	0.0	0.0	0.0	NaN
2	137	A.C. Green	PF	29	LAL	82	55	34.4	4.6	8.6	...	1.1	0.5	1.4	1.8	12.8	1993	0.0	0.0	0.0	NaN
3	149	A.C. Green	PF	30	PHO	82	55	34.5	5.7	11.3	...	0.9	0.5	1.2	1.7	14.7	1994	0.0	0.0	0.0	NaN
4	142	A.C. Green	SF	31	PHO	82	52	32.8	3.8	7.5	...	0.7	0.4	1.4	1.8	11.2	1995	0.0	0.0	0.0	NaN
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14087	336	Željko Rebrača	C	29	DET	74	4	15.9	2.6	5.1	...	0.4	1.0	1.1	2.6	6.9	2002	0.0	0.0	0.0	NaN
14088	316	Željko Rebrača	C	30	DET	30	12	16.3	2.7	4.8	...	0.2	0.6	1.0	2.6	6.6	2003	0.0	0.0	0.0	NaN
14089	338	Željko Rebrača	C	31	NaN	24	2	11.4	1.4	3.2	...	0.2	0.5	0.7	2.2	3.8	2004	0.0	0.0	0.0	NaN
14090	350	Željko Rebrača	C	32	LAC	58	2	16.0	2.3	4.0	...	0.2	0.7	0.8	2.2	5.8	2005	0.0	0.0	0.0	NaN
14091	344	Željko Rebrača	C	33	LAC	29	2	14.2	1.8	3.3	...	0.2	0.7	0.8	2.0	4.7	2006	0.0	0.0	0.0	NaN

14092 rows × 35 columns

In [206]:
```
nickname_team = dict(nickname_team)
```

In [213]:
```
team.Team
```

Out[213]:
```
0             Boston Celtics
1         Philadelphia 76ers
2            New York Knicks
3         Washington Bullets
4            New Jersey Nets
                 ...
1028        Dallas Mavericks
1029       Memphis Grizzlies
1030       San Antonio Spurs
1031    New Orleans Pelicans
1032         Houston Rockets
Name: Team, Length: 906, dtype: object
```

In [219]:
```
team['Team'] = team.Team.map(nickname_team)
```

In [222]:
```
team.drop('abb',axis=1,inplace=True)
```

In [235]:
```
stats = combined.merge(team,how='outer', on=['Team','Year'] )
```

In [226]:
```
combined.drop('Team',axis=1,inplace=True)
```

In [232]:
```
combined.rename({'Tm':'Team'},axis=1,inplace=True)
```

In [237]:
```
combined
```

Out[237]:

	Rk	Player	Pos	Age	Team	G	GS	MP	FG	FGA	...	AST	STL	BLK	TOV	PF	PTS	Year	Pts Won	Pts Max	Share
0	135	A.C. Green	PF	27	LAL	82	21	26.4	3.1	6.6	...	0.9	0.7	0.3	1.2	1.4	9.1	1991	0.0	0.0	0.0
1	141	A.C. Green	PF	28	LAL	82	53	35.4	4.7	9.8	...	1.4	1.1	0.4	1.4	1.7	13.6	1992	0.0	0.0	0.0
2	137	A.C. Green	PF	29	LAL	82	55	34.4	4.6	8.6	...	1.4	1.1	0.5	1.4	1.8	12.8	1993	0.0	0.0	0.0
3	149	A.C. Green	PF	30	PHO	82	55	34.5	5.7	11.3	...	1.7	0.9	0.5	1.2	1.7	14.7	1994	0.0	0.0	0.0
4	142	A.C. Green	SF	31	PHO	82	52	32.8	3.8	7.5	...	1.5	0.7	0.4	1.4	1.8	11.2	1995	0.0	0.0	0.0
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
14087	336	Željko Rebrača	C	29	DET	74	4	15.9	2.6	5.1	...	0.5	0.4	1.0	1.1	2.6	6.9	2002	0.0	0.0	0.0
14088	316	Željko Rebrača	C	30	DET	30	12	16.3	2.7	4.8	...	0.3	0.2	0.6	1.0	2.6	6.6	2003	0.0	0.0	0.0
14089	338	Željko Rebrača	C	31	NaN	24	2	11.4	1.4	3.2	...	0.3	0.2	0.5	0.7	2.2	3.8	2004	0.0	0.0	0.0
14090	350	Željko Rebrača	C	32	LAC	58	2	16.0	2.3	4.0	...	0.4	0.2	0.7	0.8	2.2	5.8	2005	0.0	0.0	0.0
14091	344	Željko Rebrača	C	33	LAC	29	2	14.2	1.8	3.3	...	0.3	0.2	0.7	0.8	2.0	4.7	2006	0.0	0.0	0.0

