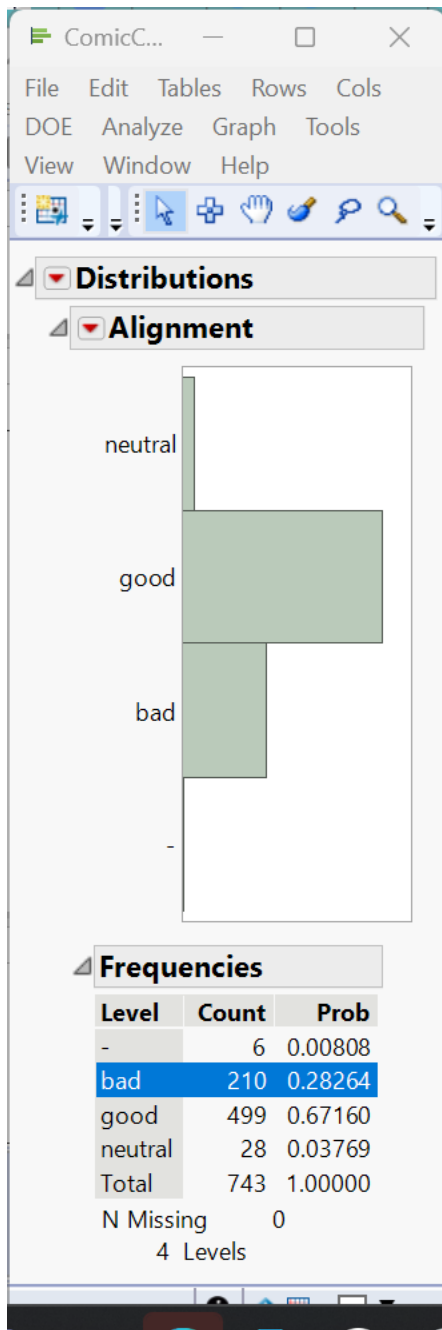


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1. Look at the distribution of the Alignment column. What percentage of the characters are good? What percentage are bad? Show a screen shot of the distributions.

Sol:- 28.264% of the characters are bad and 67.16% are good.

Good	Bad
67.16%	28.26%



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2. Hide and exclude the rows where the Alignment is missing or neutral. How many did you hide?

Sol :- 34 rows were hidden and excluded.

	First appearance	Creator	Alignment	Gender	Race	Height	Height in cm	Standardize[Height in cm]
92	Daredevil #157 (March, 1979)	Marvel Comics	bad	Male	Human	- // 0 cm	0	-0.153937479
93	Birdman and the Galaxy Trio (1967)	Hanna-Barbera	good	Male	God / Eternal	- // 0 cm	0	-0.153937479
94	Uncanny X-Men #282 (November, 1991)	Marvel Comics	good	Male	Mutant	6'6 // 198 cm	198	-0.034628066
95	Superboy Vol. 1 #68 (1958)	DC Comics	neutral	Male	Bizarro	6'3 // 191 cm	191	-0.038846076
96	Marvel Team Up #146 (1984)	Marvel Comics	bad	Male	-	- // 0 cm	0	-0.153937479
97	Marvel Family #1 (December, 1945)	DC Comics	bad	Male	-	6'3 // 191 cm	191	-0.038846076
98	Fantastic Four #45 (December, 1965)	Marvel Comics	good	Male	Inhuman	6'2 // 188 cm	188	-0.040653794
99	Flash Comics #86 (August, 1947)	DC Comics	good	Female	Human	5'5 // 165 cm	165	-0.054512968
100	Justice League of America (Volume 1) #75	DC Comics	good	Female	Metahuman	5'7 // 170 cm	170	-0.051500104
101	Amazing Spider-Man #194 (July, 1979)	Marvel Comics	good	Female	Human	5'10 // 178 cm	178	-0.046679522
102	Flash Vol 2 #138	DC Comics	neutral	Male	God / Eternal	- // 0 cm	0	-0.153937479
103	-	Marvel Comics	good	Male	-	- // 0 cm	0	-0.153937479
104	Avengers #47 (1967)	Marvel Comics	good	Male	Human	6'0 // 183 cm	183	-0.043666658
105	Black Lightning #1 (April 1977)	DC Comics	good	Male	-	6'1 // 185 cm	185	-0.042461512
106	Marvel Two-In-One #64	Marvel Comics	bad	Female	-	5'7 // 170 cm	170	-0.051500104
107	Aquaman #35 (August, 1967)	DC Comics	bad	Male	Human	6'2 // 188 cm	188	-0.040653794
108	Fantastic Four Vol. 1 #52 (1966)	Marvel Comics	good	Male	Human	6'0 // 183 cm	183	-0.043666658
109	Tales of Suspense #52	Marvel Comics	good	Female	Human	5'7 // 170 cm	170	-0.051500104
110	-	Marvel Comics	good	Female	-	5'7 // 170 cm	170	-0.051500104
111	Ghost Rider Vol 3 #2 (June, 1990)	Marvel Comics	bad	Male	Demon	6'3 // 191 cm	191	-0.038846076
112	Daredevil #118 (February, 1975)	Marvel Comics	bad	Male	-	6'1 // 185 cm	185	-0.042461512
113	Thunderstrike #6 (March, 1994)	Marvel Comics	-	Male	Alien	6'2 // 188 cm	188	-0.040653794
114	Tomb of Dracula Vol. 1 #10 (1973)	Marvel Comics	good	Male	Vampire	6'2 // 188 cm	188	-0.040653794

3. Create an indicator column that has 1 when the race is Human, 0 when the race is not human, and blank when the race is missing. Name the column Human. How many humans are in the dataset?

Sol:- There are 203 Humans in the dataset.

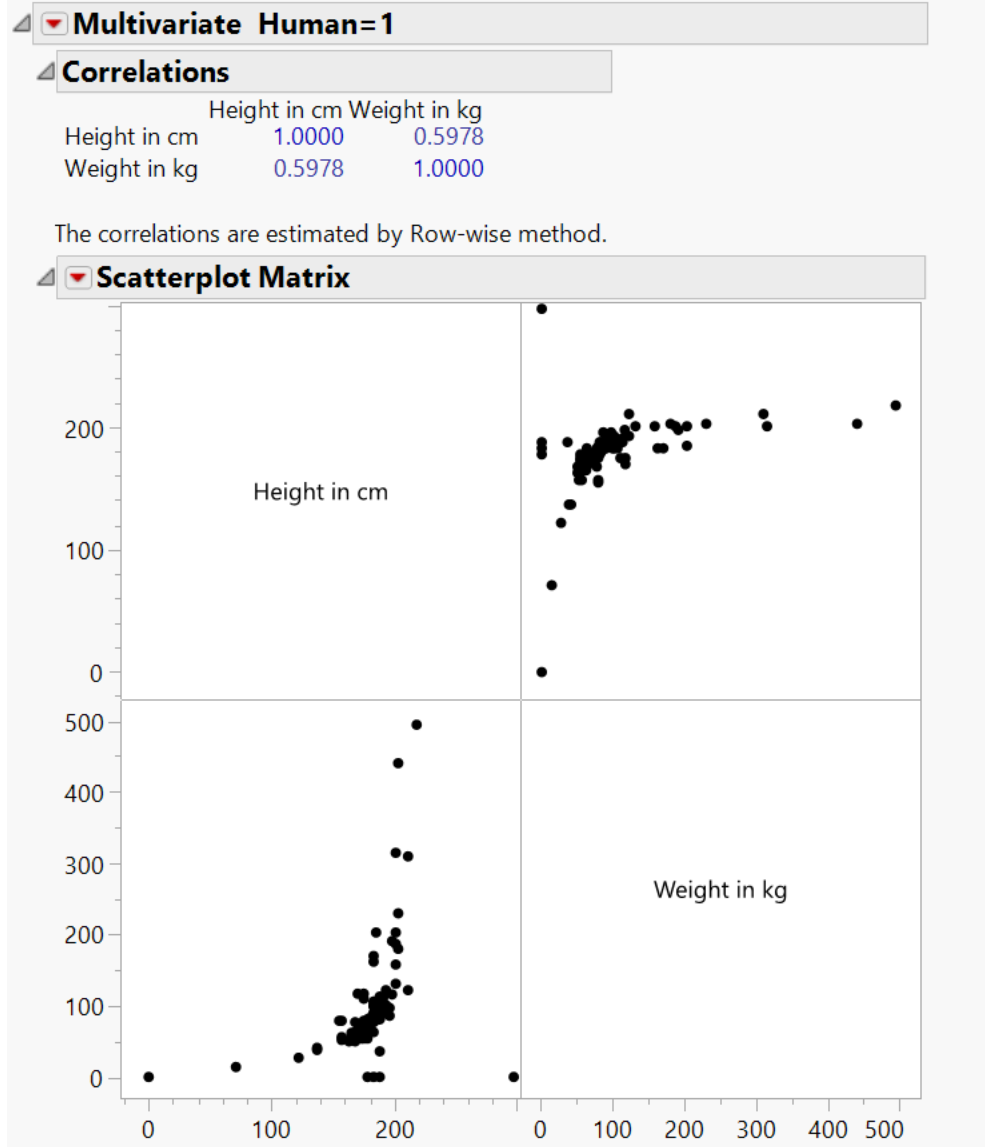
Level	Count	Prob
0	211	0.50966
1	203	0.49034
Total	414	1.00000

N Missing 295
2 Levels

4. Create a scatterplot matrix for Height in cm and Weight in kg by Human status. What is the correlation between height and weight for humans? Include a screenshot of the correlations. (HINT: Put Human in the By field.)

Sol:- Since the correlation ranges between 0.5 -0.7 and is in moderate blue color, I assume the correlation to be a Strong positive correlation.

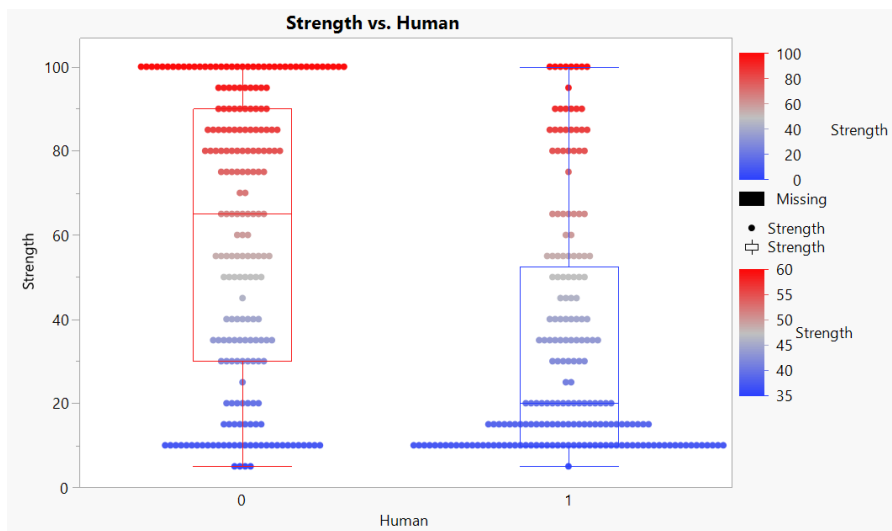
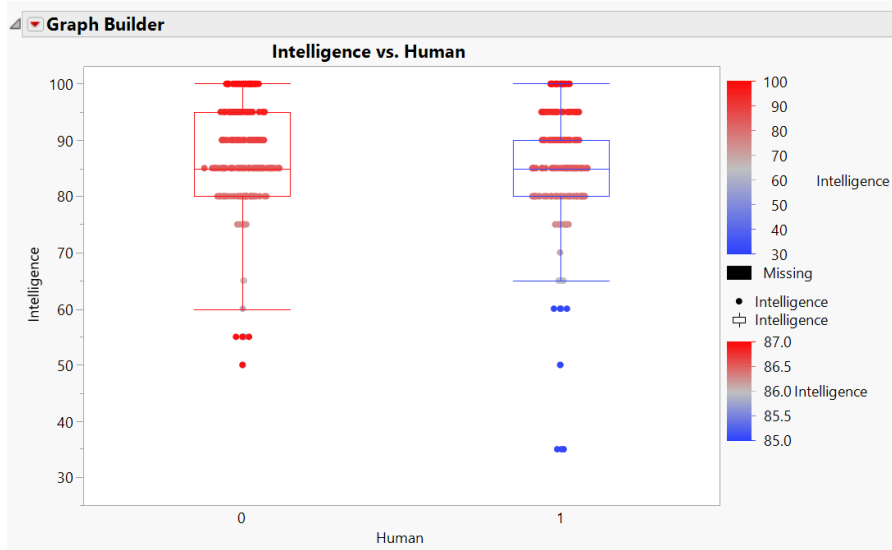
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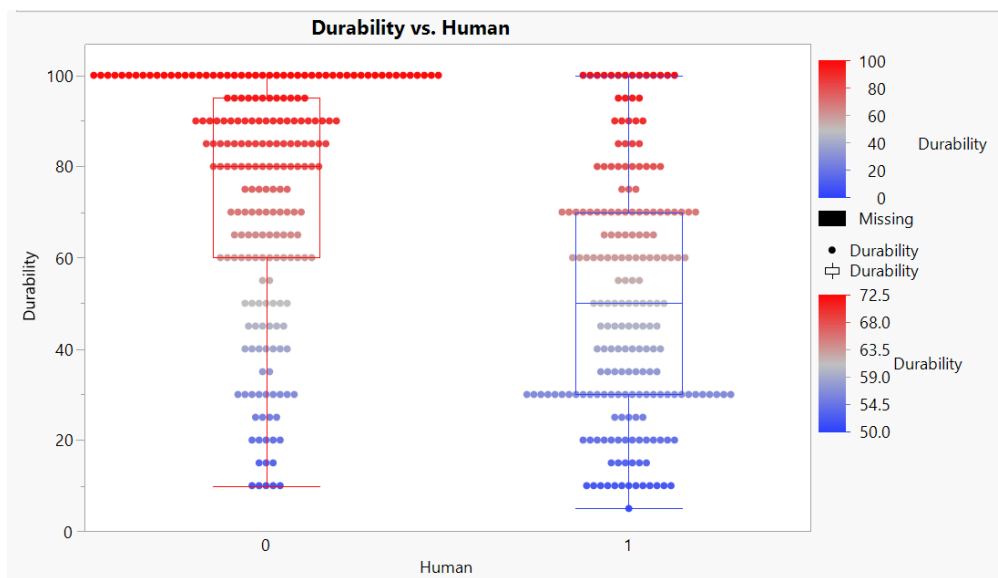
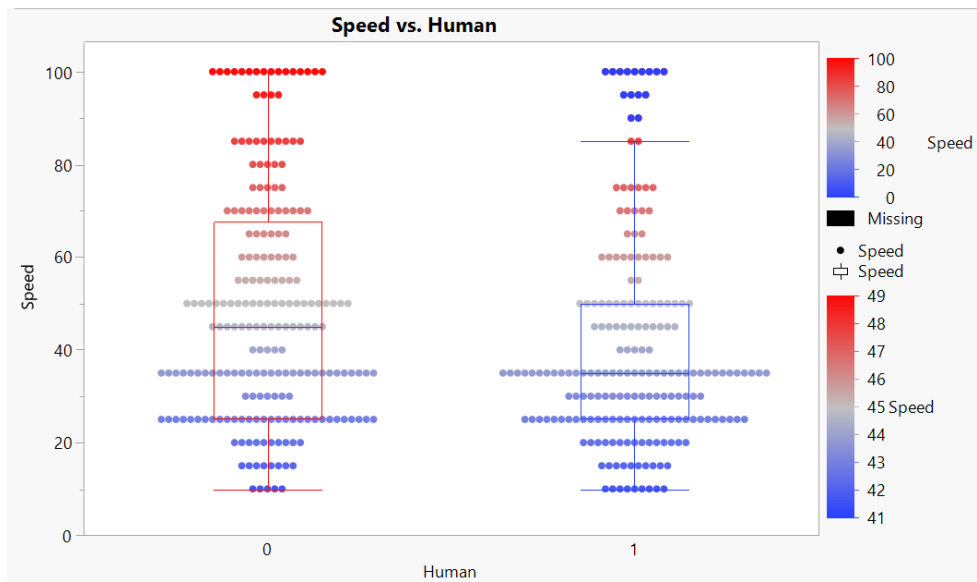
5. Which of the following attributes differ the most between humans and non-humans – intelligence, strength, speed, durability, power, and combat? Include a screen shot of box plots that justify your response.

Sol:- Of all the attributes, I think durability is the attribute that differs the most between humans and no-humans, the ranges seems to be show a clear difference, 50% of the humans durability lies in the range of 25-65, and for non-humans its ranging around 60-105, yes there is a slight overlap, but when compared with other attributes, the overlap is minimal in durability, hence concluding that durability differs the most between human and non-humans.

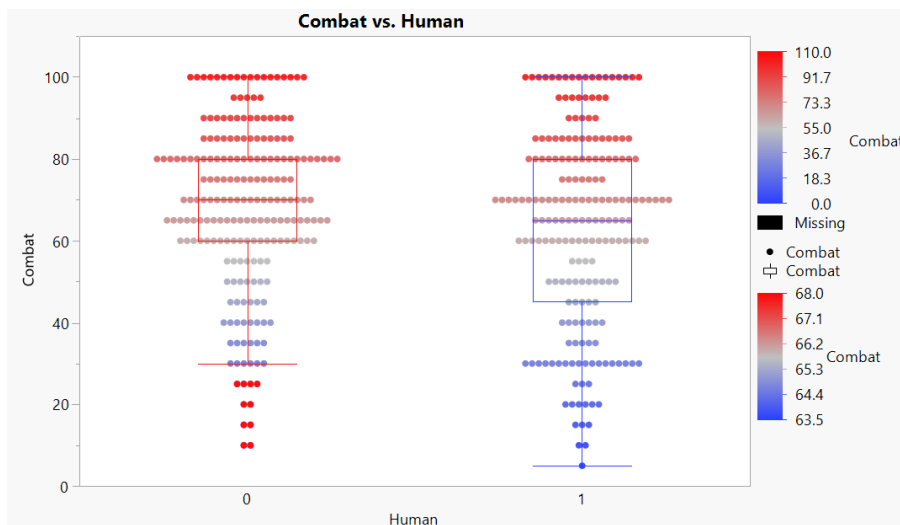
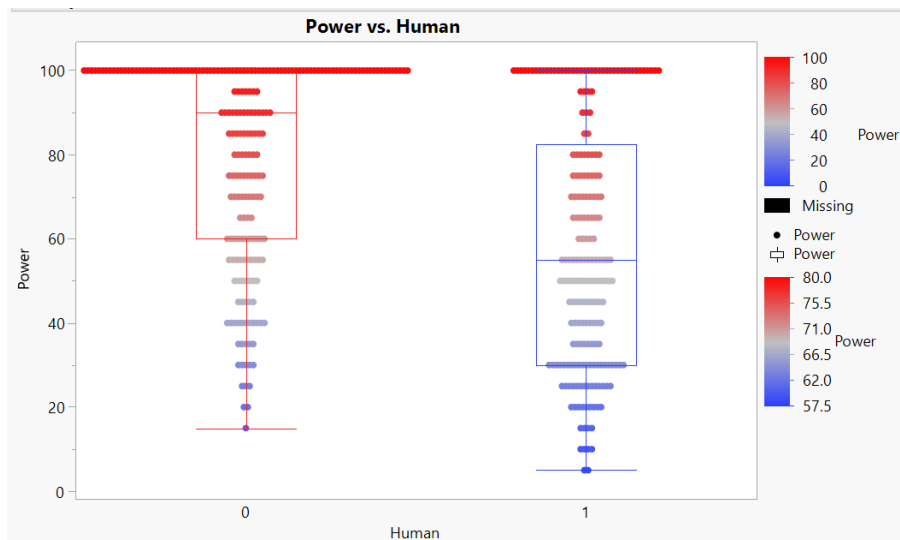
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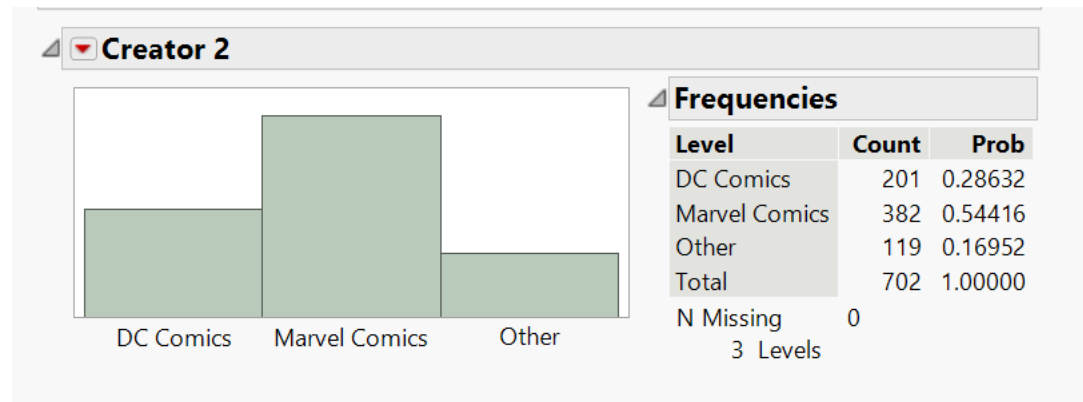
6. Hide and exclude the rows where the Creator is missing. How many did you hide? How many rows total is now hidden?

Sol:- 7 rows were hidden, Now total of 41 rows are hidden, actually there were 8 N missing values, since 1 of them was hidden while solving question 2, so we have hidden only 7 rows while solving this, hence, 41 rows are hidden now.

Rows	
All rows	743
Selected	8
Excluded	41
Hidden	41
Labeled	0

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7. Create a new column called Creator 2 with the values DC Comics, Marvel Comics, and Other for all other creators. Include a screen shot of the distribution of the Creator 2 column.



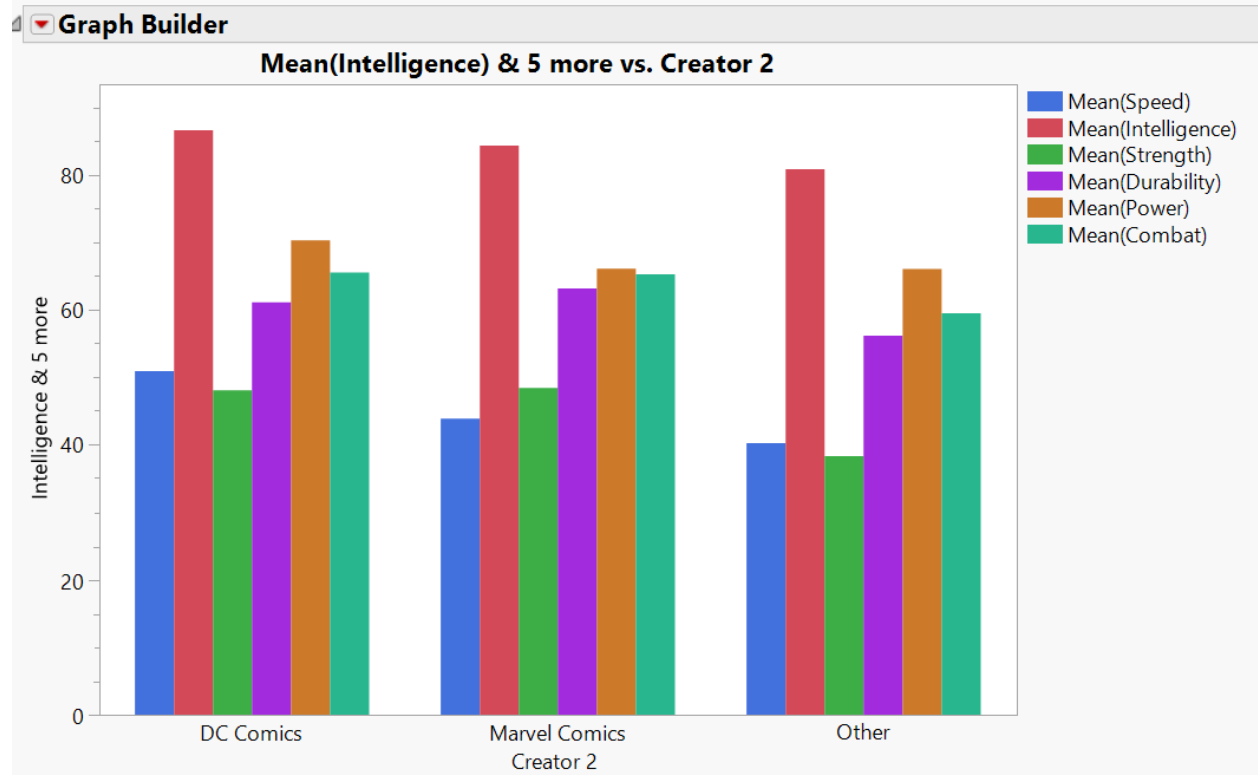
		First appearance	Creator	Creator 2
136		First appearance unknown	Marvel Comics	Marvel Comics
137	...	Alpha Flight #16	Marvel Comics	Marvel Comics
138		Action Comics #242 (July 1958)	DC Comics	DC Comics
139		Brainiac 5's primary invention is his personal ...	DC Comics	DC Comics
140	...	Strange Tales #169 (September, 1973)	Marvel Comics	Marvel Comics
141		The Fly (1986)		Other
142		Dark Horse Presents 1998 Annual	Dark Horse Comics	Other
143		Daredevil #131 (March, 1976)	Marvel Comics	Marvel Comics
144		Teen Titans #45	DC Comics	DC Comics
145		New X-Men #153	Marvel Comics	Marvel Comics
146		Titans: Secret Files & Origins #2	DC Comics	DC Comics
147	i...	New Mutants #86 (as Cable)	Marvel Comics	Marvel Comics
148		X-MEN (first series) #169	Marvel Comics	Marvel Comics
149		-	SyFy	Other

8. Create a visualization of your choice to explore differences in character attributes between DC Comics and Marvel Comics. Include a screen shot of the visualization and describe what you learned about the data from it.

	DC Comics	Marvel comics	Other	Winner
Speed (Mean)	50.899	43.886	40.260	DC Comics
Intelligence(Mean)	86.534	84.282	80.781	DC Comics
Strength (Mean)	48.042	48.402	38.033	Marvel Comics
Durability (Mean)	61.058	63.123	56.146	Marvel Comics
Power (Mean)	70.238	66.041	65.990	DC Comics
Durability (Mean)	65.476	65.205	59.479	DC Comics

Sol:- Of comparing the mean values among speed, intelligence, strength, durability, power and durability, DC Comics is the clear winner among all of them, however Marvel comics outplays in Strength and durability by slight margin, Speed has been the major attribute of DC Comics that has a greater difference when compared with others.

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