Assignment no. 1

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Division: B   Batch: 4

Subject: Essentials of Data Science

Source code:

```python
#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')
```

```python
#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)
```

```python
#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	Taijul 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 × 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]

	Unnamed: 0	Player	Span	Mat	Ins	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
7	7	Mohammad Shahzad (AFG)	2010-2018	65	65	3	1936	NaN	31.22	1436	134.81	1	12	3	218	72	NaN
8	8	JP Duminy (SA)	2007-2019	81	75	25	1934	NaN	38.68	1532	126.24	0	11	6	138	71	NaN
9	9	PR Stirling (IRE)	2009-2019	72	71	6	1929	91.0	29.67	1401	137.68	0	16	8	233	59	NaN
10	10	Mohammad Hafeez (PAK)	2006-2018	89	86	8	1908	86.0	24.46	1643	116.12	0	10	6	196	51	NaN
11	11	TM Dilshan (SL)	2006-2016	80	79	12	1889	NaN	28.19	1567	120.54	1	13	10	223	33	NaN
12	12	AJ Finch (AUS)	2011-2019	58	58	9	1878	172.0	38.32	1200	156.5	2	11	4	182	90	NaN
13	13	LRPL Taylor (NZ)	2006-2019	95	87	19	1743	63.0	25.63	1430	121.88	0	5	5	110	65	NaN
14	14	Umar Akmal (PAK)	2009-2019	84	79	14	1690	94.0	26	1377	122.73	0	8	10	122	55	NaN

	Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
15	15	AB de Villiers (SA)	2006-2017	78	75	11	1672	NaN	26.12	1237	135.16	0	10	5	140	60	NaN
16	16	H Masakadza (ZIM)	2006-2019	66	66	2	1662	NaN	25.96	1418	117.2	0	11	1	151	65	NaN
17	17	AD Hales (ENG)	2011-2019	60	60	7	1644	NaN	31.01	1203	136.65	1	8	4	175	55	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
19	19	MS Dhoni (INDIA)	2006-2019	98	85	42	1617	56.0	37.6	1282	126.13	0	2	1	116	52	NaN

10]

	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

11]

	Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
0	0	V Kohli	2010-	75	70	20	2633	NaN	52.66	1907	138.07	0	24	2	247	140	NaN

	Unnamed: 0	Player	Span	Mat	Ins	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
		(INDIA)	2019														
1	1	RG Sharma (INDIA)	2007-2019	104	96	14	2633	118.0	32.10	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
3	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	4	BB McCullum (NZ)	2005-2015	71	70	10	2140	123.0	35.66	1571	136.21	2	13	3	199	91	NaN
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
964	964	GO Jones (ENG)	2005-2006	2	2	1	33	19.0	33.00	25	132	0	0	0	5	0	NaN
972	972	WPUJC Vaas (SL)	2006-2007	6	2	1	33	21.0	33.00	41	80.48	0	0	0	1	0	NaN
975	975	KS Bagabena (Ghana)	2019-2019	4	3	2	32	NaN	32.00	32	100	0	0	1	1	0	NaN
991	991	R Dravid	2011-	1	1	0	31	31.0	31.00	21	147.61	0	0	0	0	3	NaN

	Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
		(INDIA)	2011														
995	995	AS Mehmi ()	2019-2019	3	2	1	31	NaN	31.00	29	106.89	0	0	0	2	1	NaN

171 rows × 17 columns

12]

	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	32.10	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
3	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	4	BB McCullum (NZ)	2005-2015	71	70	10	2140	123.0	35.66	1571	136.21	2	13	3	199	91	NaN

Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
342	342	Sohail Tanvir (PAK)	2007-2017	57	25	8	196	41.0	11.52	164	119.51	0	0	2	16	9	NaN
379	379	Umar Gul (PAK)	2007-2016	60	27	9	165	32.0	9.16	156	105.76	0	0	6	11	10	NaN
446	446	SL Malinga (SL)	2006-2019	79	30	12	128	27.0	7.11	153	83.66	0	0	6	9	4	NaN
476	476	SCJ Broad (ENG)	2006-2014	56	26	10	118	NaN	7.37	118	100	0	0	2	7	3	NaN
579	579	Saeed Ajmal (PAK)	2009-2015	64	23	12	91	NaN	8.27	86	105.81	0	0	3	7	2	NaN

64 rows × 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 × 2 columns

14] (1854,17)

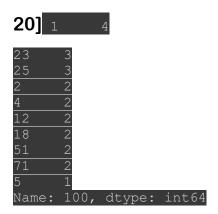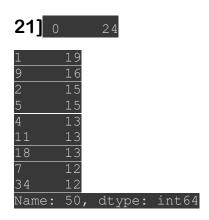15] The number of players are: 1854

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	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	32.10	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
3	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	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	1849	H Ssenyondo (UGA)	2019-2019	4	1	1	0	NaN	NaN	0	-	0	0	0	0	0	NaN
1850	1850	Taijul Islam (BDESH)	2019-2019	2	1	1	0	NaN	NaN	1	0	0	0	0	0	0	NaN
1851	1851	Ziaur Rehman (Fin)	2019-2019	1	1	0	0	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	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	-	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
5       1
Name: 100, dtype: int64
```

