Super Heroes Data - EDA

1. Loading important/required libraries.

In [1]:
```
import pandas as pd
from matplotlib import pyplot as plt
```

2. Read CSV File.

In [2]:
```
marvel = pd.read_csv('characters_stats.csv')
```

3. Show first records from csv.

In [3]:
```
marvel.head()
```

Out[3]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
0	3-D Man	good	50	31	43	32	25	52	233
1	A-Bomb	good	38	100	17	80	17	64	316
2	Abe Sapien	good	88	14	35	42	35	85	299
3	Abin Sur	good	50	90	53	64	84	65	406
4	Abomination	bad	63	80	53	90	55	95	436

4. Show number of rows and columns

In [4]:
```
marvel.shape
```

Out[4]:
```
(611, 9)
```

5. You need to find the values of alignment ,can use value_counts().

In [5]:
```
marvel['Alignment'].value_counts()
```

Out[5]:
```
good       432
bad        165
neutral     11
Name: Alignment, dtype: int64
```

6. Find out only good alignment holders superheroes.

In [6]:
```
marvel[marvel['Alignment']=='good']
```

Out[6]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
0	3-D Man	good	50	31	43	32	25	52	233
1	A-Bomb	good	38	100	17	80	17	64	316
2	Abe Sapien	good	88	14	35	42	35	85	299
3	Abin Sur	good	50	90	53	64	84	65	406
6	Adam Monroe	good	63	10	12	100	71	64	320
...	...	...	...	...	...	...	...	...	...
604	X-Man	good	88	53	53	95	92	84	465
606	Yellowjacket	good	88	10	12	28	12	14	164
607	Yellowjacket II	good	50	10	35	28	31	28	182
608	Ymir	good	50	100	27	100	83	28	388
609	Zatanna	good	75	10	23	28	100	56	292

432 rows × 9 columns

7. Show first five records which you found in point 6.

In [7]:
```
good = marvel[marvel['Alignment']=='good']
good.head()
```

Out[7]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
0	3-D Man	good	50	31	43	32	25	52	233
1	A-Bomb	good	38	100	17	80	17	64	316
2	Abe Sapien	good	88	14	35	42	35	85	299
3	Abin Sur	good	50	90	53	64	84	65	406
6	Adam Monroe	good	63	10	12	100	71	64	320

8. Show top five records having top speed of heroes of good alignment.

In [8]:
```
good.sort_values(by=['Speed'],ascending=False).head()
```

Out[8]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
231	Flash III	good	63	10	100	60	83	32	348
304	Jack of Hearts	good	63	55	100	30	70	30	348
295	Impulse	good	50	10	100	60	63	60	343
525	Stardust	good	88	85	100	110	100	85	568
447	Quicksilver	good	63	28	100	60	57	56	364

9. Show 5 records of super heroes who have maximum power of good alignment

In [9]:
```
good.sort_values(by=['Power'],ascending=False).head()
```

Out[9]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
609	Zatanna	good	75	10	23	28	100	56	292
546	Thor	good	69	100	92	100	100	85	546
511	Spawn	good	75	60	50	90	100	95	470
69	Beta Ray Bill	good	63	80	35	95	100	84	457
70	Beyonder	good	88	100	23	100	100	56	467

