```
import pandas as pd
df=pd.read_csv("C:/Users/student/Documents/atharva/archive/batterStats
.csv")
df
```

```
          player_name      role   total_runs   strike_rate
total_balls_faced  \
0                V Kohli   Batter       13784     91.703812
15031
1         KC Sangakkara   Batter       11618     79.390461
14634
2             RG Sharma   Batter       10646     90.358173
11782
3               MS Dhoni   Batter       10274     84.979322
12090
4         AB de Villiers   Batter        9435     99.441400
9488
...                 ...      ...         ...           ...
...
1535          C Sakariya   Batter           0      0.000000
1
1536    Shahriar Hossain   Batter           0      0.000000
3
1537         Salman Faris   Batter           0      0.000000
2
1538    Haseebullah Khan   Batter           0      0.000000
2
1539    Syeda Aroob Shah   Batter           0      0.000000
1

       total_wickets_taken   total_runs_conceded   total_overs_bowled  \
0                        7                   681                   671
1                        0                     0                     0
2                       11                   538                   614
3                        1                    32                    38
4                        7                   205                   201
...                    ...                   ...                   ...
1535                     2                    34                    51
1536                     0                     0                     0
1537                     0                     0                     0
1538                     0                     0                     0
1539                     0                     0                     0

       total_matches_played   matches_played_as_batter  \
0                       579                        579
1                       510                        510
2                       577                        577
3                       575                        575
4                       466                        466
...                     ...                        ...
```

```
1535                        75                          75
1536                        40                          40
1537                         8                           8
1538                        12                          12
1539                         5                           5

       matches_played_as_bowler  matches_won  matches_lost  \
0                             0          360           219
1                             0          237           273
2                             0          358           219
3                             0          356           219
4                             0          286           180
...                         ...          ...           ...
1535                          0           41            34
1536                          0           11            29
1537                          0            3             5
1538                          0            6             6
1539                          0            4             1

       player_of_match_awards                  team      average
0                          41                 India  1969.142857
1                          26             Sri Lanka          NaN
2                          23                 India   967.818182
3                          20                 India 10274.000000
4                          26          South Africa  1347.857143
...                       ...                   ...          ...
1535                        0                 India     0.000000
1536                        0            Bangladesh          NaN
1537                        0  United Arab Emirates          NaN
1538                        0              Pakistan          NaN
1539                        0              Pakistan          NaN

[1540 rows x 16 columns]
```

```
q1=df.strike_rate.quantile(0.25)
q3=df.strike_rate.quantile(0.75)
q1,q3
```

```
(50.0, 81.44300180655873)
```

```
IQR=q3-q1
IQR
```

```
31.443001806558726
```

```
lowerLimit=q1-1.5*IQR
upperLimit=q3+1.5*IQR
lowerLimit,upperLimit
```

```
(2.8354972901619107, 128.60750451639683)
```

```
df[(df.strike_rate<lowerLimit)|(df.strike_rate>upperLimit)]
```

	player_name	role	total_runs	strike_rate	total_balls_faced
902	J Fraser-McGurk	Batter	87	147.457627	59
1031	Mohammad Hasnain	Batter	53	155.882353	34
1062	AE Smith	Batter	45	150.000000	30
1126	J Overton	Batter	32	145.454545	22
1141	PJC Hoffmann	Batter	30	130.434783	23
1189	J Louw	Batter	23	328.571429	7
1198	RL Bhudia	Batter	22	146.666667	15
1229	Tanvir Ahmed	Batter	18	150.000000	12
1262	SE Aley	Batter	15	187.500000	8
1263	IECM Wong	Batter	15	166.666667	9
1277	G Chapple	Batter	14	200.000000	7
1299	TW Hartley	Batter	12	133.333333	9
1309	SC Kuggeleijn	Batter	11	183.333333	6
1359	SKW Kelly	Batter	7	140.000000	5
1387	Joginder Sharma	Batter	5	250.000000	2
1388	RT Lyons	Batter	5	166.666667	3
1405	CK Hooper	Batter	4	133.333333	3
1497	SD Udal	Batter	0	0.000000	2
1498	RA Rolfe	Batter	0	0.000000	3
1499	PHT Kaushal	Batter	0	0.000000	1
1500	D Foxcroft	Batter	0	0.000000	1
1501	Fazle Mahmud	Batter	0	0.000000	9
1502	V Buruka	Batter	0	0.000000	8