21]
```
0       24
1       19
9       16
2       15
5       15
4       13
11      13
18      13
7       12
34      12
Name: 50, dtype: int64
```

22]

	Unnamed: 0	Mat	Inns	NO	Runs	HS	Ave	BF	100	50	0	4s	6s	Unnamed: 15
count	1854.000000	1854.000000	1854.000000	1854.000000	1854.000000	1190.000000	1678.000000	1854.000000	1854.000000	1854.000000	1854.000000	1854.000000	1854.000000	0.0

	Unnamed: 0	Mat	Inns	NO	Runs	HS	Ave	BF	100	50	0	4s	6s	Unnamed: 15
mean	926.500000	11.981661	8.881877	1.902913	144.573894	27.414286	15.470024	121.686084	0.029666	0.571197	0.816613	12.359223	5.025890	NaN
std	535.348018	15.274276	13.162506	3.028247	305.231238	24.693593	12.695079	236.107498	0.219611	1.798258	1.292522	28.259788	12.312112	NaN
min	0.000000	1.000000	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	NaN
25%	463.250000	3.000000	2.000000	0.000000	9.000000	8.000000	6.500000	12.000000	0.000000	0.000000	0.000000	0.000000	0.000000	NaN
50%	926.500000	6.000000	4.000000	1.000000	37.000000	20.500000	13.320000	39.000000	0.000000	0.000000	0.000000	3.000000	1.000000	NaN
75%	1389.750000	14.000000	10.000000	2.000000	123.000000	40.000000	21.310000	112.750000	0.000000	0.000000	1.000000	10.000000	4.000000	NaN
max	1853.000000	111.000000	104.000000	42.000000	2633.000000	172.000000	126.000000	1907.000000	4.000000	24.000000	10.000000	247.000000	140.000000	NaN

23]

	Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
0	0	0	V Kohli (INDIA)	2010-2019	75	70	20	2633	NaN	52.66	1907	138.07	0	24	2	247	140	NaN

	Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
1	1	RG Sharma (INDIA)	2007-2019	104	96	14	2633	118.0	32.10	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
3	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	4	BB McCullum (NZ)	2005-2015	71	70	10	2140	123.0	35.66	1571	136.21	2	13	3	199	91	NaN
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
1530	1530	N M'shangwe (ZIM)	2013-2014	5	2	1	5	NaN	5.00	4	125.00	0	0	1	1	0	NaN
1537	1537	JE Pitcher (BMUDA)	2019-2019	3	1	1	5	NaN	NaN	4	125.00	0	0	0	0	0	NaN
1542	1542	RJ Sidebottom (ENG)	2007-2010	18	1	1	5	NaN	NaN	4	125.00	0	0	0	1	0	NaN
1563	1563	K Gore (USA)	2019-	4	1	1	4	NaN	NaN	3	133.33	0	0	0	0	0	NaN

Unnamed: 0	Player	Span	Mat	Inns	NO	Runs	HS	Ave	BF	SR	100	50	0	4s	6s	Unnamed: 15
1579	1579	Nazmus Sadat (BDESH)	2019 2006 - 2006	1	1	0	4	4.0	4.00	3	133.33	0	0	0	0	0	NaN

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
```