Python - Graded Assignment - Diwakar Sinha

1) Create a dictionary containing the student information like name, age, department, and hometown for 5 students. Convert the dictionary into dataframe.

In [3]:
```
# Importing relevant libraries
import pandas as pd
```

In [17]:
```
# Creating Dict d1
d1 = {'Name':['Winner','Supreme','Topper','Super','Victorious'],
      'Age': [ 37,38,39,40,41],
      'Department':['DS','BA','DA', 'AI', 'ML'],
      'Hometown':[ 'BOM', 'PNQ','KOL','CCU', 'LKW']}
d1
```

Out[17]:
```
{'Name': ['Winner', 'Supreme', 'Topper', 'Super', 'Victorious'],
 'Age': [37, 38, 39, 40, 41],
 'Department': ['DS', 'BA', 'DA', 'AI', 'ML'],
 'Hometown': ['BOM', 'PNQ', 'KOL', 'CCU', 'LKW']}
```

In [18]:
```
# casting dict to DataFrame
df1= pd.DataFrame(d1)
df1
```

Out[18]:

	Name	Age	Department	Hometown
0	Winner	37	DS	BOM
1	Supreme	38	BA	PNQ
2	Topper	39	DA	KOL
3	Super	40	AI	CCU
4	Victorious	41	ML	LKW

2) Lambda & Map

In [19]:
```
Salary = [10000,20000,18000,45000]
NewSal= list(map(lambda n : n-500 , Salary))
# NewSal stores result in new list ## Map iterates thru list ### lambda performs op
NewSal
```

Out[19]:
```
[9500, 19500, 17500, 44500]
```

3) Natural Numbers upto 30 using for loop

In [24]:
```
for i in range (1 , 31): # natural nos start from 1 , range works till i-1
    print (i, end = ' ') # end= ' ' gives a horizontal output
```

