```
fpat = '/content/Valve_Player_Data.csv'

import pandas as p
import numpy as n
```

```
steem = p.read_csv(fpat)
steem
```

	Month_Year	Avg_players	Gain	Percent_Gain	Peak_Players	URL	Date	Game_Name
0	September 2021	512350.92	268.96	+0.05%	942519	https://steamcharts.com/app/730	2021-09-01	Counter Strike: Global Offensive
1	August 2021	512081.96	6014.60	+1.19%	802544	https://steamcharts.com/app/730	2021-08-01	Counter Strike: Global Offensive
2	July 2021	506067.36	-43279.72	-7.88%	763523	https://steamcharts.com/app/730	2021-07-01	Counter Strike: Global Offensive
3	June 2021	549347.08	-110541.81	-16.75%	929940	https://steamcharts.com/app/730	2021-06-01	Counter Strike: Global Offensive
4	May 2021	659888.89	-63457.63	-8.77%	1087197	https://steamcharts.com/app/730	2021-05-01	Counter Strike: Global Offensive
...	...	...	...	...	...	...	...	...
5266	December 2016	192.03	-21.90	-10.24%	405	https://steamcharts.com/app/435150	2016-12-01	Divinity: Original Sin 2
5267	November 2016	213.92	-134.68	-38.63%	537	https://steamcharts.com/app/435150	2016-11-01	Divinity: Original Sin 2
5268	October 2016	348.60	-201.75	-36.66%	1031	https://steamcharts.com/app/435150	2016-10-01	Divinity: Original Sin 2
5269	September 2016	550.36	543.26	+7654.89%	2836	https://steamcharts.com/app/435150	2016-09-01	Divinity: Original Sin 2
5270	August 2016	7.10	NaN	NaN	18	https://steamcharts.com/app/435150	2016-08-01	Divinity: Original Sin 2

5271 rows × 8 columns

```
'''remove the null values in my dataset
   (usually the first days of a game)'''

clsteem = steem.dropna()
clsteem
```

	Month_Year	Avg_players	Gain	Percent_Gain	Peak_Players	URL	Date	Game_Name
0	September 2021	512350.92	268.96	+0.05%	942519	https://steamcharts.com/app/730	2021-09-01	Counter Strike: Global Offensive
1	August 2021	512081.96	6014.60	+1.19%	802544	https://steamcharts.com/app/730	2021-08-01	Counter Strike: Global Offensive
2	July 2021	506067.36	-43279.72	-7.88%	763523	https://steamcharts.com/app/730	2021-07-01	Counter Strike: Global Offensive
3	June 2021	549347.08	-110541.81	-16.75%	929940	https://steamcharts.com/app/730	2021-06-01	Counter Strike: Global Offensive
4	May 2021	659888.89	-63457.63	-8.77%	1087197	https://steamcharts.com/app/730	2021-05-01	Counter Strike: Global Offensive
...	...	...	...	...	...	...	...	...
5265	January 2017	206.26	14.23	+7.41%	429	https://steamcharts.com/app/435150	2017-01-01	Divinity: Original Sin 2
5266	December 2016	192.03	-21.90	-10.24%	405	https://steamcharts.com/app/435150	2016-12-01	Divinity: Original Sin 2
5267	November 2016	213.92	-134.68	-38.63%	537	https://steamcharts.com/app/435150	2016-11-01	Divinity: Original Sin 2
5268	October 2016	348.60	-201.75	-36.66%	1031	https://steamcharts.com/app/435150	2016-10-01	Divinity: Original Sin 2
5269	September 2016	550.36	543.26	+7654.89%	2836	https://steamcharts.com/app/435150	2016-09-01	Divinity: Original Sin 2

5173 rows × 8 columns

```
'''Total number of players (playing the top 100 games on Steam)'''

tps = n.sum(clsteem['Peak_Players'])
print('the total concurrent players playing the top 100 games in steam are: ',tps, 'players\n')
mnstm = n.mean(clsteem['Avg_players'])
print('the total average players playing from 2016 -2021: ',round(mnstm, 2), 'players\n')


'''Date with the highest players'''

print("Date and Game with the highest players:")

# Find the index of the row with the highest peak players
mxpidx = clsteem['Peak_Players'].idxmax()
mxp = clsteem.iloc[[mxpidx]]
mxp
```

```
the total concurrent players playing the top 100 games in steam are:  365088624 players

the total average players playing from 2016 -2021:  37825.4 players

Date and Game with the highest players:
```

	Month_Year	Avg_players	Gain	Percent_Gain	Peak_Players	URL	Date	Game_Name
268	November 2017	1334170.09	247531.23	+22.78%	2915723	https://steamcharts.com/app/578080	2017-11-01	PUBG: Battlegrounds

```
'''analyze player growth'''

pgd = clsteem['Avg_players'].diff()
print("Monthly player change:\n", pgd)
```

```
Monthly player change:
 0           NaN
1         -268.96
2        -6014.60
3        43279.72
4       110541.81
          ...
5265       -36.43
5266       -14.23
5267        21.89
5268       134.68
5269       201.76
Name: Avg_players, Length: 5173, dtype: float64
```

```
'''Selected game's player data statistics'''
# For CSGO

csgo = p.DataFrame(clsteem)
csgo = clsteem[clsteem['Game_Name'] == 'Counter Strike: Global Offensive'].copy()
csgo.drop(['URL'], axis = 1, inplace = True)
csgo
```

	Month_Year	Avg_players	Gain	Percent_Gain	Peak_Players	Date	Game_Name
0	September 2021	512350.92	268.96	+0.05%	942519	2021-09-01	Counter Strike: Global Offensive
1	August 2021	512081.96	6014.60	+1.19%	802544	2021-08-01	Counter Strike: Global Offensive
2	July 2021	506067.36	-43279.72	-7.88%	763523	2021-07-01	Counter Strike: Global Offensive
3	June 2021	549347.08	-110541.81	-16.75%	929940	2021-06-01	Counter Strike: Global Offensive
4	May 2021	659888.89	-63457.63	-8.77%	1087197	2021-05-01	Counter Strike: Global Offensive
...	...	...	...	...	...	...	...
105	December 2012	14079.39	-54.71	-0.39%	27553	2012-12-01	Counter Strike: Global Offensive
106	November 2012	14134.10	3394.62	+31.61%	50533	2012-11-01	Counter Strike: Global Offensive
107	October 2012	10739.48	-5261.27	-32.88%	20850	2012-10-01	Counter Strike: Global Offensive
108	September 2012	16000.75	525.36	+3.39%	36057	2012-09-01	Counter Strike: Global Offensive
109	August 2012	15475.39	14542.81	+1559.43%	52261	2012-08-01	Counter Strike: Global Offensive

110 rows × 7 columns

```
# CSGO

'''get the total players of the game based on peak pllayers'''
csgotot = n.sum(csgo['Peak_Players'])
print('Total players of CS:GO in Steam from 2012 - 2021: ',csgotot, 'players\n')

'''mean of players of the game'''
```

```
'''Selected game's player data statistics'''
# For Grand theft Auto V

gtav = p.DataFrame(clsteem)
gtav = clsteem[clsteem['Game_Name'] == 'Grand Theft Auto V'].copy()
gtav.drop(['URL'], axis = 1, inplace = True)
gtav
```

	Month_Year	Avg_players	Gain	Percent_Gain	Peak_Players	Date	Game_Name
399	September 2021	81232.20	-37668.37	-31.68%	151408	2021-09-01	Grand Theft Auto V
400	August 2021	118900.57	5905.15	+5.23%	214591	2021-08-01	Grand Theft Auto V
401	July 2021	112995.42	24080.02	+27.08%	218784	2021-07-01	Grand Theft Auto V
402	June 2021	88915.40	4158.64	+4.91%	155599	2021-06-01	Grand Theft Auto V
403	May 2021	84756.76	-7891.05	-8.52%	146011	2021-05-01	Grand Theft Auto V
...	...	...	...	...	...	...	...
471	September 2015	25387.81	-5530.26	-17.89%	46917	2015-09-01	Grand Theft Auto V
472	August 2015	30918.06	-6739.01	-17.90%	50693	2015-08-01	Grand Theft Auto V
473	July 2015	37657.07	-9296.17	-19.80%	60908	2015-07-01	Grand Theft Auto V
474	June 2015	46953.24	-46408.38	-49.71%	85195	2015-06-01	Grand Theft Auto V
475	May 2015	93361.62	-99352.39	-51.55%	215966	2015-05-01	Grand Theft Auto V

77 rows × 7 columns

```
# GTA V

'''get the total players of the game based on peak pllayers'''
gtatot = n.sum(gtav['Peak_Players'])
print('Total players of GTA V in Steam from 2015 - 2021: ',gtatot, 'players\n')

'''mean of players of the game'''
gtamn = n.mean(gtav['Avg_players'])
print('Total average of GTA V players: ',round(gtamn, 2), 'players')

'''lowest average players of the game'''
gtamin = n.min(gtav['Avg_players'])
print('Lowest players of GTA V: ',gtamin, 'players')

'''highest peak players of the game'''
hpgtav = n.max(gtav['Peak_Players'])
print('The highest peak players of GTA V: ',hpgtav, 'players')
```

```
Total players of GTA V in Steam from 2015 - 2021:  9793756 players

Total average of GTA V players:  65219.18 players
Lowest players of GTA V:  25230.19 players
The highest peak players of GTA V:  267360 players
```

```
'''Selected game's player data statistics'''
# For Apex Legends

al = p.DataFrame(clsteem)
al = clsteem[clsteem['Game_Name'] == 'Apex Legends'].copy()
al.drop(['URL'], axis = 1, inplace = True)
al
```

	Month_Year	Avg_players	Gain	Percent_Gain	Peak_Players	Date	Game_Name
277	September 2021	139647.96	-29880.22	-17.63%	273617	2021-09-01	Apex Legends
278	August 2021	169528.17	38377.10	+29.26%	330476	2021-08-01	Apex Legends
279	July 2021	131151.07	-5288.83	-3.88%	262129	2021-07-01	Apex Legends
280	June 2021	136439.90	-27798.11	-16.93%	266591	2021-06-01	Apex Legends
281	May 2021	164238.01	39332.88	+31.49%	330879	2021-05-01	Apex Legends
282	April 2021	124905.13	-1215.93	-0.96%	217728	2021-04-01	Apex Legends
283	March 2021	126121.06	5138.42	+4.25%	228439	2021-03-01	Apex Legends
284	February 2021	120982.64	49215.90	+68.58%	196799	2021-02-01	Apex Legends
285	January 2021	71766.74	7296.99	+11.32%	129928	2021-01-01	Apex Legends
286	December 2020	64469.75	-10487.50	-13.99%	112076	2020-12-01	Apex Legends

```
# Apex Legends

'''get the total players of the game based on peak pllayers'''
altot = n.sum(al['Peak_Players'])
print('Total players of Apex Legends in Steam from 2020-2021: ',altot, 'players\n')

'''mean of players of the game'''
almn = n.mean(al['Avg_players'])
print('Total average of Apex Legends players: ',round(almn, 2), 'players')

'''lowest average players of the game'''
almin = n.min(al['Avg_players'])
print('Lowest players of Apex Legends: ',almin, 'players')

'''highest peak players of the game'''
hpal = n.max(al['Peak_Players'])
print('The highest peak players of Apex Legends: ',hpal, 'players')
```

```
Total players of Apex Legends in Steam from 2020-2021:  2348662 players

Total average of Apex Legends players:  124925.04 players
Lowest players of Apex Legends:  64469.75 players
The highest peak players of Apex Legends:  330879 players
```