10. Find out how many super heroes are there with power 100 of good alignment.

In [10]:
```
maxpower100 = good[good['Power']==100]
```

11. Shape them what you got in point 10.

In [11]:
```
maxpower100.shape
```

Out[11]:
```
(33, 9)
```

12. Show all records from point 10.

In [12]:
```
maxpower100
```

Out[12]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
69	Beta Ray Bill	good	63	80	35	95	100	84	457
70	Beyonder	good	88	100	23	100	100	56	467
85	Black Bolt	good	75	67	100	84	100	56	482
129	Cable	good	88	48	23	56	100	80	395
185	Deadman	good	50	10	33	100	100	42	335
196	Doctor Fate	good	81	16	25	80	100	50	352
198	Doctor Strange	good	100	10	12	84	100	60	366
204	Dr Manhattan	good	88	32	42	95	100	42	399
226	Firestorm	good	50	53	58	56	100	42	359
251	Goku	good	56	100	75	90	100	100	521
266	Hal Jordan	good	63	90	53	64	100	56	426
294	Iceman	good	63	32	53	100	100	64	412
299	Iron Man	good	100	85	58	85	100	64	492
306	Jean Grey	good	100	80	67	100	100	70	517
327	Kilowog	good	81	90	53	42	100	80	446
361	Martian Manhunter	good	100	100	96	100	100	85	581
362	Marvel Girl	good	63	85	47	42	100	80	417
383	Miss Martian	good	63	85	58	100	100	45	451
408	Naruto Uzumaki	good	50	80	32	80	100	100	442
417	Nova	good	100	85	67	101	100	85	538
418	Nova	good	38	60	100	100	100	25	423
419	Offspring	good	50	10	35	99	100	56	350
433	Phoenix	good	100	80	67	100	100	70	517
435	Plastic Man	good	50	63	23	100	100	56	392
487	Shadow King	good	75	12	27	100	100	75	389
499	Silver Surfer	good	63	100	84	101	100	32	480
511	Spawn	good	75	60	50	90	100	95	470
525	Stardust	good	88	85	100	110	100	85	568
546	Thor	good	69	100	92	100	100	85	546
547	Thor Girl	good	75	83	70	84	100	70	482
583	War Machine	good	63	80	63	100	100	85	491
589	Watcher	good	100	80	67	89	100	56	492
609	Zatanna	good	75	10	23	28	100	56	292

13. Retrieve total of first five records of max power of good alignment super heroes.

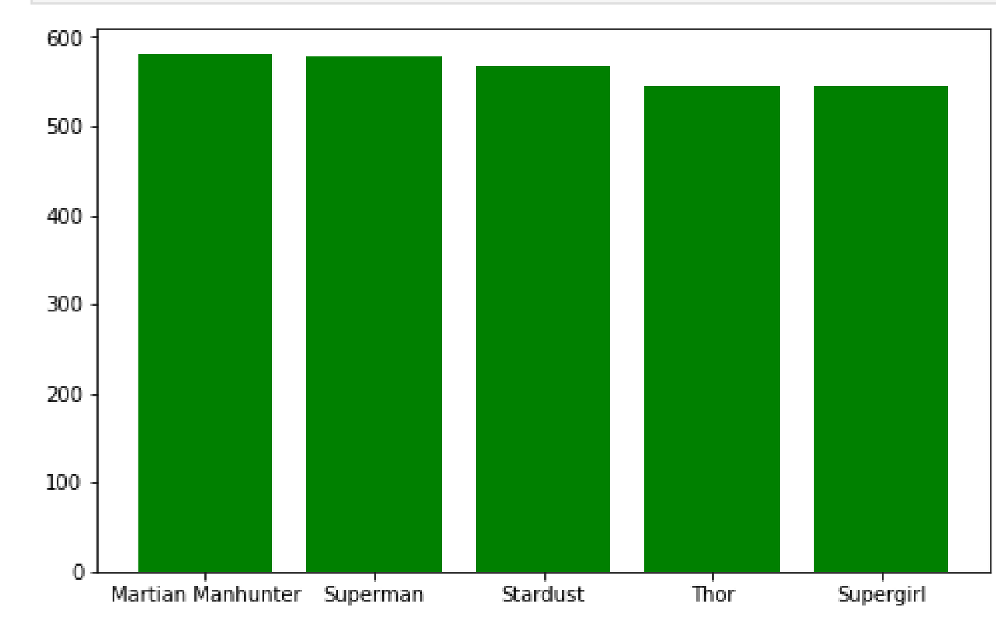
In [13]:
```
maxpower100top5=good.sort_values(by=['Total'],ascending=False)
maxpower100top5.head()
```

Out[13]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
361	Martian Manhunter	good	100	100	96	100	100	85	581
537	Superman	good	100	100	100	100	94	85	579
525	Stardust	good	88	85	100	110	100	85	568
546	Thor	good	69	100	92	100	100	85	546
536	Supergirl	good	94	98	92	100	85	75	544

14. #Draw a bar plot of all super heroes who are having good alignment and max power of top five only , take same object of point 13 , show name and total in plot with green bars.

In [14]:
```
plt.figure(figsize=(8,5))
plt.bar(list(maxpower100top5['Name'])[0:5], list(maxpower100top5['Total'])[0:5],color='g')
plt.show()
```



15. Extract villains having bad alignment.

In [15]:
```
marvel[marvel['Alignment']=='bad']
```

Out[15]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
4	Abomination	bad	63	80	53	90	55	95	436
5	Abraxas	bad	88	100	83	99	100	56	526
11	Air-Walker	bad	50	85	100	85	100	40	460
16	Amazo	bad	75	100	100	100	100	100	575
17	Ammo	bad	1	1	1	1	0	1	5
...	...	...	...	...	...	...	...	...	...
586	Warp	bad	38	10	23	28	63	50	212
590	Weapon XI	bad	1	1	1	1	0	1	5
593	Willis Stryker	bad	38	16	23	28	41	60	206
605	Yellow Claw	bad	1	1	1	1	0	1	5
610	Zoom	bad	50	10	100	28	72	28	288

165 rows × 9 columns

16. Show first five records of point 15.

In [16]:
```
bad=marvel[marvel['Alignment']=='bad']
bad.head()
```

Out[16]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
4	Abomination	bad	63	80	53	90	55	95	436
5	Abraxas	bad	88	100	83	99	100	56	526
11	Air-Walker	bad	50	85	100	85	100	40	460
16	Amazo	bad	75	100	100	100	100	100	575
17	Ammo	bad	1	1	1	1	0	1	5

17. Show top five fastest super villains in terms of super speed.

In [17]:
```
bad.sort_values(by=['Speed'],ascending=False).head()
```

Out[17]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
610	Zoom	bad	50	10	100	28	72	28	288
11	Air-Walker	bad	50	85	100	85	100	40	460
16	Amazo	bad	75	100	100	100	100	100	575
535	Superboy-Prime	bad	94	100	100	100	100	85	579
242	General Zod	bad	94	100	96	100	94	95	579

18. Top five super villains in terms of intelligence

In [18]:
```
bad.sort_values(by=['Intelligence'],ascending=False).head()
```

Out[18]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
386	Mister Mxyzptlk	bad	113	10	12	14	100	28	277
338	Lex Luthor	bad	100	10	12	14	10	28	174
336	Leader	bad	100	10	12	14	58	42	236
122	Brainiac	bad	100	28	63	90	60	75	416
194	Doctor Doom	bad	100	32	20	100	93	84	429

19. Show who is most dangerous super villain after calculating their total (top 5 only).

In [19]:
```
bad.sort_values(by=['Total'],ascending=False).head()
```

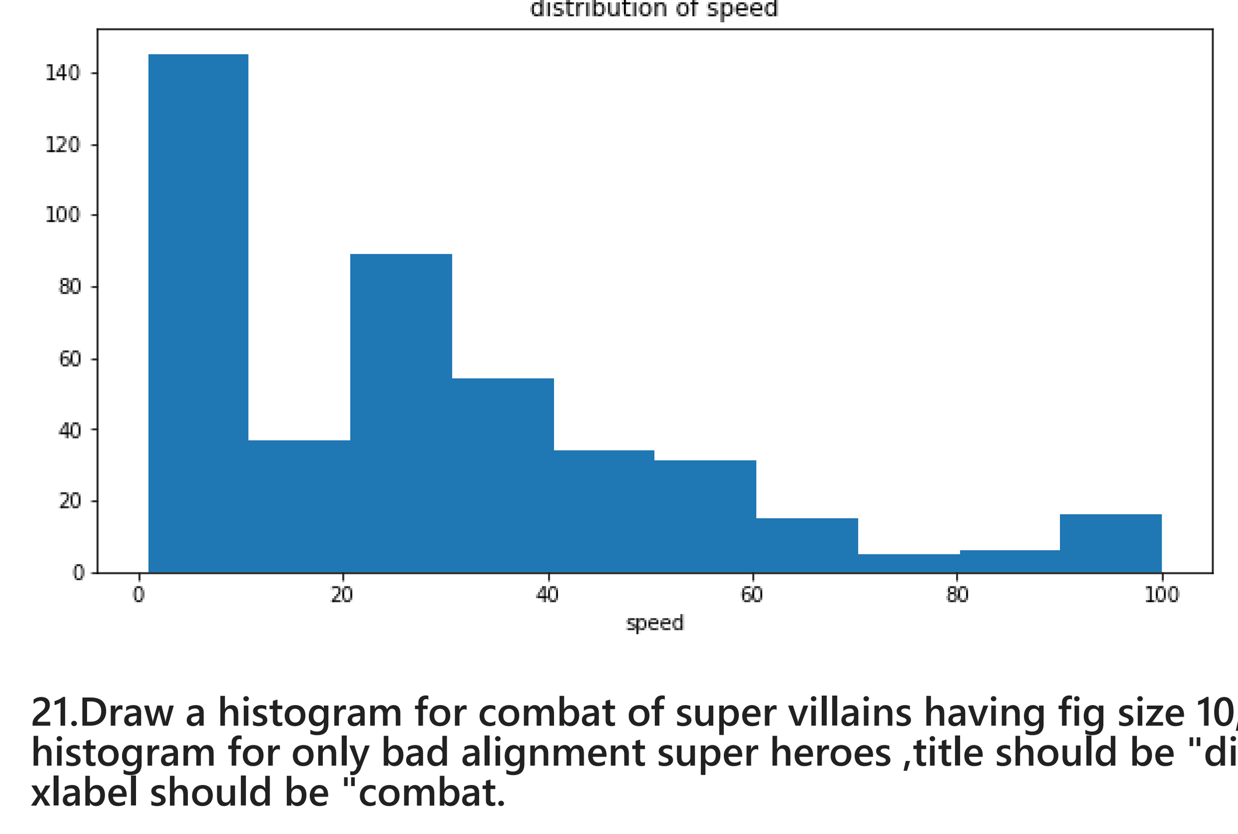
Out[19]:

	Name	Alignment	Intelligence	Strength	Speed	Durability	Power	Combat	Total
535	Superboy-Prime	bad	94	100	100	100	100	85	579
242	General Zod	bad	94	100	96	100	94	95	579
16	Amazo	bad	75	100	100	100	100	100	575
203	Dormammu	bad	88	95	83	100	100	80	546
201	Doomsday	bad	88	80	67	120	100	90	545

20. Draw a histogram for speed of super heroes having fig size 10,5 , provide speed in histogram for only good alignment super heroes ,title should be "distribution of speed" , xlabel should be "speed.

In [20]:
```
plt.figure(figsize=(10,5))
plt.hist(good['Speed'])
plt.title('distribution of speed')
plt.xlabel('speed')
```

Out[20]:
```
Text(0.5, 0, 'speed')
```



21.Draw a histogram for combat of super villains having fig size 10,5 , provide combat in histogram for only bad alignment super heroes ,title should be "distribution of combat" , xlabel should be "combat.

In [21]:
```
plt.figure(figsize=(10,5))
plt.hist(bad['Combat'])
plt.title('distribution of combat')
plt.xlabel('combat')
```

Out[21]:
```
Text(0.5, 0, 'combat')
```