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
```

4) Spotify

In [58]:
```
# Importing the dataset
df2= pd.read_csv('C:\\Users\\kings\\PGPDS5\\PY - Graded Assignment\\Module 5 - Grad
```

In [59]:
```
df2.head()
```

Out[59]:

	Unnamed: 0	Track.Name	Artist.Name	Genre	Beats.Per.Minute	Energy	Danceability	Loudn
0	1	Señorita	Shawn Mendes	canadian pop	117	55	76	
1	2	China	Anuel AA	reggaeton flow	105	81	79	
2	3	boyfriend (with Social House)	Ariana Grande	dance pop	190	80	40	
3	4	Beautiful People (feat. Khalid)	Ed Sheeran	pop	93	65	64	
4	5	Goodbyes (Feat. Young Thug)	Post Malone	dfw rap	150	65	58	

4 a) Display the following columns only : Track name, artist name and Genre.

In [60]:
```
df2[df2.columns[1:4]] # track name artist name and genre are col #1,2,3
```

Out[60]:

	Track.Name	Artist.Name	Genre
0	Señorita	Shawn Mendes	canadian pop
1	China	Anuel AA	reggaeton flow
2	boyfriend (with Social House)	Ariana Grande	dance pop
3	Beautiful People (feat. Khalid)	Ed Sheeran	pop
4	Goodbyes (Feat. Young Thug)	Post Malone	dfw rap
5	I Don't Care (with Justin Bieber)	Ed Sheeran	pop
6	Ransom	Lil Tecca	trap music
7	How Do You Sleep?	Sam Smith	pop
8	Old Town Road - Remix	Lil Nas X	country rap
9	bad guy	Billie Eilish	electropop
10	Callaita	Bad Bunny	reggaeton
11	Loco Contigo (feat. J. Balvin & Tyga)	DJ Snake	dance pop
12	Someone You Loved	Lewis Capaldi	pop
13	Otro Trago - Remix	Sech	panamanian pop
14	Money In The Grave (Drake ft. Rick Ross)	Drake	canadian hip hop
15	No Guidance (feat. Drake)	Chris Brown	dance pop
16	LA CANCIÓN	J Balvin	latin
17	Sunflower - Spider-Man: Into the Spider-Verse	Post Malone	dfw rap
18	Lalala	Y2K	canadian hip hop
19	Truth Hurts	Lizzo	escape room
20	Piece Of Your Heart	MEDUZA	pop house
21	Panini	Lil Nas X	country rap
22	No Me Conoce - Remix	Jhay Cortez	reggaeton flow
23	Soltera - Remix	Lunay	latin
24	bad guy (with Justin Bieber)	Billie Eilish	electropop
25	If I Can't Have You	Shawn Mendes	canadian pop
26	Dance Monkey	Tones and I	australian pop
27	It's You	Ali Gatie	canadian hip hop
28	Con Calma	Daddy Yankee	latin
29	QUE PRETENDES	J Balvin	latin
30	Takeaway	The Chainsmokers	edm
31	7 rings	Ariana Grande	dance pop
32	0.958333333	Maluma	reggaeton
33	The London (feat. J. Cole & Travis Scott)	Young Thug	atl hip hop
34	Never Really Over	Katy Perry	dance pop
35	Summer Days (feat. Macklemore & Patrick Stump ...	Martin Garrix	big room

	Track.Name	Artist.Name	Genre
36	Otro Trago	Sech	panamanian pop
37	Antisocial (with Travis Scott)	Ed Sheeran	pop
38	Sucker	Jonas Brothers	boy band
39	fuck, i'm lonely (with Anne-Marie) - from “13 ...	Lauv	dance pop
40	Higher Love	Kygo	edm
41	You Need To Calm Down	Taylor Swift	dance pop
42	Shallow	Lady Gaga	dance pop
43	Talk	Khalid	pop
44	Con Altura	ROSALÍA	r&b en espanol
45	One Thing Right	Marshmello	brostep
46	Te Robaré	Nicky Jam	latin
47	Happier	Marshmello	brostep
48	Call You Mine	The Chainsmokers	edm
49	Cross Me (feat. Chance the Rapper & PnB Rock)	Ed Sheeran	pop

In [63]:
```
sel = df2[['Track.Name', 'Artist.Name', 'Genre']] # selecting using column names
sel
```

Out[63]:

	Track.Name	Artist.Name	Genre
0	Señorita	Shawn Mendes	canadian pop
1	China	Anuel AA	reggaeton flow
2	boyfriend (with Social House)	Ariana Grande	dance pop
3	Beautiful People (feat. Khalid)	Ed Sheeran	pop
4	Goodbyes (Feat. Young Thug)	Post Malone	dfw rap
5	I Don't Care (with Justin Bieber)	Ed Sheeran	pop
6	Ransom	Lil Tecca	trap music
7	How Do You Sleep?	Sam Smith	pop
8	Old Town Road - Remix	Lil Nas X	country rap
9	bad guy	Billie Eilish	electropop
10	Callaita	Bad Bunny	reggaeton
11	Loco Contigo (feat. J. Balvin & Tyga)	DJ Snake	dance pop
12	Someone You Loved	Lewis Capaldi	pop
13	Otro Trago - Remix	Sech	panamanian pop
14	Money In The Grave (Drake ft. Rick Ross)	Drake	canadian hip hop
15	No Guidance (feat. Drake)	Chris Brown	dance pop
16	LA CANCIÓN	J Balvin	latin
17	Sunflower - Spider-Man: Into the Spider-Verse	Post Malone	dfw rap
18	Lalala	Y2K	canadian hip hop
19	Truth Hurts	Lizzo	escape room
20	Piece Of Your Heart	MEDUZA	pop house
21	Panini	Lil Nas X	country rap
22	No Me Conoce - Remix	Jhay Cortez	reggaeton flow
23	Soltera - Remix	Lunay	latin
24	bad guy (with Justin Bieber)	Billie Eilish	electropop
25	If I Can't Have You	Shawn Mendes	canadian pop
26	Dance Monkey	Tones and I	australian pop
27	It's You	Ali Gatie	canadian hip hop
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29	QUE PRETENDES	J Balvin	latin
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34	Never Really Over	Katy Perry	dance pop
35	Summer Days (feat. Macklemore & Patrick Stump ...	Martin Garrix	big room

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43	Talk	Khalid	pop
44	Con Altura	ROSALÍA	r&b en espanol
45	One Thing Right	Marshmello	brostep
46	Te Robaré	Nicky Jam	latin
47	Happier	Marshmello	brostep
48	Call You Mine	The Chainsmokers	edm
49	Cross Me (feat. Chance the Rapper & PnB Rock)	Ed Sheeran	pop

4b) Find the average beats per minute

In [47]:
```
df2['Beats.Per.Minute'].mean()
```

Out[47]:
```
120.06
```

5) Automobiles

In [51]:
```
df3= pd.read_csv('C:\\Users\\kings\\PGPDS5\\PY - Graded Assignment\\Module 5 - Grad
df3.head()
```

Out[51]:

	symboling	normalized_losses	make	fuel_type	aspiration	number_of_doors	body_style	driv
0	3	168	alfa-romero	gas	std	two	convertible	
1	3	168	alfa-romero	gas	std	two	convertible	
2	1	168	alfa-romero	gas	std	two	hatchback	
3	2	164	audi	gas	std	four	sedan	
4	2	164	audi	gas	std	four	sedan	

5 rows × 26 columns

5a) Find the average price for each make of cars.

In [53]:
```
avg_price= df3.groupby('make')['price'].mean().reset_index()
avg_price
```

Out[53]:

	make	price
0	alfa-romero	15498.333333
1	audi	17859.166667
2	bmw	26118.750000
3	chevrolet	6007.000000
4	dodge	7875.444444
5	honda	8184.692308
6	isuzu	8916.500000
7	jaguar	34600.000000
8	mazda	10652.882353
9	mercedes-benz	33647.000000
10	mercury	16503.000000
11	mitsubishi	9239.769231
12	nissan	10415.666667
13	peugot	15489.090909
14	plymouth	7963.428571
15	porsche	31400.500000
16	renault	9595.000000
17	saab	15223.333333
18	subaru	8541.250000
19	toyota	9885.812500
20	volkswagen	10077.500000
21	volvo	18063.181818

5b) Find the average engine size for each make of cars.

In [54]:
```
avg_eng_s= df3.groupby('make')['engine_size'].mean().reset_index()
avg_eng_s
```

Out[54]:

	make	engine_size
0	alfa-romero	137.333333
1	audi	130.666667
2	bmw	166.875000
3	chevrolet	80.333333
4	dodge	102.666667
5	honda	99.307692
6	isuzu	115.000000
7	jaguar	280.666667
8	mazda	103.000000
9	mercedes-benz	226.500000
10	mercury	140.000000
11	mitsubishi	118.307692
12	nissan	127.888889
13	peugot	135.818182
14	plymouth	106.285714
15	porsche	183.250000
16	renault	132.000000
17	saab	121.000000
18	subaru	107.083333
19	toyota	118.812500
20	volkswagen	107.250000
21	volvo	142.272727

In [ ]: