

## Assignment no. 04

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Division: B    Batch: 4

Subject: Essentials of Data Science

# Source code:

```
#To display an read the csv file
import pandas as pd
arr=pd.read_csv('/content/t20.csv')
display(arr)

#To display the data types
arr.dtypes

#To display the players
arr['Player']

#To display the runs
arr['Runs']

#To display the maximum runs
arr['Runs'].max()

#To display the minimum runs
arr['Runs'].min()

#To display the high scores
arr['HS']

#To convert object data types to numeric datatypes
arr['HS']=pd.to_numeric(arr['HS'],errors='coerce')
```

```
#To display the max high score
arr1=pd.DataFrame(arr)
max=arr1.nlargest(1,'HS')
print(max)

#To display the number of players having runs between 1000 and 2000
arr.loc[(arr['Runs']>1000)&(arr['Runs']<2000)]

#To display the number of players having sixes between 100 and 200
arr.loc[(arr['6s']>100)&(arr['6s']<200)]

arr['Ave']=pd.to_numeric(arr['Ave'],errors='coerce')
#To display the number of players having average between 30 and 99
arr.loc[(arr['Ave']>30)&(arr['Ave']<99)]

#To display the number of players having matches played between 55 and 200
arr.loc[(arr['Mat']>55)&(arr['Mat']<200)]

#To display the player and their runs details
arr[['Player','Runs']]

#To display the shape of the csv file
arr.shape

#To display the length of csv file
print('The number of players are:',len(arr))

#To display the number of rows in a csv file
row_count=arr.shape[0]
print('The number of rows are:',row_count)

#To display first 5 rows of a csv file
arr.head(5)

#To display last 5 rows of a csv file
arr.tail(5)
```

```
#To display the top 5 high scores scored by players
top_5=arr['HS'].nlargest(5)
print(top_5)

#To display the top 10 hundreds scored by players
top_10=arr['100'].nlargest(10)
print(top_10)

#To display the top 10 fifties scored by players
top_10=arr['50'].nlargest(10)
print(top_10)

#To display the top 15 fours scored by players
top_15=arr['4s'].nlargest(15)
print(top_15)

#To display the top 15 sixes scored by the players
top_15=arr['6s'].nlargest(15)
print(top_15)

arr['SR']=pd.to_numeric(arr['SR'],errors='coerce')
#To display the number of players having strike rate between 110 and 150
arr.loc[(arr['SR']>110)&(arr['SR']<150)]

#To display the aggregate of the csv file
arr.describe()
```

Output:

1]

Unnamed: 0		Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
0	0	V Kohli (INDIA)	2010-2019	75	70	20	2633	94*	52.66	1907	138.07	0	24	2	247	140	NaN
1	1	RG Sharma (INDIA)	2007-2019	104	96	14	2633	118	32.1	1905	138.21	4	19	6	234	120	NaN
2	2	MJ Guptill (NZ)	2009-2019	83	80	7	2436	105	33.36	1810	134.58	2	15	2	215	113	NaN
3	3	Shoaib Malik (ICC/PAK)	2006-2019	111	104	30	2263	75	30.58	1824	124.06	0	7	1	186	61	NaN
4	4	BB McCullum (NZ)	2005-2015	71	70	10	2140	123	35.66	1571	136.21	2	13	3	199	91	NaN
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1849	1849	H Ssenyondo (UGA)	2019-2019	4	1	1	0	0*	-	0	-	0	0	0	0	0	NaN
1850	1850	Tajjul Islam (BDESH)	2019-2019	2	1	1	0	0*	-	1	0	0	0	0	0	0	NaN
1851	1851	Ziaur Rehman (Fin)	2019-2019	1	1	0	0	0	0	4	0	0	0	1	0	0	NaN
1852	1852	M Zondeki (SA)	2006-2006	1	1	0	0	0	0	1	0	0	0	1	0	0	NaN
1853	1853	Zulqarnain Haider (ESP)	2019-2019	5	1	0	0	0	0	0	-	0	0	1	0	0	NaN

1854 rows x 17 columns

2]

```

Unnamed: 0      int64
Player          object
Span            object
Mat             int64
Inns            int64
NO              int64
Runs            int64
HS              object
Ave             object
BF             int64
SR              object
100             int64
50             int64
0              int64
4s             int64
6s             int64
Unnamed: 15     float64
dtype: object

```

3]

```

0          V Kohli (INDIA)
1          RG Sharma (INDIA)
2          MJ Guptill (NZ)
3          Shoaib Malik (ICC/PAK)
4          BB McCullum (NZ)
...
1849       H Ssenyondo (UGA)
1850       Taijul Islam (BDESH)
1851       Ziaur Rehman (Fin)
1852       M Zondeki (SA)
1853       Zulqarnain Haider (ESP)
Name: Player, Length: 1854, dtype: object

```

4]

```

0          2633
1          2633
2          2436
3          2263
4          2140
...
1849       0
1850       0
1851       0
1852       0
1853       0
Name: Runs, Length: 1854, dtype: int64

```

5] 2633

6] 0

```

7] 0 94* 1 118 2 105 3 75 4 123 ... 1849 0* 1850 0* 1851 0 1852 0 1853
0 Name: HS, Length: 1854, dtype: object

```

8]

```

      Unnamed: 0      Player      Span  Mat  Inns  NO  Runs   HS   Ave  \
12          12  AJ Finch (AUS) 2011-2019   58   58   9  1878  172.0  38.32

      BF      SR  100  50  0  4s  6s  Unnamed: 15
12  1200  156.5    2  11  4  182  90          NaN

```

9]

	Unna med: 0	Playe r	Sp an	M at	In ns	N O	R un s	H S	Av e	B F	SR	1 0 0	5 0	0	4 s	6 s	Unna med: 15
7	7	Moha mma d Shah zad (AFG)	20 10 - 20 18	6 5	6 5	3	19 36	Na N	31 .2 2	14 36	13 4.8 1	1	1 2	3	2 1 8	7 2	NaN
8	8	JP Dumi ny (SA)	20 07 - 20 19	8 1	7 5	2 5	19 34	Na N	38 .6 8	15 32	12 6.2 4	0	1 1	6	1 3 8	7 1	NaN
9	9	PR Stirlin g (IRE)	20 09 - 20 19	7 2	7 1	6	19 29	91 .0	29 .6 7	14 01	13 7.6 8	0	1 6	8	2 3 3	5 9	NaN
10	10	Moha mma d Hafee z (PAK)	20 06 - 20 18	8 9	8 6	8	19 08	86 .0	24 .4 6	16 43	11 6.1 2	0	1 0	6	1 9 6	5 1	NaN
11	11	TM Dilsh an (SL)	20 06 - 20 16	8 0	7 9	1 2	18 89	Na N	28 .1 9	15 67	12 0.5 4	1	1 3	1 0	2 2 3	3 3	NaN
12	12	AJ Finch (AUS)	20 11 - 20 19	5 8	5 8	9	18 78	17 2. 0	38 .3 2	12 00	15 6.5	2	1 1	4	1 8 2	9 0	NaN
13	13	LRPL Taylo r (NZ)	20 06 - 20 19	9 5	8 7	1 9	17 43	63 .0	25 .6 3	14 30	12 1.8 8	0	5	5	1 1 0	6 5	NaN
14	14	Umar Akma l (PAK)	20 09 - 20 19	8 4	7 9	1 4	16 90	94 .0	26	13 77	12 2.7 3	0	8	1 0	1 2 2	5 5	NaN

	Unna med: 0	Playe r	Sp an	M at	In ns	N O	R un s	H S	Av e	B F	SR	1 0 0	5 0	0	4 s	6 s	Unna med: 15
1 5	15	AB de Villier s (SA)	20 06 - 20 17	7 8	7 5	1 1	16 72	Na N	26 .1 2	12 37	13 5.1 6	0	1 0	5	1 4 0	6 0	NaN
1 6	16	H Masa kadza (ZIM)	20 06 - 20 19	6 6	6 6	2	16 62	Na N	25 .9 6	14 18	11 7.2	0	1 1	1	1 5 1	6 5	NaN
1 7	17	AD Hales (ENG )	20 11 - 20 19	6 0	6 0	7	16 44	Na N	31 .0 1	12 03	13 6.6 5	1	8	4	1 7 5	5 5	NaN
1 8	18	CH Gayle (WI)	20 06 - 20 19	5 8	5 4	4	16 27	11 7. 0	32 .5 4	11 39	14 2.8 4	2	1 3	3	1 3 8	1 0 5	NaN
1 9	19	MS Dhoni (INDI A)	20 06 - 20 19	9 8	8 5	4 2	16 17	56 .0	37 .6	12 82	12 6.1 3	0	2	1	1 1 6	5 2	NaN

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Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15	
0	0	V Kohli (INDIA)	2010-2019	75	70	20	2633	NaN	52.66	1907	138.07	0	24	2	247	140	NaN
1	1	RG Sharma (INDIA)	2007-2019	104	96	14	2633	118.0	32.1	1905	138.21	4	19	6	234	120	NaN
2	2	MJ Guptill (NZ)	2009-2019	83	80	7	2436	105.0	33.36	1810	134.58	2	15	2	215	113	NaN
18	18	CH Gayle (WI)	2006-2019	58	54	4	1627	117.0	32.54	1139	142.84	2	13	3	138	105	NaN

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	Unna med: 0	Playe r	Sp an	M at	In ns	N O	R un s	H S	Av e	B F	SR	1 0 0	5 0	0	4 s	6 s	Unna med: 15
0	0	V Kohli	20 10 -	7 5	7 0	2 0	26 33	Na N	52 .6 6	19 07	13 8.0 7	0	2 4	2	2 4 7	1 4 0	NaN

	Unna med: 0	Playe r	Sp an	M at	In ns	N O	R un s	H S	Av e	B F	SR	1 0 0	5 0	0	4 s	6 s	Unna med: 15
		(INDI A)	20 19														
1	1	RG Shar ma (INDI A)	20 07 - 20 19	1 0 4	9 6	1 4	26 33	11 8. 0	32 .1 0	19 05	13 8.2 1	4	1 9	6	2 3 4	1 2 0	NaN
2	2	MJ Gupti ll (NZ)	20 09 - 20 19	8 3	8 0	7	24 36	10 5. 0	33 .3 6	18 10	13 4.5 8	2	1 5	2	2 1 5	1 1 3	NaN
3	3	Shoa ib Malik (ICC/ PAK)	20 06 - 20 19	1 1 1	1 0 4	3 0	22 63	75 .0	30 .5 8	18 24	12 4.0 6	0	7	1	1 8 6	6 1	NaN
4	4	BB McC ullum (NZ)	20 05 - 20 15	7 1	7 0	1 0	21 40	12 3. 0	35 .6 6	15 71	13 6.2 1	2	1 3	3	1 9 9	9 1	NaN
...	...	...	...	...	...	.. .	...	...	...	...	...	.. .	.. .	. .	...	...	...
9 6 4	964	GO Jone s (ENG)	20 05 - 20 06	2	2	1	33	19 .0	33 .0 0	25	13 2	0	0	0	5	0	NaN
9 7 2	972	WPU JC Vaas (SL)	20 06 - 20 07	6	2	1	33	21 .0	33 .0 0	41	80. 48	0	0	0	1	0	NaN
9 7 5	975	KS Baga bena (Gha na)	20 19 - 20 19	4	3	2	32	NaN	32 .0 0	32	10 0	0	0	1	1	0	NaN
9 9 1	991	R Dravi d	20 11 -	1	1	0	31	31 .0	31 .0 0	21	14 7.6 1	0	0	0	0	3	NaN



	Unna med: 0	Playe r	Sp an	M at	In ns	N O	R un s	H S	Av e	B F	SR	1 0 0	5 0	0	4 s	6 s	Unna med: 15
		(INDI A)	20 11														
9 9 5	995	AS Meh mi ()	20 19 - 20 19	3	2	1	31	Na N	31 .0 0	29	10 6.8 9	0	0	0	2	1	NaN

171 rows x 17 columns

12]

Unn ame d: 0	Pla yer	Span	M at	In ns	N O	R un s	H S	Av e	B F	S R	100	5 0	0	4 s	6 s	Unn ame d: 15	
0	0	V Kohli (INDI A)	20 10 - 20 19	7 5	7 0	20	26 33	N a N	52 .6 6	19 07	13 8.0 7	0	2 4	2	2 4 7	140	N a N
1	1	RG Shar ma (INDI A)	20 07 - 20 19	1 0 4	9 6	14	26 33	11 8. 0	32 .1 0	19 05	13 8.2 1	4	1 9	6	2 3 4	120	N a N
2	2	MJ Gupt ill (NZ)	20 09 - 20 19	8 3	8 0	7	24 36	10 5. 0	33 .3 6	18 10	13 4.5 8	2	1 5	2	2 1 5	113	N a N
3	3	Shoa ib Malik (ICC/ PAK)	20 06 - 20 19	1 1 1	1 0 4	30	22 63	75 .0	30 .5 8	18 24	12 4.0 6	0	7	1	1 8 6	61	N a N
4	4	BB McC ullu m (NZ)	20 05 - 20 15	7 1	7 0	10	21 40	12 3. 0	35 .6 6	15 71	13 6.2 1	2	1 3	3	1 9 9	91	N a N

Unname d: 0	Pla yer	Span	M at	In ns	N O	R un s	H S	Av e	B F	S R	100	5 0	0	4 s	6 s	Unn ame d: 15
...	...	...	...	...	...	...	...	...	...	...	...	.	.	.	...	...
342	342	Sohail Tanvir (PAK)	2007-2017	57	25	8	196	41.0	115.2	164	119.51	0	0	2	16	9NaN
379	379	Umar Gul (PAK)	2007-2016	60	27	9	165	32.0	9.16	156	105.76	0	0	6	11	10NaN
446	446	SL Malinga (SL)	2006-2019	79	30	12	128	27.0	7.11	153	83.66	0	0	6	9	4NaN
476	476	SCJ Broad (ENG)	2006-2014	56	26	10	118	NaN	7.37	118	100	0	0	2	7	3NaN
579	579	Saeed Ajmal (PAK)	2009-2015	64	23	12	91	NaN	8.27	86	105.81	0	0	3	7	2NaN

64 rows x 17 columns

13]

Player		Runs
0	V Kohli (INDIA)	2633
1	RG Sharma (INDIA)	2633
2	MJ Guptill (NZ)	2436

Player		Runs
3	Shoaib Malik (ICC/PAK)	2263
4	BB McCullum (NZ)	2140
...	...	...
1849	H Ssenyondo (UGA)	0
1850	Taijul Islam (BDESH)	0
1851	Ziaur Rehman (Fin)	0
1852	M Zondeki (SA)	0
1853	Zulqarnain Haider (ESP)	0

1854 rows x 2 columns

14] (1854,17)

15] The number of players are: 1854

16] The number of rows are: 1854

17]

Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
0	V Kohli (INDIA)	2010-2019	75	70	20	2633	NaN	52.66	1907	138.07	0	24	2	247	140	NaN
1	RG Sharma (INDIA)	2007-2019	104	96	14	2633	118.0	32.10	1905	138.21	4	19	6	234	120	NaN
2	MJ Guptill (NZ)	2009-2019	83	80	7	2436	105.0	33.36	1810	134.58	2	15	2	215	113	NaN
3	Shoaib Malik (ICC/PAK)	2006-2019	111	104	30	2263	75.0	30.58	1824	124.06	0	7	1	186	61	NaN
4	BB McCullum (NZ)	2005-2015	71	70	10	2140	123.0	35.66	1571	136.21	2	13	3	199	91	NaN

18]

Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
1849	H Ssenyondo (UGA)	2019-2019	4	1	1	0	NaN	NaN	0	-	0	0	0	0	0	NaN
1850	Taijul Islam (BDESH)	2019-2019	2	1	1	0	NaN	NaN	1	0	0	0	0	0	0	NaN
1851	Ziaur Rehman (Fin)	2019-2019	1	1	0	0	0.0	0.0	4	0	0	0	1	0	0	NaN
1852	M Zondeki (SA)	2006-2006	1	1	0	0	0.0	0.0	1	0	0	0	1	0	0	NaN
1853	Zulqarnain Haider (ESP)	2019-2019	5	1	0	0	0.0	0.0	0	-	0	0	1	0	0	NaN

```
19] 12      172.0
```

```
28      124.0
```

4	123.0
---	-------

118	122.0
-----	-------

37	119.0
----	-------

```
Name: HS, dtype: float64
```

20] 

1	4
---	---

23 3

25 3

2	2
---	---

4	2
---	---

12 2

18 2

51	2
----	---

71	2
7	1

5	1
15	1

```
Name: 100, dtype: int64
```

21] 0 24

1 19

9	16
---	----

2	15
---	----

5	15
<hr/>	

4	13
11	12

11	13
12	14

18	13
7	12

7	12
3	13

34	12
----	----

```
Name: 50, dtype: int64
```

22]

[illegible]

	Un na me d: 0	Mat	Inn s	NO	Ru ns	HS	Ave	BF	100	50	0	4s	6s	Un na me d: 15
m e a n	926 .50 000 0	11. 981 661	8.8 818 77	1.9 029 13	144 .57 389 4	27. 414 286	15. 470 024	121 .68 608 4	0.0 296 66	0.5 711 97	0.8 166 13	12. 359 223	5.0 258 90	Na N
s t d	535 .34 801 8	15. 274 276	13. 162 506	3.0 282 47	305 .23 123 8	24. 693 593	12. 695 079	236 .10 749 8	0.2 196 11	1.7 982 58	1.2 925 22	28. 259 788	12. 312 112	Na N
m i n	0.0 000 00	1.0 000 00	1.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	Na N
2 5 %	463 .25 000 0	3.0 000 00	2.0 000 00	0.0 000 00	9.0 000 00	8.0 000 00	6.5 000 00	12. 000 000	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	0.0 000 00	Na N
5 0 %	926 .50 000 0	6.0 000 00	4.0 000 00	1.0 000 00	37. 000 000	20. 500 000	13. 320 000	39. 000 000	0.0 000 00	0.0 000 00	0.0 000 00	3.0 000 00	1.0 000 00	Na N
7 5 %	138 9.7 500 00	14. 000 000	10. 000 000	2.0 000 00	123 .00 000 0	40. 000 000	21. 310 000	112 .75 000 0	0.0 000 00	0.0 000 00	1.0 000 00	10. 000 000	4.0 000 00	Na N
m a x	185 3.0 000 00	111 .00 000 0	104 .00 000 0	42. 000 000	263 3.0 000 00	172 .00 000 0	126 .00 000 0	190 7.0 000 00	4.0 000 00	24. 000 000	10. 000 000	247 .00 000 0	140 .00 000 0	Na N

23]

Unn ame d: 0	Pla yer	Span	M at	In ns	N O	R un s	H S	Av e	B F	S R	100	5 0	0	4 s	6 s	Unn ame d: 15	
0	0	V Kohli (INDIA)	20 10 - 20 19	7 5	7 0	20	26 33	N a N	52 .6 6	19 07	13 8.0 7	0	2 4	2	2 4 7	140	N a N

Unn ame d: 0	Pla yer	Span	M at	In ns	N O	R un s	H S	Av e	B F	S R	100	5 0	0	4 s	6 s	Unn ame d: 15	
1	1	RG Shar ma (INDI A)	20 07 - 20 19	1 0 4	9 6	14	26 33	11 8. 0	32 .1 0	19 05	13 8.2 1	4	1 9	6	2 3 4	120	N a N
2	2	MJ Gupti ll (NZ)	20 09 - 20 19	8 3	8 0	7	24 36	10 5. 0	33 .3 6	18 10	13 4.5 8	2	1 5	2	2 1 5	113	N a N
3	3	Shoa ib Malik (ICC/ PAK)	20 06 - 20 19	1 1 1	1 0 4	30	22 63	75 .0	30 .5 8	18 24	12 4.0 6	0	7	1	1 8 6	61	N a N
4	4	BB McC ullum (NZ)	20 05 - 20 15	7 1	7 0	10	21 40	12 3. 0	35 .6 6	15 71	13 6.2 1	2	1 3	3	1 9 9	91	N a N
...	...	...	...	...	...	...	...	...	...	...	...	.	..	.	...	...	...
1530	15 30	N M'sh angw e (ZIM)	20 13 - 20 14	5	2	1	5	N a N	5. 00	4	12 5.0 0	0	0	1	1	0	N a N
1537	15 37	JE Pitch er (BMU DA)	20 19 - 20 19	3	1	1	5	N a N	N a N	4	12 5.0 0	0	0	0	0	0	N a N
1542	15 42	RJ Side botto m (ENG )	20 07 - 20 10	1 8	1	1	5	N a N	N a N	4	12 5.0 0	0	0	0	1	0	N a N
1563	15 63	K Gore (USA )	20 19 -	4	1	1	4	N a N	N a N	3	13 3.3 3	0	0	0	0	0	N a N

Unnamed: 0	Player	Span	Mat	Ins	NO	Runs	HS	Ave	B	S	100	50	4s	6s	Unnamed: 15
			2019												
1579	1579	Nazmus Sadt (BDESH)	2006-2006	1	1	0	4	4.0	4.00	3	133.33	0	0	0	0

577 rows × 17 columns

24] 0 140

1	120
2	113
18	105
25	100
6	96
4	91
12	90
5	86
31	83
23	81
38	78
45	74
33	73
7	72

Name: 6s, dtype: int64

25] 0 247

1	234
9	233
11	223
7	218
2	215
5	203
4	199
10	196
3	186
12	182
17	175
20	174
29	173
27	166

Name: 4s, dtype: int64