1503 14	Fariha Trisna	Batter	0	0.000000
1504 6	R Walters	Batter	0	0.000000
1505 2	DL Blake	Batter	0	0.000000
1506 1	F Hand	Batter	0	0.000000
1507 9	JS Ababu	Batter	0	0.000000
1508 6	TJ Bishop	Batter	0	0.000000
1509 5	AG Puttick	Batter	0	0.000000
1510 3	VCE Wattenberg	Batter	0	0.000000
1511 17	LM Hoitink	Batter	0	0.000000
1512 2	K Phillip	Batter	0	0.000000
1513 7	MF Fahey	Batter	0	0.000000
1514 1	AL Watkins	Batter	0	0.000000
1515 11	SI Galagedara	Batter	0	0.000000
1516 1	OC McCoy	Batter	0	0.000000
1517 4	GA Guy	Batter	0	0.000000
1518 4	APS Lakshika	Batter	0	0.000000
1519 2	Melanie Ani	Batter	0	0.000000
1520 4	Shahbaz Ahmed	Batter	0	0.000000
1521 3	Raza Hasan	Batter	0	0.000000
1522 8	A Chopra	Batter	0	0.000000
1523 3	SK Naidu	Batter	0	0.000000
1524 2	JA Whelan	Batter	0	0.000000
1525 7	JC Carroll	Batter	0	0.000000
1526 4	Sumaiya Akter	Batter	0	0.000000
1527 4	KL Tucker	Batter	0	0.000000

```
1528        Pooja Ganesh   Batter              0     0.000000
9
1529          CK Holder    Batter              0     0.000000
3
1530           S Lackay    Batter              0     0.000000
2
1531      Sufiyan Muqeem   Batter              0     0.000000
1
1532      Simandeep Singh  Batter              0     0.000000
7
1533       Shathira Jakir  Batter              0     0.000000
2
1534       Sultana Yesmin  Batter              0     0.000000
1
1535          C Sakariya   Batter              0     0.000000
1
1536     Shahriar Hossain  Batter              0     0.000000
3
1537         Salman Faris  Batter              0     0.000000
2
1538     Haseebullah Khan  Batter              0     0.000000
2
1539     Syeda Aroob Shah  Batter              0     0.000000
1
```

	total_wickets_taken	total_runs_conceded	total_overs_bowled \
902	0	0	0
1031	20	705	695
1062	4	51	115
1126	1	17	26
1141	1	177	196
1189	0	50	44
1198	1	23	48
1229	1	45	37
1262	2	29	63
1263	4	122	118
1277	0	14	24
1299	0	48	60
1309	5	62	87
1359	2	74	84
1387	1	50	68
1388	1	41	62
1405	1	89	72
1497	1	29	42
1498	0	0	0
1499	0	25	36
1500	0	0	0
1501	0	16	20
1502	3	106	143
1503	6	144	208

1504	0	0	0
1505	0	8	6
1506	1	45	49
1507	1	75	81
1508	0	0	0
1509	0	0	0
1510	0	0	0
1511	0	0	0
1512	3	159	171
1513	0	0	0
1514	0	21	13
1515	0	0	0
1516	4	110	87
1517	0	20	19
1518	0	0	0
1519	0	0	0
1520	3	129	156
1521	2	68	62
1522	0	0	0
1523	0	22	18
1524	0	7	15
1525	0	0	0
1526	0	0	0
1527	0	0	0
1528	0	0	0
1529	0	26	20
1530	0	0	0
1531	4	53	49
1532	0	0	0
1533	0	22	19
1534	0	0	0
1535	2	34	51
1536	0	0	0
1537	0	0	0
1538	0	0	0
1539	0	0	0

	total_matches_played	matches_played_as_batter \
902	488	488
1031	461	461
1062	389	389
1126	495	495
1141	78	78
1189	459	459
1198	32	32
1229	411	411
1262	62	62
1263	428	428
1277	474	474
1299	283	283

1309	415	415
1359	5	5
1387	304	304
1388	27	27
1405	46	46
1497	503	503
1498	160	160
1499	486	486
1500	416	416
1501	319	319
1502	56	56
1503	314	314
1504	51	51
1505	58	58
1506	143	143
1507	35	35
1508	377	377
1509	406	406
1510	65	65
1511	65	65
1512	53	53
1513	329	329
1514	329	329
1515	340	340
1516	260	260
1517	270	270
1518	273	273
1519	33	33
1520	285	285
1521	199	199
1522	231	231
1523	231	231
1524	61	61
1525	61	61
1526	115	115
1527	2	2
1528	20	20
1529	79	79
1530	94	94
1531	68	68
1532	2	2
1533	46	46
1534	46	46
1535	75	75
1536	40	40
1537	8	8
1538	12	12
1539	5	5

      matches_played_as_bowler matches_won matches_lost \

902	0	340	148
1031	0	222	239
1062	0	238	151
1126	0	284	211
1141	0	43	35
1189	0	283	176
1198	0	11	21
1229	0	203	208
1262	0	41	21
1263	0	246	182
1277	0	272	202
1299	0	168	115
1309	0	218	197
1359	0	2	3
1387	0	174	130
1388	0	17	10
1405	0	15	31
1497	0	288	215
1498	0	56	104
1499	0	226	260
1500	0	219	197
1501	0	121	198
1502	0	10	46
1503	0	118	196
1504	0	24	27
1505	0	27	31
1506	0	50	93
1507	0	11	24
1508	0	147	230
1509	0	252	154
1510	0	21	44
1511	0	21	44
1512	0	24	29
1513	0	170	159
1514	0	170	159
1515	0	160	180
1516	0	102	158
1517	0	136	134
1518	0	128	145
1519	0	6	27
1520	0	162	123
1521	0	99	100
1522	0	133	98
1523	0	133	98
1524	0	20	41
1525	0	20	41
1526	0	38	77
1527	0	1	1
1528	0	11	9

1529	0	28	51
1530	0	59	35
1531	0	38	30
1532	0	0	2
1533	0	14	32
1534	0	14	32
1535	0	41	34
1536	0	11	29
1537	0	3	5
1538	0	6	6
1539	0	4	1

	player_of_match_awards	team	average
902	0	Australia	NaN
1031	0	Pakistan	2.65
1062	0	South Africa	11.25
1126	0	England	32.00
1141	0	Scotland	30.00
1189	0	South Africa	NaN
1198	0	Kenya	22.00
1229	0	Pakistan	18.00
1262	0	Australia	7.50
1263	0	England	3.75
1277	0	England	NaN
1299	0	England	NaN
1309	0	New Zealand	2.20
1359	0	Bermuda	3.50
1387	0	India	5.00
1388	0	Scotland	5.00
1405	0	Canada	4.00
1497	0	England	0.00
1498	0	Ireland	NaN
1499	0	Sri Lanka	NaN
1500	0	New Zealand	NaN
1501	0	Bangladesh	NaN
1502	0	Papua New Guinea	0.00
1503	0	Bangladesh	0.00
1504	0	Namibia	NaN
1505	0	United States of America	NaN
1506	0	Ireland	0.00
1507	0	Kenya	0.00
1508	0	West Indies	NaN
1509	0	South Africa	NaN
1510	0	Netherlands	NaN
1511	0	Netherlands	NaN
1512	0	United States of America	0.00
1513	0	New Zealand	NaN
1514	0	New Zealand	NaN
1515	0	Sri Lanka	NaN
1516	0	West Indies	0.00

```
1517                        0                      New Zealand        NaN
1518                        0                        Sri Lanka        NaN
1519                        0                Papua New Guinea        NaN
1520                        0                            India       0.00
1521                        0                         Pakistan       0.00
1522                        0                            India        NaN
1523                        0                            India        NaN
1524                        0                          Ireland        NaN
1525                        0                          Ireland        NaN
1526                        0                       Bangladesh        NaN
1527                        0                          Bermuda        NaN
1528                        0        United States of America        NaN
1529                        0                      West Indies        NaN
1530                        0                     South Africa        NaN
1531                        0                         Pakistan       0.00
1532                        0                        Hong Kong        NaN
1533                        0                       Bangladesh        NaN
1534                        0                       Bangladesh        NaN
1535                        0                            India       0.00
1536                        0                       Bangladesh        NaN
1537                        0            United Arab Emirates        NaN
1538                        0                         Pakistan        NaN
1539                        0                         Pakistan        NaN
```

df[(df.strike_rate>=lowerLimit)&(df.strike_rate<=upperLimit)]

```
              player_name      role   total_runs    strike_rate
total_balls_faced  \
0                 V Kohli    Batter        13784      91.703812
15031
1           KC Sangakkara    Batter        11618      79.390461
14634
2              RG Sharma    Batter        10646      90.358173
11782
3                MS Dhoni    Batter        10274      84.979322
12090
4          AB de Villiers    Batter         9435      99.441400
9488
...                  ...       ...          ...            ...
...
1492     Jannatul Ferdus    Batter            1       7.692308
13
1493  AD Janakanthymala    Batter            1       6.666667
15
1494           CM Beggs    Batter            1       6.250000
16
1495        Moniruzzaman    Batter            1       5.000000
20
1496          MT Herbert    Batter            1       4.545455
22
```

```
      total_wickets_taken  total_runs_conceded  total_overs_bowled  \
0                       7                  681                 671
1                       0                    0                   0
2                      11                  538                 614
3                       1                   32                  38
4                       7                  205                 201
...                   ...                  ...                 ...
1492                    0                    0                   0
1493                    2                   47                  67
1494                    0                    0                   0
1495                    0                    0                   0
1496                    0                   15                  18

      total_matches_played  matches_played_as_batter  \
0                      579                       579
1                      510                       510
2                      577                       577
3                      575                       575
4                      466                       466
...                    ...                       ...
1492                   162                       162
1493                   340                       340
1494                    61                        61
1495                   168                       168
1496                    61                        61

      matches_played_as_bowler  matches_won  matches_lost  \
0                            0          360           219
1                            0          237           273
2                            0          358           219
3                            0          356           219
4                            0          286           180
...                        ...          ...           ...
1492                         0           58           104
1493                         0          160           180
1494                         0           20            41
1495                         0           60           108
1496                         0           20            41

      player_of_match_awards          team       average
0                         41         India   1969.142857
1                         26     Sri Lanka           NaN
2                         23         India    967.818182
3                         20         India  10274.000000
4                         26  South Africa   1347.857143
...                      ...           ...           ...
1492                       0    Bangladesh           NaN
1493                       0     Sri Lanka      0.500000
1494                       0       Ireland           NaN
```

```
1495                              0      Bangladesh              NaN
1496                              0       Ireland               NaN

[1480 rows x 16 columns]

df.describe()

          total_runs    strike_rate   total_balls_faced
total_wickets_taken   \
count   1540.000000    1540.000000         1540.000000
1540.000000
mean      632.378571      65.528757          811.675325
10.916883
std      1319.024544      27.388033         1582.382450
27.927542
min         0.000000       0.000000            1.000000
0.000000
25%        28.000000      50.000000           54.000000
0.000000
50%       136.000000      66.793736          211.000000
0.000000
75%       586.000000      81.443002          770.000000
7.000000
max     13784.000000     328.571429        15031.000000
343.000000


        total_runs_conceded   total_overs_bowled
total_matches_played   \
count          1540.000000         1540.000000          1540.000000

mean            338.899351          411.766883           289.495455

std             818.552241          994.989809           190.897887

min               0.000000            0.000000             1.000000

25%               0.000000            0.000000            79.000000

50%              22.500000           24.000000           329.000000

75%             240.750000          288.250000           463.000000

max            9518.000000        10803.000000           580.000000


        matches_played_as_batter   matches_played_as_bowler   matches_won
\
count               1540.000000                      1540.0   1540.000000

mean                 289.495455                         0.0    148.452597
```

	matches_lost	player_of_match_awards	average
std	190.897887	0.0	118.579297
min	1.000000	0.0	0.000000
25%	79.000000	0.0	30.750000
50%	329.000000	0.0	137.500000
75%	463.000000	0.0	236.000000
max	580.000000	0.0	381.000000

	matches_lost	player_of_match_awards	average
count	1540.000000	1540.000000	721.000000
mean	141.042857	1.231169	157.866862
std	85.976096	3.061393	597.090217
min	0.000000	0.000000	0.000000
25%	47.000000	0.000000	3.727273
50%	162.500000	0.000000	11.600000
75%	212.000000	1.000000	65.585366
max	275.000000	41.000000	10274.000000

```
df['zscore']=(df.strike_rate-df.strike_rate.mean())/
df.strike_rate.std()
df
```

	player_name	role	total_runs	strike_rate	total_balls_faced
0	V Kohli	Batter	13784	91.703812	15031
1	KC Sangakkara	Batter	11618	79.390461	14634
2	RG Sharma	Batter	10646	90.358173	11782
3	MS Dhoni	Batter	10274	84.979322	12090
4	AB de Villiers	Batter	9435	99.441400	9488
...	...	...	...	...	...
1535	C Sakariya	Batter	0	0.000000	1
1536	Shahriar Hossain	Batter	0	0.000000	3
1537	Salman Faris	Batter	0	0.000000	2
1538	Haseebullah Khan	Batter	0	0.000000	2
1539	Syeda Aroob Shah	Batter	0	0.000000	

```
1
```

	total_wickets_taken	total_runs_conceded	total_overs_bowled \
0	7	681	671
1	0	0	0
2	11	538	614
3	1	32	38
4	7	205	201
...	...	...	...
1535	2	34	51
1536	0	0	0
1537	0	0	0
1538	0	0	0
1539	0	0	0

	total_matches_played	matches_played_as_batter \
0	579	579
1	510	510
2	577	577
3	575	575
4	466	466
...	...	...
1535	75	75
1536	40	40
1537	8	8
1538	12	12
1539	5	5

	matches_played_as_bowler	matches_won	matches_lost \
0	0	360	219
1	0	237	273
2	0	358	219
3	0	356	219
4	0	286	180
...	...	...	...
1535	0	41	34
1536	0	11	29
1537	0	3	5
1538	0	6	6
1539	0	4	1

	player_of_match_awards	team	average	zscore
0	41	India	1969.142857	0.955711
1	26	Sri Lanka	NaN	0.506123
2	23	India	967.818182	0.906579
3	20	India	10274.000000	

```
0.710185
4                             26          South Africa   1347.857143
1.238228
...                          ...                   ...           ...
...
1535                          0                 India      0.000000 -
2.392605
1536                          0            Bangladesh           NaN -
2.392605
1537                          0   United Arab Emirates         NaN -
2.392605
1538                          0              Pakistan           NaN -
2.392605
1539                          0              Pakistan           NaN -
2.392605

[1540 rows x 17 columns]
```
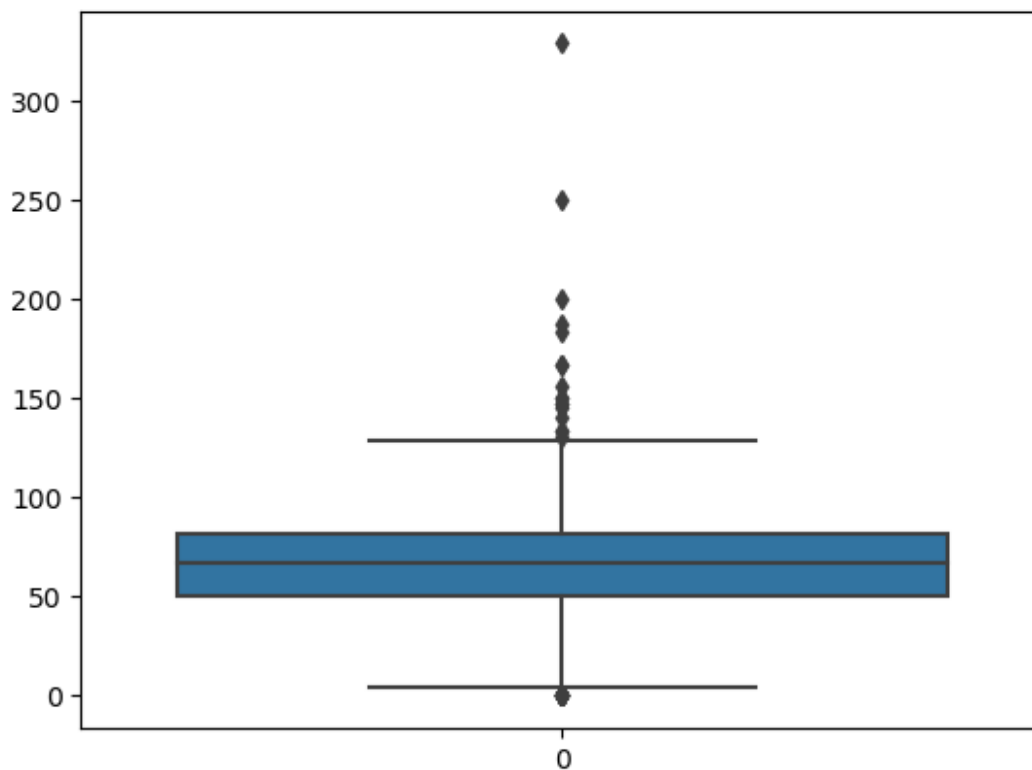
```python
import seaborn as sns
sns.boxplot(df["strike_rate"])
```

```
<Axes: >
```



```python
sns.scatterplot(df["strike_rate"])
```

<Axes: ylabel='strike_rate'>