ragavarshini-python-project

July 10, 2024

Problem Statement 1: Samantha has created a dataset named 'top50spotify.csv' of her top 50 songs from spotify. Dataset Description:top50spotify.csv - The dataset contains 14 features. Here's a brief description of a few columns in the dataset: • SerialNo. - Serial number of songs • Track.Name - Name of the track • Artist.Name - Name of the artist • Genre - Genre of the song • Energy - Energy index of the song • Length. - Length of the song • Popularity - Popularity index of the song Tasks to be performed:

- 1.Import the dataset as a DataFrame and drop the first column.
- 2. Save it as 'top50.csv'.
- 3. Find the average Energy and Length of first 10 songs.
- 4. Find the total length of songs, group by genre from top to bottom.
- 5.Print the artist name with the most number of tracks in one genre. (Hint: Group by artist name and genre)
- 6. Print the data of the tracks created by the artist from the previous question.

```
[1]: import numpy as np
import pandas as pd
#1.import the dataset as a DataFrame
df=pd.read_csv('/content/top50spotify.csv')
df
```

[1]:	SerialNo.	Track.Name	\
0	1	Señorita	
1	2	China	
2	3	boyfriend (with Social House)	
3	4	Beautiful People (feat. Khalid)	
4	5	Goodbyes (Feat. Young Thug)	
5	6	I Don't Care (with Justin Bieber)	
6	7	Ransom	
7	8	How Do You Sleep?	
8	9	Old Town Road - Remix	
9	10	bad guy	
10	11	Callaita	
11	12	Loco Contigo (feat. J. Balvin & Tyga)	
12	13	Someone You Loved	
13	14	Otro Trago - Remix	

14	15		Money In The G	rave (Drake ft. Ric	ck Ross)
15	16			No Guidance (feat	. Drake)
16	17			LA	CANCIÓN
17	18	Su	nflower - Spider-	Man: Into the Spide	er-Verse
18	19				Lalala
19	20			Trut	th Hurts
20	21			Piece Of You	ır Heart
21	22				Panini
22	23			No Me Conoce	- Remix
23	24			Soltera	- Remix
24	25		ba	d guy (with Justin	Bieber)
25	26			If I Can't H	Have You
26	27			Dance	e Monkey
27	28]	It's You
28	29			Co	on Calma
29	30			QUE PI	RETENDES
30	31			7	Гакеаway
31	32				7 rings
32	33			0.98	58333333
33	34		The London (fea	t. J. Cole & Travis	s Scott)
34	35			Never Real	lly Over
35	36	Summer	Days (feat. Mack	lemore & Patrick St	tump
36	37		·		ro Trago
37	38		Anti	social (with Travis	_
38	39				Sucker
39	40	fuck,	i'm lonely (with	Anne-Marie) - from	"13
40	41		·		ner Love
41	42			You Need To Ca	alm Down
42	43				Shallow
43	44				Talk
44	45			Cor	n Altura
45	46			One Thir	ng Right
46	47			_	e Robaré
47	48				Happier
48	49			Call Y	You Mine
49	50	Cr	oss Me (feat. Cha	nce the Rapper & Pr	nB Rock)
		t.Name	Genre		Energy \
0		Mendes	canadian pop	117	55
1		uel AA	reggaeton flow	105	81
2	Ariana		dance pop	190	80
3		heeran	pop	93	65
4		Malone	dfw rap	150	65
5		heeran	pop	102	68
6		Tecca	trap music	180	64
7		Smith	pop	111	68
8	Lil	Nas X	country rap	136	62

9	Billie Eilish	electropop		135	43	
10	Bad Bunny	reggaeton		176	62	
11	DJ Snake	dance pop		96	71	
12	Lewis Capaldi	pop		110	41	
13	Sech	panamanian pop		176	79	
14	Drake	canadian hip hop		101	50	
15	Chris Brown	dance pop		93	45	
16	J Balvin	latin		176	65	
17	Post Malone	dfw rap		90	48	
18	Y2K	canadian hip hop		130	39	
19	Lizzo	escape room		158	62	
20	MEDUZA	pop house		124	74	
21	Lil Nas X	country rap		154	59	
22	Jhay Cortez	reggaeton flow		92	79	
23	Lunay	latin		92	78	
24	Billie Eilish	electropop		135	45	
25	Shawn Mendes	canadian pop		124	82	
26	Tones and I	australian pop		98	59	
27		canadian hip hop		96	46	
28	Daddy Yankee	latin		94	86	
29	J Balvin	latin		93	79	
30	The Chainsmokers	edm		85	51	
31	Ariana Grande	dance pop		140	32	
32	Maluma	reggaeton		96	71	
33	Young Thug	atl hip hop		98	59	
34	Katy Perry	dance pop		100	88	
35	Martin Garrix	big room		114	72	
36	Sech	panamanian pop		176	70	
37	Ed Sheeran	рор		152	82	
38	Jonas Brothers	boy band		138	73	
39	Lauv	dance pop		95	56	
40	Kygo	edm		104	68	
41	Taylor Swift	dance pop		85	68	
42	Lady Gaga	dance pop		96	39	
43	Khalid	pop		136	40	
44	ROSALÍA	r&b en espanol		98	69	
45	Marshmello	brostep		88	62	
46	Nicky Jam	latin		176	75	
47	Marshmello	brostep		100	79	
48	The Chainsmokers	edm		104	70	
49	Ed Sheeran			95	79	
49	Ed Sheeran	pop		90	19	
	Danceability Lou	dnessdB Liveness		Length.	Acousticness	\
0	76	-6 8	75	191	4	
1	79	-4 8	61	302	8	
2	40	-4 16	70	186	12	
3	64	-8 8	55	198	12	!

4	58	-4	11	18	175	45
5	80	-5	9	84	220	9
6	75	-6	7	23	131	2
7	48	-5	8	35	202	15
8	88	-6	11	64	157	5
9	70	-11	10	56	194	33
10	61	-5	24	24	251	60
11	82	-4	15	38	185	28
12	50	-6	11	45	182	75
13	73	-2	6	76	288	7
14	83	-4	12	10	205	10
15	70	-7	16	14	261	12
16	75	-6	11	43	243	15
17	76	-6	7	91	158	56
18	84	-8	14	50	161	18
19	72	-3	12	41	173	11
20	68	-7	7	63	153	4
21	70	-6	12	48	115	34
22	81	-4	9	58	309	14
23	80	-4	44	80	266	36
24	67	-11	12	68	195	25
25	69	-4	13	87	191	49
26	82	-6	18	54	210	69
27	73	-7	19	40	213	37
28	74	-3	6	66	193	11
29	64	-4	36	94	222	3
30	29	-8	10	36	210	12
31	78	-11	9	33	179	59
32	78	-5 7	9	68	176	22
33	80	-7	13	18	200	2
34	77	- 5	32	39	224	19
35	66	-7	14	32	164	18
36	75 70	-5	11	62	226	14
37	72	-5	36	91	162	13
38	84	-5	11	95	181	4
39	81	-6	6	68	199	48
40	69	-7	10	40	228	2
41	77	-6	7	73	171	1
42	57	-6	23	32	216	37
43	90	-9	6	35	198	5
44	88	-4	5	75	162	39
45	66	-2	58	44	182	7
46	67	-4	8	80	202	24
47	69	-3	17	67	214	19
48	59	-6	41	50	218	23
49	75	-6	7	61	206	21

	Speechiness.	Popularity
0	3	79
1	9	92
2	46	85
3	19	86
4	7	94
5	4	84
6	29	92
7	9	90
8	10	87
9	38	95
10	31	93
11	7	86
12	3	88
13 14	20 5	87
15	15	92 82
16	32	90
17	5	91
18	8	88
19	11	91
20	3	91
21	8	91
22	7	83
23	4	91
24	30	89
25	6	70
26	10	83
27	3	89
28	6	91
29	25	89
30	4	84
31	33	89
32	28	89
33	15	89
34	6	89
35	6	89
36	34	91
37	5	87
38	6	80
39	7	78
40	3	88
41	5	90
42	3	87
43	13	84
44	12	88
45	5	88

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46
                     6
                                88
                     5
     47
                                88
                     3
     48
                                88
                    12
     49
                                82
[2]: #drop the first column
     df=pd.read_csv('/content/top50spotify.csv')
     df=df.drop(df.columns[0], axis=1)
     df
[2]:
                                                  Track.Name
                                                                     Artist.Name
     0
                                                     Señorita
                                                                    Shawn Mendes
     1
                                                        China
                                                                        Anuel AA
     2
                              boyfriend (with Social House)
                                                                   Ariana Grande
     3
                            Beautiful People (feat. Khalid)
                                                                      Ed Sheeran
     4
                                Goodbyes (Feat. Young Thug)
                                                                    Post Malone
                          I Don't Care (with Justin Bieber)
     5
                                                                      Ed Sheeran
     6
                                                       Ransom
                                                                       Lil Tecca
     7
                                                                       Sam Smith
                                           How Do You Sleep?
     8
                                       Old Town Road - Remix
                                                                       Lil Nas X
     9
                                                                   Billie Eilish
                                                      bad guy
     10
                                                     Callaita
                                                                       Bad Bunny
     11
                      Loco Contigo (feat. J. Balvin & Tyga)
                                                                        DJ Snake
     12
                                           Someone You Loved
                                                                  Lewis Capaldi
     13
                                          Otro Trago - Remix
                                                                            Sech
     14
                  Money In The Grave (Drake ft. Rick Ross)
                                                                           Drake
     15
                                   No Guidance (feat. Drake)
                                                                     Chris Brown
     16
                                                  LA CANCIÓN
                                                                        J Balvin
     17
             Sunflower - Spider-Man: Into the Spider-Verse
                                                                     Post Malone
     18
                                                                             Y2K
                                                       Lalala
     19
                                                 Truth Hurts
                                                                           Lizzo
     20
                                         Piece Of Your Heart
                                                                          MEDUZA
     21
                                                       Panini
                                                                       Lil Nas X
     22
                                        No Me Conoce - Remix
                                                                     Jhay Cortez
     23
                                             Soltera - Remix
                                                                           Lunay
     24
                               bad guy (with Justin Bieber)
                                                                  Billie Eilish
                                         If I Can't Have You
                                                                   Shawn Mendes
     25
                                                Dance Monkey
     26
                                                                     Tones and I
     27
                                                     It's You
                                                                       Ali Gatie
     28
                                                    Con Calma
                                                                   Daddy Yankee
     29
                                               QUE PRETENDES
                                                                        J Balvin
     30
                                                     Takeaway
                                                               The Chainsmokers
     31
                                                      7 rings
                                                                   Ariana Grande
     32
                                                 0.958333333
                                                                          Maluma
```

Never Really Over

Young Thug

Katy Perry

Martin Garrix

The London (feat. J. Cole & Travis Scott)

Summer Days (feat. Macklemore & Patrick Stump ...

33

34

35

36			Otro	Trago		Sech		
37	<u> </u>							
38				Sucker	Jona	s Brothers		
39	fuck, i'm lonely	(with Anne-Marie)	- from ":	13		Lauv		
40			Highe	r Love		Kygo		
41		Vou Noo	d To Calı		то			
		rou nee			1 a	ylor Swift		
42			Sl	hallow		Lady Gaga		
43				Talk		Khalid		
44			Con	Altura		ROSALÍA		
45		n	ne Thing			Marshmello		
		U	_	_				
46			Te	Robaré		Nicky Jam		
47			Ha	appier		Marshmello		
48			Call You	u Mine	The Ch	ainsmokers		
49	Cross Me (fea	nt. Chance the Rapp	er & PnB	Rock)		Ed Sheeran		
10	01088 110 (100	iv. chance the happ	CI & IIID	1to Ch /		La bliccian		
	Genre	Beats.Per.Minute	Energy	Dancea	bility	Loudness	dB	\
0	canadian pop	117	55		76		-6	
1	reggaeton flow	105	81		79		-4	
2		190	80		40		-4	
	dance pop							
3	pop	93	65		64		-8	
4	dfw rap	150	65		58		-4	
5	pop	102	68		80		-5	
6	trap music	180	64		75		-6	
	-							
7	pop	111	68		48		-5	
8	country rap	136	62		88		-6	
9	electropop	135	43		70		-11	
10	reggaeton	176	62		61		-5	
11		96	71		82		-4	
	dance pop							
12	pop	110	41		50		-6	
13	panamanian pop	176	79		73		-2	
14	canadian hip hop	101	50		83		-4	
15	dance pop	93	45		70		-7	
16	latin	176	65		75		-6	
17	dfw rap	90	48		76		-6	
18	canadian hip hop	130	39		84		-8	
19	escape room	158	62		72		-3	
20	pop house	124	74		68		-7	
21	country rap	154	59		70		-6	
22	reggaeton flow	92	79		81		-4	
23	latin	92	78		80		-4	
24	electropop	135	45		67		-11	
25	canadian pop	124	82		69		-4	
26	australian pop	98	59		82		-6	
27	canadian hip hop	96	46		73		-7	
28	latin	94	86		74		-3	
29	latin	93	79		64		-4	
30	edm	85	51		29		-8	

31 32							
32	da	nce pop		140	32	78	-11
02	re	ggaeton		96	71	78	-5
33	atl	hip hop		98	59	80	-7
34	da	nce pop		100	88	77	-5
35		ig room		114	72	66	-7
36		ian pop		176	70	75	-5
37	r	pop		152	82	72	-5
38	h	oy band		138	73	84	-5
39		nce pop		95	56	81	-6
40	da	edm		104	68	69	-7
41	da	nce pop		85	68	77	-6
42		nce pop		96	39	57	-6
43	ua			136	40	90	-9
	0-1	pop					
44		espanol		98	69	88	-4
45		brostep		88	62	66	-2
46		latin		176	75	67	-4
47		brostep		100	79	69	-3
48		edm		104	70	59 	-6
49		pop		95	79	75	-6
	Liveness	Valence.	Length.	Acoustic	ness	Speechiness.	Popularity
0	8	75	191		4	3	79
1	8	61	302		8	9	92
2	16	70	186		12	46	85
3	8	55	198		4.0	4.0	0.0
•	•	00	190		12	19	86
4	11	18	175		12 45	19 7	94
4	11	18	175		45	7	94
4 5	11 9	18 84	175 220		45 9	7 4	94 84
4 5 6	11 9 7	18 84 23	175 220 131		45 9 2	7 4 29	94 84 92
4 5 6 7	11 9 7 8	18 84 23 35	175 220 131 202		45 9 2 15	7 4 29 9	94 84 92 90
4 5 6 7 8	11 9 7 8 11	18 84 23 35 64	175 220 131 202 157		45 9 2 15 5	7 4 29 9 10	94 84 92 90 87
4 5 6 7 8 9	11 9 7 8 11	18 84 23 35 64 56	175 220 131 202 157 194		45 9 2 15 5 33	7 4 29 9 10 38	94 84 92 90 87 95
4 5 6 7 8 9 10 11	11 9 7 8 11 10 24 15	18 84 23 35 64 56 24 38	175 220 131 202 157 194 251 185		45 9 2 15 5 33 60 28	7 4 29 9 10 38 31 7	94 84 92 90 87 95 93 86
4 5 6 7 8 9 10 11	11 9 7 8 11 10 24 15	18 84 23 35 64 56 24 38 45	175 220 131 202 157 194 251 185 182		45 9 2 15 5 33 60 28 75	7 4 29 9 10 38 31 7	94 84 92 90 87 95 93 86 88
4 5 6 7 8 9 10 11 12 13	11 9 7 8 11 10 24 15 11	18 84 23 35 64 56 24 38 45 76	175 220 131 202 157 194 251 185 182 288		45 9 2 15 5 33 60 28 75 7	7 4 29 9 10 38 31 7 3	94 84 92 90 87 95 93 86 88
4 5 6 7 8 9 10 11 12 13 14	11 9 7 8 11 10 24 15 11 6	18 84 23 35 64 56 24 38 45 76	175 220 131 202 157 194 251 185 182 288 205		45 9 2 15 5 33 60 28 75 7	7 4 29 9 10 38 31 7 3 20 5	94 84 92 90 87 95 93 86 88 87
4 5 6 7 8 9 10 11 12 13 14 15	11 9 7 8 11 10 24 15 11 6 12	18 84 23 35 64 56 24 38 45 76 10	175 220 131 202 157 194 251 185 182 288 205 261		45 9 2 15 5 33 60 28 75 7 10	7 4 29 9 10 38 31 7 3 20 5	94 84 92 90 87 95 93 86 88 87 92
4 5 6 7 8 9 10 11 12 13 14 15 16	11 9 7 8 11 10 24 15 11 6 12 16	18 84 23 35 64 56 24 38 45 76 10 14	175 220 131 202 157 194 251 185 182 288 205 261 243		45 9 2 15 5 33 60 28 75 7 10 12 15	7 4 29 9 10 38 31 7 3 20 5 15 32	94 84 92 90 87 95 93 86 88 87 92 82
4 5 6 7 8 9 10 11 12 13 14 15 16 17	11 9 7 8 11 10 24 15 11 6 12 16 11 7	18 84 23 35 64 56 24 38 45 76 10 14 43 91	175 220 131 202 157 194 251 185 182 288 205 261 243 158		45 9 2 15 5 33 60 28 75 7 10 12 15 56	7 4 29 9 10 38 31 7 3 20 5 15 32 5	94 84 92 90 87 95 93 86 88 87 92 82 90
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	11 9 7 8 11 10 24 15 11 6 12 16 11 7	18 84 23 35 64 56 24 38 45 76 10 14 43 91 50	175 220 131 202 157 194 251 185 182 288 205 261 243 158 161		45 9 2 15 5 33 60 28 75 7 10 12 15 56 18	7 4 29 9 10 38 31 7 3 20 5 15 32 5	94 84 92 90 87 95 93 86 88 87 92 82 90 91
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	11 9 7 8 11 10 24 15 11 6 12 16 11 7	18 84 23 35 64 56 24 38 45 76 10 14 43 91 50 41	175 220 131 202 157 194 251 185 182 288 205 261 243 158 161 173		45 9 2 15 5 33 60 28 75 7 10 12 15 56 18	7 4 29 9 10 38 31 7 3 20 5 15 32 5 8 11	94 84 92 90 87 95 93 86 88 87 92 82 90 91 88
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	11 9 7 8 11 10 24 15 11 6 12 16 11 7 14 12 7	18 84 23 35 64 56 24 38 45 76 10 14 43 91 50 41 63	175 220 131 202 157 194 251 185 182 288 205 261 243 158 161 173 153		45 9 2 15 5 33 60 28 75 7 10 12 15 56 18 11	7 4 29 9 10 38 31 7 3 20 5 15 32 5 8 11 3	94 84 92 90 87 95 93 86 88 87 92 82 90 91 88 91
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	11 9 7 8 11 10 24 15 11 6 12 16 11 7 14 12 7	18 84 23 35 64 56 24 38 45 76 10 14 43 91 50 41 63 48	175 220 131 202 157 194 251 185 182 288 205 261 243 158 161 173 153 115		45 9 2 15 5 33 60 28 75 7 10 12 15 56 18 11 4	7 4 29 9 10 38 31 7 3 20 5 15 32 5 8 11 3 8	94 84 92 90 87 95 93 86 88 87 92 82 90 91 88 91 91
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	11 9 7 8 11 10 24 15 11 6 12 16 11 7 14 12 7	18 84 23 35 64 56 24 38 45 76 10 14 43 91 50 41 63 48 58	175 220 131 202 157 194 251 185 182 288 205 261 243 158 161 173 153 115 309		45 9 2 15 5 33 60 28 75 7 10 12 15 56 18 11 4 34	7 4 29 9 10 38 31 7 3 20 5 15 32 5 8 11 3 8 7	94 84 92 90 87 95 93 86 88 87 92 82 90 91 88 91 91 91
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	11 9 7 8 11 10 24 15 11 6 12 16 11 7 14 12 7 12 9	18 84 23 35 64 56 24 38 45 76 10 14 43 91 50 41 63 48 58	175 220 131 202 157 194 251 185 182 288 205 261 243 158 161 173 153 115 309 266		45 9 2 15 5 33 60 28 75 7 10 12 15 56 18 11 4 34 14 36	7 4 29 9 10 38 31 7 3 20 5 15 32 5 8 11 3 8 7 4	94 84 92 90 87 95 93 86 88 87 92 82 90 91 88 91 91 91 91
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	11 9 7 8 11 10 24 15 11 6 12 16 11 7 14 12 7	18 84 23 35 64 56 24 38 45 76 10 14 43 91 50 41 63 48 58	175 220 131 202 157 194 251 185 182 288 205 261 243 158 161 173 153 115 309		45 9 2 15 5 33 60 28 75 7 10 12 15 56 18 11 4 34	7 4 29 9 10 38 31 7 3 20 5 15 32 5 8 11 3 8 7	94 84 92 90 87 95 93 86 88 87 92 82 90 91 88 91 91 91

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27
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                         40
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28
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                         66
                                   193
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                         94
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29
            36
                                   222
                                                                          25
                                                                                        89
30
            10
                         36
                                   210
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31
             9
                         33
                                   179
                                                        59
                                                                         33
                                                                                        89
                         68
                                  176
32
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                                                         2
33
            13
                         18
                                   200
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                                                                                        89
34
            32
                         39
                                   224
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35
            14
                         32
                                   164
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36
                         62
                                   226
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37
            36
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                                   162
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38
            11
                         95
                                   181
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                                                                           7
39
             6
                         68
                                   199
                                                        48
                                                                                        78
40
            10
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             7
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41
                         73
                                   171
                                                         1
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42
            23
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                                   216
                                                                                        87
43
             6
                         35
                                   198
                                                         5
                                                                          13
                                                                                        84
44
             5
                         75
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                                   162
                                                        39
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                                                         7
45
            58
                         44
                                   182
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46
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                         80
                                   202
                                                        24
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                                                                                        88
47
            17
                         67
                                   214
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                                                                                        88
48
            41
                         50
                                   218
                                                        23
                                                                           3
                                                                                        88
             7
49
                                                        21
                                                                          12
                         61
                                   206
                                                                                        82
```

```
[3]: #2.Save it as 'top50.csv':

df.to_csv('top50.csv')

df
```

```
[3]:
                                                  Track.Name
                                                                    Artist.Name
     0
                                                    Señorita
                                                                   Shawn Mendes
     1
                                                        China
                                                                        Anuel AA
     2
                              boyfriend (with Social House)
                                                                  Ariana Grande
     3
                            Beautiful People (feat. Khalid)
                                                                     Ed Sheeran
                                Goodbyes (Feat. Young Thug)
     4
                                                                    Post Malone
     5
                          I Don't Care (with Justin Bieber)
                                                                     Ed Sheeran
     6
                                                      Ransom
                                                                      Lil Tecca
     7
                                           How Do You Sleep?
                                                                      Sam Smith
                                       Old Town Road - Remix
     8
                                                                      Lil Nas X
     9
                                                     bad guy
                                                                  Billie Eilish
     10
                                                    Callaita
                                                                      Bad Bunny
     11
                      Loco Contigo (feat. J. Balvin & Tyga)
                                                                       DJ Snake
                                           Someone You Loved
     12
                                                                  Lewis Capaldi
     13
                                          Otro Trago - Remix
                                                                            Sech
     14
                  Money In The Grave (Drake ft. Rick Ross)
                                                                           Drake
     15
                                  No Guidance (feat. Drake)
                                                                    Chris Brown
                                                  LA CANCIÓN
     16
                                                                        J Balvin
```

17	Sunflower - S	Spider-Man: Into the	e Spider-Ve	erse P	ost Malone	
18		Lala	Y2K			
19			Truth Hu	ırts	Lizzo	
20		Piece	eart	MEDUZA		
21			Pan	nini	Lil Nas X	
22		No Me	Conoce - Re	emix J	hay Cortez	
23		Se	oltera - Re		Lunay	
24		bad guy (with .	Justin Bieb	oer) Bil	lie Eilish	
25		If I	Can't Have	You Sh	awn Mendes	
26			Dance Mon	nkey T	ones and I	
27			It's	You	Ali Gatie	
28			Con Ca	alma Da	ddy Yankee	
29			QUE PRETEN		J Balvin	
30			Takea	away The Ch	ainsmokers	
31			7 ri	•	ana Grande	
32			0.958333	•	Maluma	
33	The Londo	on (feat. J. Cole &	Travis Sco	ott)	Young Thug	
34			er Really C		Katy Perry	
35	Summer Days (feat	. Macklemore & Pat	•		n Garrix	
36	•		Otro Tr		Sech	
37		Antisocial (with			Ed Sheeran	
38			Suc	ker Jona	s Brothers	
39	fuck, i'm lonely	(with Anne-Marie)	- from "13	•••	Lauv	
40	•		Higher L		Kygo	
41		You Need	d To Calm D		ylor Swift	
42			Shal		Lady Gaga	
43			Т	[alk	Khalid	
44			Con Alt	tura	ROSALÍA	
45		0:	ne Thing Ri	ight	Marshmello	
46			Te Rob	oaré	Nicky Jam	
47			Нарр	oier	Marshmello	
48			Call You M		ainsmokers	
49	Cross Me (fea	at. Chance the Rappo	er & PnB Ro	ock)	Ed Sheeran	
		••				
	Genre	Beats.Per.Minute	Energy Da	anceability	LoudnessdB	\
0	canadian pop	117	55	76	-6	
1	reggaeton flow	105	81	79	-4	
2	dance pop	190	80	40	-4	
3	pop	93	65	64	-8	
4	dfw rap	150	65	58	-4	
5	pop	102	68	80	-5	
6	trap music	180	64	75	-6	
7	pop	111	68	48	-5	
8	country rap	136	62	88	-6	
9	electropop	135	43	70	-11	
10	reggaeton	176	62	61	-5	
11	dance pop	96	71	82	-4	

12		pop		110	41	50	-6
13	panaman	ian pop		176	79	73	-2
14	canadian	hip hop		101	50	83	-4
15	da	nce pop		93	45	70	-7
16		latin		176	65	75	-6
17		dfw rap		90	48	76	-6
18	canadian	hip hop		130	39	84	-8
19	esca	pe room		158	62	72	-3
20	po	p house		124	74	68	-7
21	coun	try rap		154	59	70	-6
22	reggaet	on flow		92	79	81	-4
23		latin		92	78	80	-4
24		ctropop		135	45	67	-11
25	canad	ian pop		124	82	69	-4
26	austral			98	59	82	-6
27	canadian	hip hop		96	46	73	-7
28		latin		94	86	74	-3
29		latin		93	79	64	-4
30		edm		85	51	29	-8
31	da	nce pop		140	32	78	-11
32		ggaeton		96	71	78	-5
33		hip hop		98	59	80	-7
34		nce pop		100	88	77	-5
35		ig room		114	72	66	-7
36	panaman	ian pop		176	70	75	-5
37		pop		152	82	72	-5
38		oy band		138	73	84	-5
39	da	nce pop		95	56	81	-6
40		edm		104	68	69	-7
41		nce pop		85	68	77	-6
42	da	nce pop		96	39	57	-6
43		pop		136	40	90	-9
44	r&b en	-		98	69	88	-4
45		brostep		88	62	66	-2
46		latin		176	75 	67	-4
47		brostep		100	79	69	-3
48		edm		104	70	59 	-6
49		pop		95	79	75	-6
	Liveness	Valence.	Length.	Acousti	cnagg	Speechiness.	Popularity
0	8	75	191	ncoubor	4	3	79
1	8	61	302		8	9	92
2	16	70	186		12	46	85
3	8	55	198		12	19	86
4	11	18	175		45	7	94
5	9	84	220		9	4	84
6	7	23	131		2	29	92
J	•	20	101		_	20	02

7	8	35	202	15	9	90
8	11	64	157	5	10	87
9	10	56	194	33	38	95
10	24	24	251	60	31	93
11	15	38	185	28	7	86
12	11	45	182	75	3	88
13	6	76	288	7	20	87
14	12	10	205	10	5	92
15	16	14	261	12	15	82
16	11	43	243	15	32	90
17	7	91	158	56	5	91
18	14	50	161	18	8	88
19	12	41	173	11	11	91
20	7	63	153	4	3	91
21	12	48	115	34	8	91
22	9	58	309	14	7	83
23	44	80	266	36	4	91
24	12	68	195	25	30	89
25	13	87	191	49	6	70
26	18	54	210	69	10	83
27	19	40	213	37	3	89
28	6	66	193	11	6	91
29	36	94	222	3	25	89
30	10	36	210	12	4	84
31	9	33	179	59	33	89
32	9	68	176	22	28	89
33	13	18	200	2	15	89
34	32	39	224	19	6	89
35	14	32	164	18	6	89
36	11	62	226	14	34	91
37	36	91	162	13	5	87
38	11	95	181	4	6	80
39	6	68	199	48	7	78
40	10	40	228	2	3	88
41	7	73	171	1	5	90
42	23	32	216	37	3	87
43	6	35	198	5	13	84
44	5	75	162	39	12	88
45	58	44	182	7	5	88
46	8	80	202	24	6	88
47	17	67	214	19	5	88
48	41	50	218	23	3	88
49	7	61	206	21	12	82

```
[7]: #3.Find the average Energy and Length of first 10 songs:

average_energy = df.loc[:9, 'Energy'].mean()

average_length = df.loc[:9, 'Length.'].mean()
```

```
print("Average Energy of first 10 songs:", average_energy)
     print("Average Length of first 10 songs:", average_length)
    Average Energy of first 10 songs: 65.1
    Average Length of first 10 songs: 195.6
[8]: #4. Find the total length of songs, group by genre from top to bottom:
     total_length_by_genre = df.groupby('Genre')['Length.'].sum()
     print(total_length_by_genre)
    Genre
                          200
    atl hip hop
    australian pop
                          210
    big room
                          164
    boy band
                          181
    brostep
                          396
    canadian hip hop
                          579
    canadian pop
                          382
    country rap
                          272
    dance pop
                         1621
    dfw rap
                          333
    edm
                          656
    electropop
                          389
    escape room
                          173
                         1126
    latin
                         514
    panamanian pop
    pop
                         1368
    pop house
                          153
    r&b en espanol
                          162
                          427
    reggaeton
    reggaeton flow
                          611
    trap music
                          131
    Name: Length., dtype: int64
[9]: #5.Print the artist name with the most number of tracks in one genre :
     artist_with most_tracks = df.groupby(['Artist.Name','Genre']).size().
     ⇔sort_values(ascending=False)
     print(artist_with_most_tracks)
    Artist.Name
                      Genre
    Ed Sheeran
                                           4
                      pop
    Lil Nas X
                      country rap
                                           2
                                           2
    Shawn Mendes
                      canadian pop
    Marshmello
                      brostep
                                           2
    Post Malone
                                           2
                      dfw rap
    Sech
                                           2
                      panamanian pop
                                           2
    J Balvin
                      latin
```

```
The Chainsmokers
                        edm
                                             2
     Billie Eilish
                        electropop
                                              2
                                              2
     Ariana Grande
                        dance pop
     Taylor Swift
                        dance pop
                                              1
     Tones and I
                        australian pop
                                              1
     Lizzo
                        escape room
                                              1
     Sam Smith
                        pop
                                              1
     ROSALÍA
                        r&b en espanol
     Y2K
                        canadian hip hop
                                              1
     Nicky Jam
                        latin
                                              1
     Martin Garrix
                                              1
                        big room
     Maluma
                                              1
                        reggaeton
     MEDUZA
                        pop house
                                              1
     Lunay
                        latin
     Ali Gatie
                        canadian hip hop
     Lil Tecca
                        trap music
                                              1
     Anuel AA
                        reggaeton flow
                                              1
     Lewis Capaldi
                                              1
                        pop
     Lauv
                        dance pop
                                              1
     Lady Gaga
                        dance pop
                                              1
     Kygo
                        edm
                                              1
     Khalid
                        pop
     Katy Perry
                        dance pop
                                              1
     Jonas Brothers
                        boy band
                                              1
     Jhay Cortez
                        reggaeton flow
                                              1
     Drake
                                              1
                        canadian hip hop
     Daddy Yankee
                                              1
                        latin
     DJ Snake
                                              1
                        dance pop
     Chris Brown
                                              1
                        dance pop
     Bad Bunny
                        reggaeton
                                              1
     Young Thug
                        atl hip hop
     dtype: int64
[10]: # 6.Print the data of the tracks created by the artist from the previous
       \hookrightarrow question
      artist_name = artist_with_most_tracks.index[0][0] # Extract the artist name
      genre = artist_with_most_tracks.index[0][1] #Extract the genre
      tracks_by_artist = df[(df['Artist.Name'] == artist_name) & (df['Genre'] == ___
       ⇒genre)] # Filter by artist name and genre
      print(tracks by artist)
      df.head()
                                               Track.Name Artist.Name Genre \
```

Beautiful People (feat. Khalid) Ed Sheeran

Antisocial (with Travis Scott) Ed Sheeran

pop

pop

pop

I Don't Care (with Justin Bieber) Ed Sheeran

49 Cross Me (feat. Chance the Rapper & PnB Rock) Ed Sheeran

3

5

37

```
Danceability
                                                       Loudness..dB..
          Beats.Per.Minute
                              Energy
                                                                         Liveness
      3
                          93
                                   65
                                                                     -8
                                                                                 8
      5
                                                                     -5
                                                                                 9
                         102
                                   68
                                                   80
      37
                         152
                                   82
                                                   72
                                                                     -5
                                                                                36
                                                   75
                                                                                 7
      49
                          95
                                   79
                                                                     -6
          Valence.
                     Length.
                                Acousticness..
                                                  Speechiness.
                                                                 Popularity
      3
                 55
                          198
                                             12
                                                             19
                                                                          86
      5
                 84
                          220
                                              9
                                                                          84
                                                              4
                                                              5
                                                                          87
      37
                 91
                          162
                                             13
      49
                          206
                                             21
                                                             12
                                                                          82
                 61
                                                 Artist.Name
[10]:
                                 Track.Name
                                                                          Genre
                                                Shawn Mendes
      0
                                    Señorita
                                                                  canadian pop
      1
                                                     Anuel AA
                                                               reggaeton flow
                                       China
      2
            boyfriend (with Social House)
                                               Ariana Grande
                                                                      dance pop
      3
          Beautiful People (feat. Khalid)
                                                  Ed Sheeran
                                                                            pop
              Goodbyes (Feat. Young Thug)
      4
                                                 Post Malone
                                                                        dfw rap
          Beats.Per.Minute
                              Energy
                                       Danceability
                                                       Loudness..dB..
                                                                         Liveness
                                                                                    Valence.
      0
                        117
                                   55
                                                  76
                                                                    -6
                                                                                 8
                                                                                           75
      1
                        105
                                   81
                                                  79
                                                                    -4
                                                                                 8
                                                                                           61
      2
                        190
                                   80
                                                  40
                                                                     -4
                                                                                16
                                                                                           70
      3
                                   65
                                                  64
                                                                     -8
                                                                                 8
                                                                                           55
                         93
      4
                        150
                                   65
                                                  58
                                                                    -4
                                                                                11
                                                                                           18
          Length.
                    Acousticness..
                                      Speechiness.
                                                      Popularity
      0
              191
                                                  3
                                   4
                                                               79
              302
                                                  9
      1
                                  8
                                                               92
      2
              186
                                 12
                                                 46
                                                               85
      3
                                                 19
              198
                                 12
                                                               86
      4
                                                  7
                                                               94
              175
                                 45
```

Problem Statement 2: Write a Python program to perform the following tasks-

1.Create a pandas series from the below dictionary where indices are subjects: {'English': {'Sam':60, 'Jackson':74, 'Ahree':85}, 'History': {'Gloria':83, 'Sam':65, 'Isla':78, 'Aron':72, 'Gray':61}, Python for Data Science Project Data Science and Machine Learning Program

- 2. Convert the created series into DataFrame and replace the null values with zeroes.
- 3. Transpose the DataFrame and create a new column 'Average' and fill the values in it by calculating the average of all subjects.

```
[11]: #1. Create a pandas series from the below dictionary where indices are subjects:
       →{'English':{'Sam':60,'Jackson':74,'Ahree':85}, 'History':{'Gloria':83,'Sam':
       →65, 'Isla':78, 'Aron':72, 'Gray':61}, Python for Data Science Project Data
       Science and Machine Learning Program 2'Geography':{'Jackson':92,'Gloria':
       495, 'Isla':82, 'Aron':75, 'Ahree':76}, 'Mathematics':{'Sam':99, 'Gloria':
       474, 'Jackson':89, 'Ahree':85, 'Gray':95}, 'Science':{'Sam':89, 'Aron':82, 'Gray':
       →78, 'Isla':93, 'Ahree':87} }
      import pandas as pd
      data = {'English':{'Sam':60,'Jackson':74,'Ahree':85},
              'History': {'Gloria': 83, 'Sam': 65, 'Isla': 78, 'Aron': 72, 'Gray': 61},
              'Geography':{'Jackson':92,'Gloria':95,'Isla':82,'Aron':75,'Ahree':76},
              'Mathematics':{'Sam':99,'Gloria':74,'Jackson':89,'Ahree':85,'Gray':95},
              'Science':{'Sam':89,'Aron':82,'Gray':78,'Isla':93,'Ahree':87}}
      series = pd.Series(data)
      print(series)
     English
                               {'Sam': 60, 'Jackson': 74, 'Ahree': 85}
     History
                     {'Gloria': 83, 'Sam': 65, 'Isla': 78, 'Aron': ...
     Geography
                     {'Jackson': 92, 'Gloria': 95, 'Isla': 82, 'Aro...
     Mathematics
                     {'Sam': 99, 'Gloria': 74, 'Jackson': 89, 'Ahre...
                     {'Sam': 89, 'Aron': 82, 'Gray': 78, 'Isla': 93...
     Science
     dtype: object
[12]: import pandas as pd
      data = {'English':{'Sam':60,'Jackson':74,'Ahree':85},
               'History': {'Gloria': 83, 'Sam': 65, 'Isla': 78, 'Aron': 72, 'Gray': 61},
              'Geography':{'Jackson':92,'Gloria':95,'Isla':82,'Aron':75,'Ahree':76},
              'Mathematics': { 'Sam': 99, 'Gloria': 74, 'Jackson': 89, 'Ahree': 85, 'Gray': 95},
              'Science':{'Sam':89,'Aron':82,'Gray':78,'Isla':93,'Ahree':87}}
      # Now you can fill NaN values:
      df = df.fillna(0)
      print(df)
                                                  Track.Name
                                                                    Artist.Name \
     0
                                                    Señorita
                                                                   Shawn Mendes
     1
                                                       China
                                                                       Anuel AA
     2
                              boyfriend (with Social House)
                                                                  Ariana Grande
     3
                            Beautiful People (feat. Khalid)
                                                                     Ed Sheeran
     4
                                Goodbyes (Feat. Young Thug)
                                                                    Post Malone
     5
                          I Don't Care (with Justin Bieber)
                                                                     Ed Sheeran
     6
                                                      Ransom
                                                                      Lil Tecca
     7
                                           How Do You Sleep?
                                                                      Sam Smith
     8
                                       Old Town Road - Remix
                                                                      Lil Nas X
     9
                                                     bad guy
                                                                  Billie Eilish
     10
                                                    Callaita
                                                                      Bad Bunny
     11
                      Loco Contigo (feat. J. Balvin & Tyga)
                                                                       DJ Snake
```

12

Someone You Loved

Lewis Capaldi

13	Otro Trago - Re	emix	Sech	
14	Money In The Grave (Drake ft. Rick Ro	oss)	Drake	
15	No Guidance (feat. Dra	ke) Chr	ris Brown	
16	LA CANO	CIÓN	J Balvin	
17	Sunflower - Spider-Man: Into the Spider-Ve	erse Pos	t Malone	
18	Lal	ala.	Y2K	
19	Truth Hu		Lizzo	
20	Piece Of Your He	art	MEDUZA	
21	Pan	iini L	il Nas X	
22	No Me Conoce - Re	emix Jha	y Cortez	
23	Soltera - Re	emix	Lunay	
24	bad guy (with Justin Bieb		e Eilish	
25	If I Can't Have		Shawn Mendes Tones and I Ali Gatie	
26	Dance Mon	•		
27	It's		li Gatie	
28	Con Ca		y Yankee	
29	QUE PRETEN		J Balvin	
30	Takea	•		
31	7 ri	0	a Grande	
32	0.958333		Maluma	
33	The London (feat. J. Cole & Travis Sco		ung Thug	
34	Never Really C		ty Perry	
35	Summer Days (feat. Macklemore & Patrick Stump			
36	Otro Tr	-	Sech	
37	Antisocial (with Travis Sco		Sheeran	
38			Brothers	
39	fuck, i'm lonely (with Anne-Marie) - from "13		Lauv	
40	Higher I		Kygo	
41	You Need To Calm D	•	or Swift	
42	Shal		ady Gaga	
43		alk	Khalid	
44	Con Alt		ROSALÍA	
45	One Thing Ri	_	rshmello	
46	Te Rob		icky Jam	
47	Нарр		rshmello	
48	Call You M		nsmokers	
49	Cross Me (feat. Chance the Rapper & PnB Ro	ock) Ed	Sheeran	
	Common Donte Don Minute Engage			
0	9.	mceability 1 76	oudnessdB \- -6	
1	canadian pop 117 55 reggaeton flow 105 81	76 79	-6 -4	
2	dance pop 190 80	40	-4 -8	
3 1	pop 93 65 dfw rap 150 65	64 58	-8 -4	
4 5	•	80	-4 -5	
5 6	* *	75	-6	
6 7	-	75 48	-6 -5	
		48 88	-6	
8	country rap 136 62	00	-0	

9	eled	ctropop		135	43	70	-11
10		ggaeton		176	62	61	-5
11	1 dance pop			96	71	82	-4
12		pop		110	41	50	-6
13	panaman			176	79	73	-2
14	canadian l	hip hop		101	50	83	-4
15		nce pop		93	45	70	-7
16		latin		176	65	75	-6
17		dfw rap		90	48	76	-6
18	canadian l	hip hop		130	39	84	-8
19		pe room		158	62	72	-3
20	_	p house		124	74	68	-7
21		try rap		154	59	70	-6
22	reggaeto			92	79	81	-4
23	00	latin		92	78	80	-4
24	eled	ctropop		135	45	67	-11
25		ian pop		124	82	69	-4
26	austral:			98	59	82	-6
27	canadian l			96	46	73	-7
28		latin		94	86	74	-3
29		latin		93	79	64	-4
30		edm		85	51	29	-8
31	daı	nce pop		140	32	78	-11
32		ggaeton		96	71	78	-5
33	3	hip hop		98	59	80	-7
34		nce pop		100	88	77	-5
35		ig room		114	72	66	-7
36	panaman	-		176	70	75	-5
37	pariamari	pop		152	82	72	-5
38	h	oy band		138	73	84	-5
39		nce pop		95	56	81	-6
40	dai	edm		104	68	69	-7
41	daı	nce pop		85	68	77	-6
42		nce pop		96	39	57	-6
43	dai	рор		136	40	90	-9
44	r&b en e			98	69	88	-4
45		brostep		98 88	62	66	-2
46	,	latin		176	75	67	-4
47	1	brostep		100	79	69	-3
48	,	edm		104	79 70	59	-6
49				95	70 79	75	-6
49		pop		95	19	75	-6
	Liveness	Valence.	Length.	Acousti	cness	Speechiness.	Popularity
0	8	75	191		4	3	79
1	8	61	302		8	9	92
2	16	70	186		12	46	85
3	8	55	198		12	19	86
4	11	18	175		45	7	94

_	_			_	_	
5	9	84	220	9	4	84
6	7	23	131	2	29	92
7	8	35	202	15	9	90
8	11	64	157	5	10	87
9	10	56	194	33	38	95
10	24	24	251	60	31	93
11	15	38	185	28	7	86
12	11	45	182	75	3	88
13	6	76	288	7	20	87
14	12	10	205	10	5	92
15	16	14	261	12	15	82
16	11	43	243	15	32	90
17	7	91	158	56	5	91
18	14	50	161	18	8	88
19	12	41	173	11	11	91
20	7	63	153	4	3	91
21	12	48	115	34	8	91
22	9	58	309	14	7	83
23	44	80	266	36	4	91
24	12	68	195	25	30	89
25	13	87	191	49	6	70
26	18	54	210	69	10	83
27	19	40	213	37	3	89
28	6	66	193	11	6	91
29	36	94	222	3	25	89
30	10	36	210	12	4	84
31	9	33	179	59	33	89
32	9	68	176	22	28	89
33	13	18	200	2	15	89
34	32	39	224	19	6	89
35	14	32	164	18	6	89
36	11	62	226	14	34	91
37	36	91	162	13	5	87
38	11	95	181	4	6	80
39	6	68	199	48	7	78
40	10	40	228	2	3	88
41	7	73	171	1	5	90
42	23	32	216	37	3	87
43	6	35	198	5	13	84
44	5	75	162	39	12	88
45	58	44	182	7	5	88
46	8	80	202	24	6	88
47	17	67	214	19	5	88
48	41	50	218	23	3	88
49	7	61	206	21	12	82

```
[13]: # Create the DataFrame first:
df = pd.DataFrame(data)
df
```

```
[13]:
                 English History
                                       Geography
                                                    Mathematics
                                                                   Science
                     60.0
                                65.0
                                              NaN
                                                            99.0
                                                                       89.0
       Sam
       Jackson
                     74.0
                                 {\tt NaN}
                                             92.0
                                                            89.0
                                                                        NaN
       Ahree
                     85.0
                                 NaN
                                             76.0
                                                            85.0
                                                                       87.0
       Gloria
                                83.0
                                             95.0
                                                            74.0
                      NaN
                                                                       NaN
       Isla
                      {\tt NaN}
                                78.0
                                             82.0
                                                             \mathtt{NaN}
                                                                       93.0
                                72.0
                                             75.0
                                                                       82.0
       Aron
                      {\tt NaN}
                                                             {\tt NaN}
                      {\tt NaN}
                                61.0
                                                            95.0
                                                                       78.0
       Gray
                                              NaN
```

Transposed DataFrame with 'Average' column:

	\mathtt{Sam}	Jackson	Ahree	Gloria	Isla	Aron	Gray	${ t Average}$
English	60.0	74.0	85.0	NaN	NaN	NaN	NaN	73.0
History	65.0	NaN	NaN	83.0	78.0	72.0	61.0	71.8
Geography	NaN	92.0	76.0	95.0	82.0	75.0	NaN	84.0
Mathematics	99.0	89.0	85.0	74.0	NaN	NaN	95.0	88.4
Science	89.0	NaN	87.0	NaN	93.0	82.0	78.0	85.8

Problem Statement 3: Write a Python program to create a series from 1 to 1000 and select only numbers divisible by 7 and 17.

```
[15]: #Create a series from 1 to 1000 that are divisibile by 7 and 17
import pandas as pd
series = pd.Series(range(1, 1001))
result = series[(series % 7 == 0) & (series % 17 == 0)]
```

print(result)

Problem Statement 4: Sylphia has a dataset of various cereals sold in the supermarket. Dataset Description: cereal.csv - The dataset contains 16 features. Here's a brief description of 3 columns in the dataset: • name - Brand name of the cereals • MFR - Manufacturer of the brands • rating - Rating of the cereals Syliphia wants to visualize the quality of cereals and determine which manufacturer delivers the best quality. Tasks to be performed: 1. Import the dataset. 2. Plot ratings of different types of manufacturers. 3. Use xticks range form 0-100. 4. Change the style of the graph to seaborn

```
[17]: import pandas as pd
      import numpy as np
      import seaborn as sb
      #1. Import the dataset
      df=pd.read_csv('/content/cereal.csv')
```

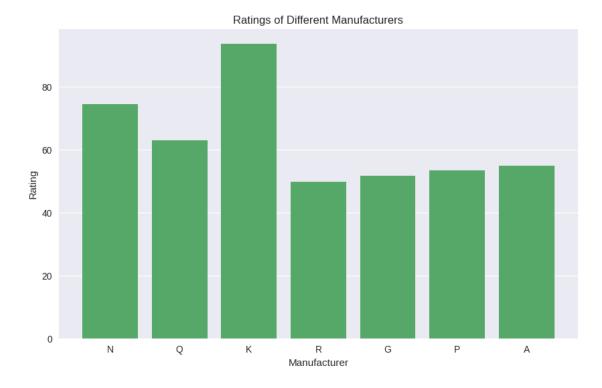
	df													
[17]:				na	me mfr	type	cal	lories	prote	in	fat	sodium	fiber	\
	0			100% Br				70	-	4	1	130	10.0	
	1		100% Na	atural Br	an Q	C	!	120		3	5	15	2.0	
	2			All-Br	an K	C	!	70		4	1	260	9.0	
	3	All-Br	an with 1	Extra Fib	er K	. C	ļ	50		4	0	140	14.0	
	4		Almo	ond Delig	ht R	. С	!	110		2	2	200	1.0	
							•••		•••					
	72			Tripl	es G	C	ļ	110		2	1	250	0.0	
	73			Tr	ix G	C	;	110		1	1	140	0.0	
	74			Wheat Ch	ex R	. С	!	100		3	1	230	3.0	
	75			Wheati	es G	C	!	100		3	1	200	3.0	
	76		Wheaties	Honey Go	ld G	C	!	110		2	1	200	1.0	
		carbo	sugars	potass	vitami	ns s	helf	weigh	t cup	S	ra	ting		
	0	5.0	6	280		25	3	1.	0 0.3	3	68.40	2973		
	1	8.0	8	135		0	3	1.	0 1.0	С	33.98	3679		
	2	7.0	5	320		25	3	1.	0 0.3	3	59.42	5505		
	3	8.0	0	330		25	3	1.	0 0.5	С	93.70	4912		
	4	14.0	8	-1		25	3	1.	0 0.7	5	34.38	4843		
					•••	•••	· •••		•••					
	72	21.0	3	60		25	3	1.	0 0.7	5	39.10	6174		

73	13.0	12	25	25	2	1.0	1.00	27.753301
74	17.0	3	115	25	1	1.0	0.67	49.787445
75	17.0	3	110	25	1	1.0	1.00	51.592193
76	16.0	8	60	25	1	1.0	0.75	36.187559

[77 rows x 16 columns]

```
[24]: #2.Plot ratings of different types of manufacturers:
import matplotlib.pyplot as plt
import seaborn as sns
plt.figure(figsize=(10, 6))
sns.barplot(x='mfr', y='rating', data=df,errorbar=("ci",0))
plt.bar(df['mfr'], df['rating'])
plt.style.use('seaborn')
plt.xlabel('Manufacturer')
plt.ylabel('Rating')
plt.title('Ratings of Different Manufacturers')
plt.show()
```

<ipython-input-24-4be02591e6af>:7: MatplotlibDeprecationWarning: The seaborn
styles shipped by Matplotlib are deprecated since 3.6, as they no longer
correspond to the styles shipped by seaborn. However, they will remain available
as 'seaborn-v0_8-<style>'. Alternatively, directly use the seaborn API instead.
 plt.style.use('seaborn')



```
[32]: import matplotlib.pyplot as plt
import seaborn as sns

plt.figure(figsize=(20, 12))
#3.Assuming the column name is 'mfr' (lowercase), correct the groupby operation
df.groupby('mfr')['rating'].mean().plot(kind='bar', xticks=range(0, 101))
plt.style.use('seaborn')
# 4.Display the plot
plt.show()
```

<ipython-input-32-e2a362f1cbc7>:7: MatplotlibDeprecationWarning: The seaborn
styles shipped by Matplotlib are deprecated since 3.6, as they no longer
correspond to the styles shipped by seaborn. However, they will remain available
as 'seaborn-v0_8-<style>'. Alternatively, directly use the seaborn API instead.
 plt.style.use('seaborn')