14092 rows × 34 columns

In [233]:
```
team
```

Out[233]:

	Unnamed: 0	W	L	W/L%	GB	PS/G	PA/G	SRS	Year	Team
0	0	56	26	.683	—	111.5	105.7	5.22	1991	BOS
1	1	44	38	.537	12.0	105.4	105.6	-0.39	1991	PHI
2	2	39	43	.476	17.0	103.1	103.3	-0.43	1991	NY
3	3	30	52	.366	26.0	101.4	106.4	-4.84	1991	NaN
4	4	26	56	.317	30.0	102.9	107.5	-4.53	1991	NaN
...	...	...	...	...	...	...	...	...	...	...
1028	13	42	30	.583	—	112.4	110.2	2.26	2021	DAL
1029	14	38	34	.528	4.0	113.3	112.3	1.07	2021	MEM
1030	15	33	39	.458	9.0	111.1	112.8	-1.58	2021	SA
1031	16	31	41	.431	11.0	114.6	114.9	-0.20	2021	NaN
1032	17	17	55	.236	25.0	108.8	116.7	-7.50	2021	HOU

906 rows × 10 columns

In [245]:
```
del stats['Unnamed: 0']
```

In [267]:
```
stats = stats.apply(pd.to_numeric,errors='ignore')
```

In [255]:
```
stats.dtypes
```

Out[255]:
```
Rk          float64
Player       object
Pos          object
Age         float64
Team         object
G           float64
GS          float64
MP          float64
FG          float64
FGA         float64
FG%         float64
3P          float64
3PA         float64
3P%         float64
2P          float64
2PA         float64
2P%         float64
eFG%        float64
FT          float64
FTA         float64
FT%         float64
ORB         float64
DRB         float64
TRB         float64
AST         float64
STL         float64
BLK         float64
TOV         float64
PF          float64
PTS         float64
Year          int64
Pts Won     float64
Pts Max     float64
Share       float64
W           float64
L           float64
W/L%        float64
GB           object
PS/G        float64
PA/G        float64
```

```
SRS        float64
dtype: object
```

In [258]:
```
stats['GB'] = stats['GB'].replace('—',0)
```

In [264]:
```
stats['GB'] = stats['GB'].fillna(method='backfill')
```

In [268]:
```
stats.dtypes
```

Out[268]:
```
Rk          float64
Player       object
Pos          object
Age         float64
Team         object
G           float64
GS          float64
MP          float64
FG          float64
FGA         float64
FG%         float64
3P          float64
3PA         float64
3P%         float64
2P          float64
2PA         float64
2P%         float64
eFG%        float64
FT          float64
FTA         float64
FT%         float64
ORB         float64
DRB         float64
TRB         float64
AST         float64
STL         float64
BLK         float64
TOV         float64
PF          float64
PTS         float64
Year          int64
Pts Won     float64
Pts Max     float64
Share       float64
W           float64
L           float64
W/L%        float64
GB          float64
PS/G        float64
PA/G        float64
```

```
SRS         float64
dtype: object
```

In [281]:
```
stats.dropna(axis=0)
```

Out[281]:

	Rk	Player	Pos	Age	Team	G	GS	MP	FG	FGA	...	Pts Won	Pts Max	Share	W	L	W/L%	GB	PS/G	PA/G	S
0	135.0	A.C. Green	PF	27.0	LAL	82.0	21.0	26.4	3.1	6.6	...	0.0	0.0	0.000	58.0	24.0	0.707	5.0	106.3	99.6	6
1	301.0	Byron Scott	SG	29.0	LAL	82.0	82.0	32.1	6.1	12.8	...	0.0	0.0	0.000	58.0	24.0	0.707	5.0	106.3	99.6	6
4	384.0	James Worthy	SF	29.0	LAL	78.0	74.0	38.6	9.2	18.7	...	0.0	0.0	0.000	58.0	24.0	0.707	5.0	106.3	99.6	6
5	89.0	Larry Drew	PG	32.0	LAL	48.0	2.0	10.3	1.1	2.6	...	0.0	0.0	0.000	58.0	24.0	0.707	5.0	106.3	99.6	6
6	171.0	Magic Johnson	PG	31.0	LAL	79.0	79.0	37.1	5.9	12.4	...	497.0	960.0	0.518	58.0	24.0	0.707	5.0	106.3	99.6	6
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
16389	330.0	Jordan McLaughlin	PG	23.0	MIN	30.0	2.0	19.7	2.9	5.9	...	0.0	0.0	0.000	19.0	45.0	0.297	22.5	113.3	117.5	-4
16390	381.0	Josh Okogie	SG	21.0	MIN	62.0	28.0	25.0	2.7	6.4	...	0.0	0.0	0.000	19.0	45.0	0.297	22.5	113.3	117.5	-4
16391	477.0	Karl-Anthony Towns	C	24.0	MIN	35.0	35.0	33.9	9.0	17.8	...	0.0	0.0	0.000	19.0	45.0	0.297	22.5	113.3	117.5	-4
16392	317.0	Kelan Martin	SF	24.0	MIN	31.0	4.0	16.0	2.3	5.8	...	0.0	0.0	0.000	19.0	45.0	0.297	22.5	113.3	117.5	-4
16393	420.0	Naz Reid	C	20.0	MIN	30.0	11.0	16.5	3.3	8.1	...	0.0	0.0	0.000	19.0	45.0	0.297	22.5	113.3	117.5	-4

7613 rows × 41 columns

In [287]:
```
stats = stats.drop(stats[stats['Rk'].isna()].index)
```

In [288]:
```
stats.to_csv('player_mvp_stats.csv')
```

In [289]:
```
#EDA
```

- who score the most in the whole dataset?

In [298]:
```
stats.dtypes
```

Out[298]:
```
Rk          float64
Player       object
Pos          object
Age         float64
Team         object
G           float64
GS          float64
MP          float64
FG          float64
FGA         float64
FG%         float64
3P          float64
3PA         float64
3P%         float64
2P          float64
2PA         float64
2P%         float64
eFG%        float64
FT          float64
FTA         float64
FT%         float64
ORB         float64
DRB         float64
TRB         float64
AST         float64
STL         float64
BLK         float64
TOV         float64
PF          float64
PTS         float64
Year          int64
Pts Won     float64
Pts Max     float64
Share       float64
W           float64
L           float64
W/L%        float64
GB          float64
PS/G        float64
PA/G        float64
```

```
SRS         float64
dtype: object
```

In [311]:
```
stats
```

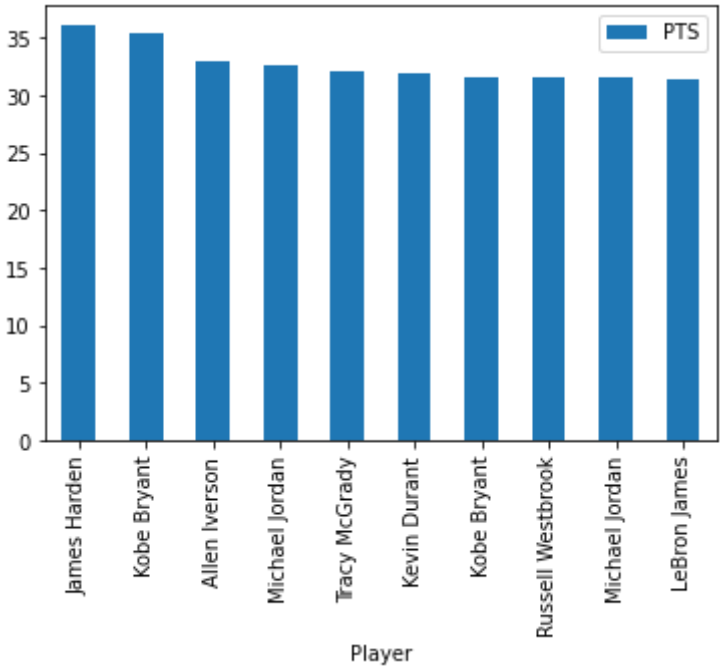
Out[311]:

	Rk	Player	Pos	Age	Team	G	GS	MP	FG	FGA	...	Pts Won	Pts Max	Share	W	L	W/L%	GB	PS/G	PA/G	SR
0	135.0	A.C. Green	PF	27.0	LAL	82.0	21.0	26.4	3.1	6.6	...	0.0	0.0	0.0	58.0	24.0	0.707	5.0	106.3	99.6	6.7
1	301.0	Byron Scott	SG	29.0	LAL	82.0	82.0	32.1	6.1	12.8	...	0.0	0.0	0.0	58.0	24.0	0.707	5.0	106.3	99.6	6.7
2	51.0	Elden Campbell	PF	22.0	LAL	52.0	0.0	7.3	1.1	2.4	...	0.0	0.0	0.0	58.0	24.0	0.707	5.0	106.3	99.6	6.7
3	330.0	Irving Thomas	PF	25.0	LAL	26.0	0.0	4.2	0.7	1.9	...	0.0	0.0	0.0	58.0	24.0	0.707	5.0	106.3	99.6	6.7
4	384.0	James Worthy	SF	29.0	LAL	78.0	74.0	38.6	9.2	18.7	...	0.0	0.0	0.0	58.0	24.0	0.707	5.0	106.3	99.6	6.7
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	.
16389	330.0	Jordan McLaughlin	PG	23.0	MIN	30.0	2.0	19.7	2.9	5.9	...	0.0	0.0	0.0	19.0	45.0	0.297	22.5	113.3	117.5	-4.0
16390	381.0	Josh Okogie	SG	21.0	MIN	62.0	28.0	25.0	2.7	6.4	...	0.0	0.0	0.0	19.0	45.0	0.297	22.5	113.3	117.5	-4.0
16391	477.0	Karl-Anthony Towns	C	24.0	MIN	35.0	35.0	33.9	9.0	17.8	...	0.0	0.0	0.0	19.0	45.0	0.297	22.5	113.3	117.5	-4.0
16392	317.0	Kelan Martin	SF	24.0	MIN	31.0	4.0	16.0	2.3	5.8	...	0.0	0.0	0.0	19.0	45.0	0.297	22.5	113.3	117.5	-4.0
16393	420.0	Naz Reid	C	20.0	MIN	30.0	11.0	16.5	3.3	8.1	...	0.0	0.0	0.0	19.0	45.0	0.297	22.5	113.3	117.5	-4.0

16394 rows × 41 columns

In [332]:
```
stats.query('G > 70.0').sort_values("PTS",ascending=False).head(10)[['Player','PTS']].set_index('Player'
#stats['PTS'].nlargest(1)
```

Out[332]: <AxesSubplot:xlabel='Player'>



In [337]:
```
# who score the highest year in each year
stats.groupby(by='Year').apply(lambda x:x.sort_values("PTS",ascending=False)).head(10)
```

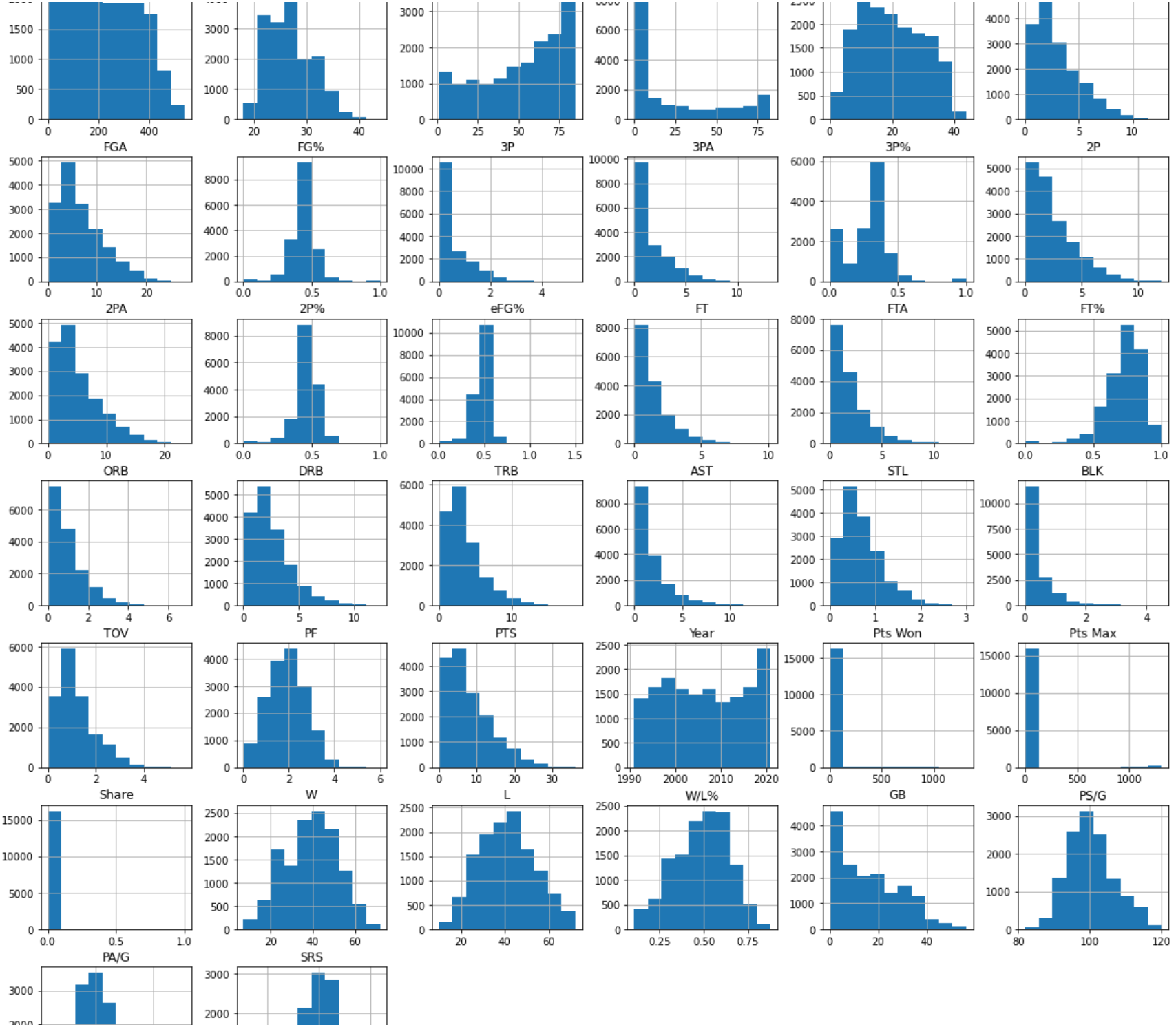
Out[337]:

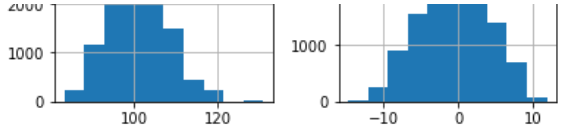
		Rk	Player	Pos	Age	Team	G	GS	MP	FG	FGA	...	Pts Won	Pts Max	Share	W	L	W/L%	GB	PS/G	P/
Year																					
1991	**12034**	175.0	Michael Jordan	SG	27.0	CHI	82.0	82.0	37.0	12.1	22.4	...	891.0	960.0	0.928	61.0	21.0	0.744	0.0	110.0	1(
	8936	212.0	Karl Malone	PF	27.0	UTA	82.0	82.0	40.3	10.3	19.6	...	142.0	960.0	0.148	54.0	28.0	0.659	1.0	104.0	1(
	469	182.0	Bernard King	SF	34.0	WSB	64.0	64.0	37.5	11.1	23.6	...	7.0	960.0	0.007	NaN	NaN	NaN	37.0	NaN	N
	7889	21.0	Charles Barkley	SF	27.0	PHI	67.0	67.0	37.3	9.9	17.4	...	222.0	960.0	0.231	44.0	38.0	0.537	12.0	105.4	1(
	14253	107.0	Patrick Ewing	C	28.0	NYK	81.0	81.0	38.3	10.4	20.3	...	20.0	960.0	0.021	NaN	NaN	NaN	0.0	NaN	N
	9593	4.0	Michael Adams	PG	28.0	DEN	66.0	66.0	35.5	8.5	21.5	...	0.0	0.0	0.000	20.0	62.0	0.244	35.0	119.9	1(
	16227	361.0	Dominique Wilkins	SF	31.0	ATL	81.0	81.0	38.0	9.5	20.2	...	29.0	960.0	0.030	43.0	39.0	0.524	18.0	109.8	1(
	6143	237.0	Chris Mullin	SF	27.0	GSW	82.0	82.0	40.4	9.5	17.7	...	0.0	0.0	0.000	NaN	NaN	NaN	21.0	NaN	N
	15494	287.0	David Robinson	C	25.0	SAS	82.0	81.0	37.7	9.2	16.7	...	476.0	960.0	0.496	NaN	NaN	NaN	0.0	NaN	N
	9594	382.0	Orlando Woolridge	SF	31.0	DEN	53.0	50.0	34.4	9.2	18.5	...	0.0	0.0	0.000	20.0	62.0	0.244	35.0	119.9	1(

10 rows × 41 columns

In [357]:
```
stats.hist(figsize=(20,20))
```

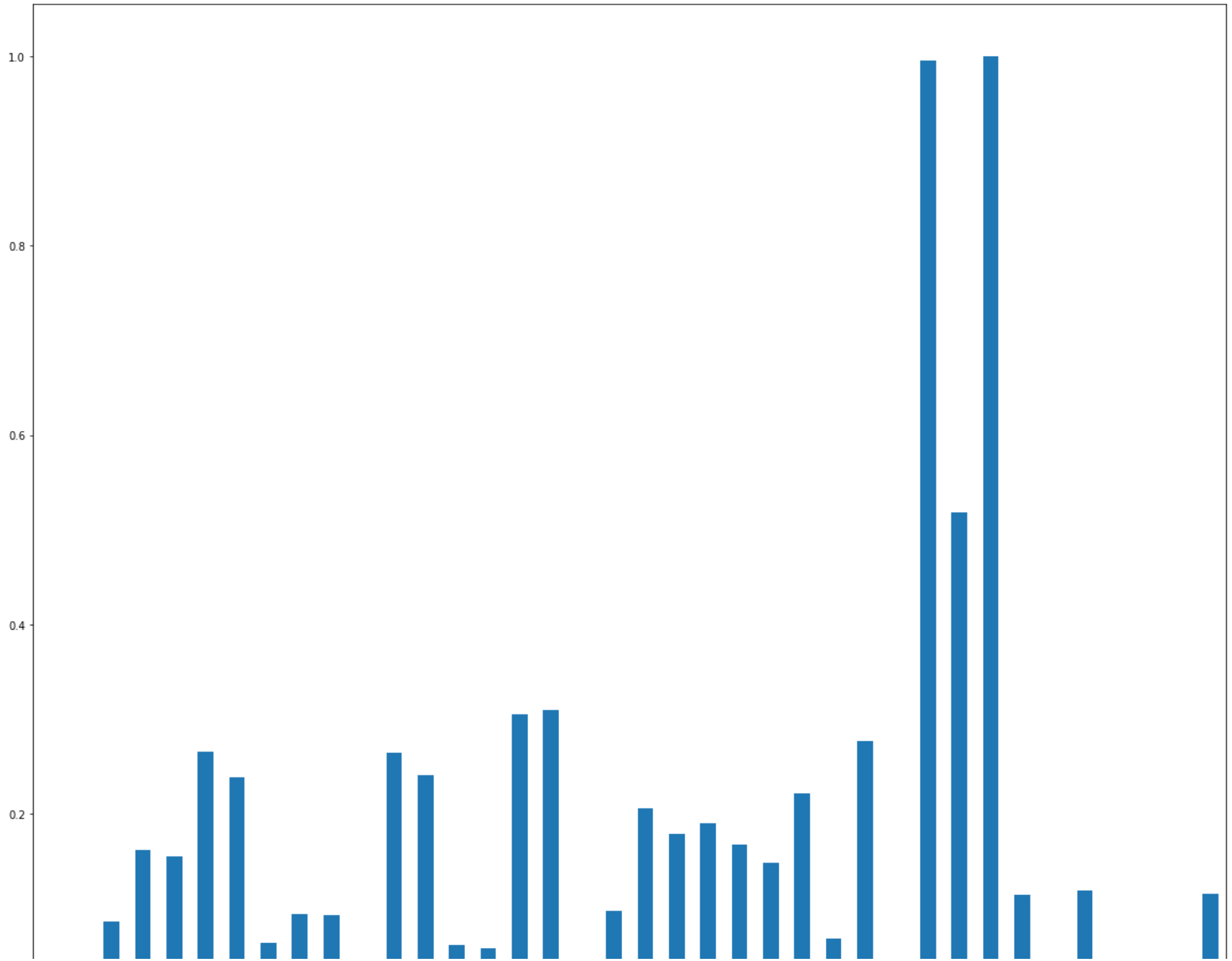
Out[357]:
```
array([[<AxesSubplot:title={'center':'Rk'}>,
        <AxesSubplot:title={'center':'Age'}>,
        <AxesSubplot:title={'center':'G'}>,
        <AxesSubplot:title={'center':'GS'}>,
        <AxesSubplot:title={'center':'MP'}>,
        <AxesSubplot:title={'center':'FG'}>],
       [<AxesSubplot:title={'center':'FGA'}>,
        <AxesSubplot:title={'center':'FG%'}>,
        <AxesSubplot:title={'center':'3P'}>,
        <AxesSubplot:title={'center':'3PA'}>,
        <AxesSubplot:title={'center':'3P%'}>,
        <AxesSubplot:title={'center':'2P'}>],
       [<AxesSubplot:title={'center':'2PA'}>,
        <AxesSubplot:title={'center':'2P%'}>,
        <AxesSubplot:title={'center':'eFG%'}>,
        <AxesSubplot:title={'center':'FT'}>,
        <AxesSubplot:title={'center':'FTA'}>,
        <AxesSubplot:title={'center':'FT%'}>],
       [<AxesSubplot:title={'center':'ORB'}>,
        <AxesSubplot:title={'center':'DRB'}>,
        <AxesSubplot:title={'center':'TRB'}>,
        <AxesSubplot:title={'center':'AST'}>,
        <AxesSubplot:title={'center':'STL'}>,
        <AxesSubplot:title={'center':'BLK'}>],
       [<AxesSubplot:title={'center':'TOV'}>,
        <AxesSubplot:title={'center':'PF'}>,
        <AxesSubplot:title={'center':'PTS'}>,
        <AxesSubplot:title={'center':'Year'}>,
        <AxesSubplot:title={'center':'Pts Won'}>,
        <AxesSubplot:title={'center':'Pts Max'}>],
       [<AxesSubplot:title={'center':'Share'}>,
        <AxesSubplot:title={'center':'W'}>,
        <AxesSubplot:title={'center':'L'}>,
        <AxesSubplot:title={'center':'W/L%'}>,
        <AxesSubplot:title={'center':'GB'}>,
        <AxesSubplot:title={'center':'PS/G'}>],
       [<AxesSubplot:title={'center':'PA/G'}>,
        <AxesSubplot:title={'center':'SRS'}>, <AxesSubplot:>,
        <AxesSubplot:>, <AxesSubplot:>, <AxesSubplot:>]], dtype=object)
```

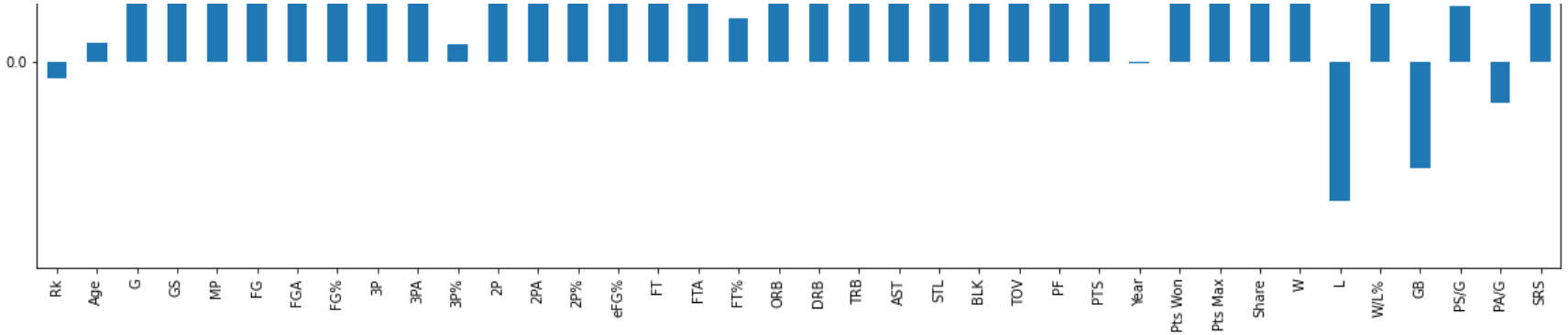

FGA
FG%
3P
3PA
3P%
2P
2PA
2P%
eFG%
FT
FTA
FT%
ORB
DRB
TRB
AST
STL
BLK
TOV
PF
PTS
Year
Pts Won
Pts Max
Share
W
L
W/L%
GB
PS/G
PA/G
SRS


2000
1000
0
100
120
1000
0
−10
0
10

In [360]:
```
stats.corr()['Share'].plot.bar(figsize=(20,20))
```

Out[360]: <AxesSubplot:>




0.0
Rk
Age
G
GS
MP
FG
FGA
FG%
3P
3PA
3P%
2P
2PA
2P%
eFG%
FT
FTA
FT%
ORB
DRB
TRB
AST
STL
BLK
TOV
PF
PTS
Year
Pts Won
Pts Max
Share
W
L
W/L%
GB
PS/G
PA/G
SRS

In [ ]: