Analyzing the Impact of Car Features on Price and Profitability

PROJECT DESCRIPTION

The automotive industry has undergone significant changes over the years, with an increasing emphasis on fuel efficiency, environmental responsibility, and technological advancements. As competition in the market intensifies, manufacturers are looking to reshape the consumer market.

The goal of this project is to examine the car features that influence manufacturers' pricing decisions. The client, in their role as a Data Analyst, has been tasked with determining how a car manufacturer can optimize pricing and product development strategies to boost profitability while satisfying consumer needs.

The dataset includes information on various car models and their features. This dataset is provided by Cooper College in New York City and is available on Kaggle.

- Total number of observations:- 11,813
- File type:- CSV

APPROACH

For analysis I used descriptive statistics, regression analysis, and visualization to visualize the charts and graphs.

The purpose of using descriptive analysis was to determine the average values of the car's feature variables and then represent them through charts and graphs.

Regression analysis revealed how independent variables relate to dependent variables, indicating how specific car features influence the car's price.

When creating the charts, it was challenging to summarize the variable values as sums or averages.

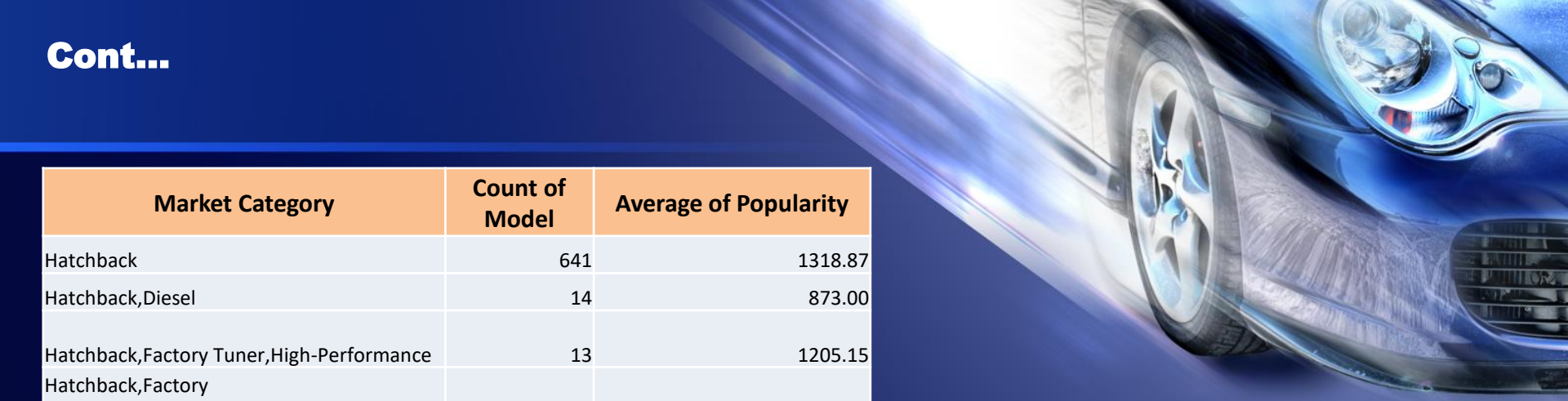
Task 1.A: Create a pivot table that shows the number of car models in each market category and their corresponding popularity scores.

Market Category	Count of Model	Average of Popularity
Crossover	1110	1545.26
Crossover,Diesel	7	873.00
Crossover,Exotic,Luxury,High-Performance	1	238.00
Crossover,Exotic,Luxury,Performance	1	238.00
Crossover,Factory Tuner,Luxury,High-Performance	26	1823.46
Crossover,Factory Tuner,Luxury,Performance	5	2607.40
Crossover,Factory Tuner,Performance	4	210.00
Crossover,Flex Fuel	64	2073.75
Crossover,Flex Fuel,Luxury	10	1173.20
Crossover,Flex Fuel,Luxury,Performance	6	1624.00
Crossover,Flex Fuel,Performance	6	5657.00
Crossover,Hatchback	72	1675.69
Crossover,Hatchback,Factory Tuner,Performance	6	2009.00
Crossover,Hatchback,Luxury	7	204.00
Crossover,Hatchback,Performance	6	2009.00
Crossover,Hybrid	42	2563.38
Crossover,Luxury	410	884.55
Crossover,Luxury,Diesel	34	2149.41
Crossover,Luxury,High-Performance	9	1037.22
Crossover,Luxury,Hybrid	24	630.92
Crossover,Luxury,Performance	113	1344.85
Crossover,Luxury,Performance,Hybrid	2	3916.00
Crossover,Performance	69	2585.96

Market Category	Count of Model	Average of Popularity
Diesel	84	1730.90
Diesel,Luxury	51	2275.00
Exotic,Factory Tuner,High-Performance	21	1046.38
Exotic,Factory Tuner,Luxury,High-Performance	52	517.54
Exotic,Factory Tuner,Luxury,Performance	3	520.00
Exotic,Flex Fuel,Factory Tuner,Luxury,High-Performance	13	520.00
Exotic,Flex Fuel,Luxury,High-Performance	11	520.00
Exotic,High-Performance	261	1271.33
Exotic,Luxury	12	112.67
Exotic,Luxury,High-Performance	79	467.08
Exotic,Luxury,High-Performance,Hybrid	1	204.00
Exotic,Luxury,Performance	36	217.03
Exotic,Performance	10	1391.00
Factory Tuner,High-Performance	106	1941.42
Factory Tuner,Luxury	2	617.00
Factory Tuner,Luxury,High-Performance	215	2133.37
Factory Tuner,Luxury,Performance	31	1413.42
Factory Tuner,Performance	92	1695.70
Flex Fuel	872	2217.30
Flex Fuel,Diesel	16	5657.00
Flex Fuel,Factory Tuner,Luxury,High-Performance	1	258.00
Flex Fuel,Hybrid	2	155.00
Flex Fuel,Luxury	39	746.54
Flex Fuel,Luxury,High-Performance	33	878.91
Flex Fuel,Luxury,Performance	28	1380.07
Flex Fuel,Performance	87	1680.47
Flex Fuel,Performance,Hybrid	2	155.00

Cont...

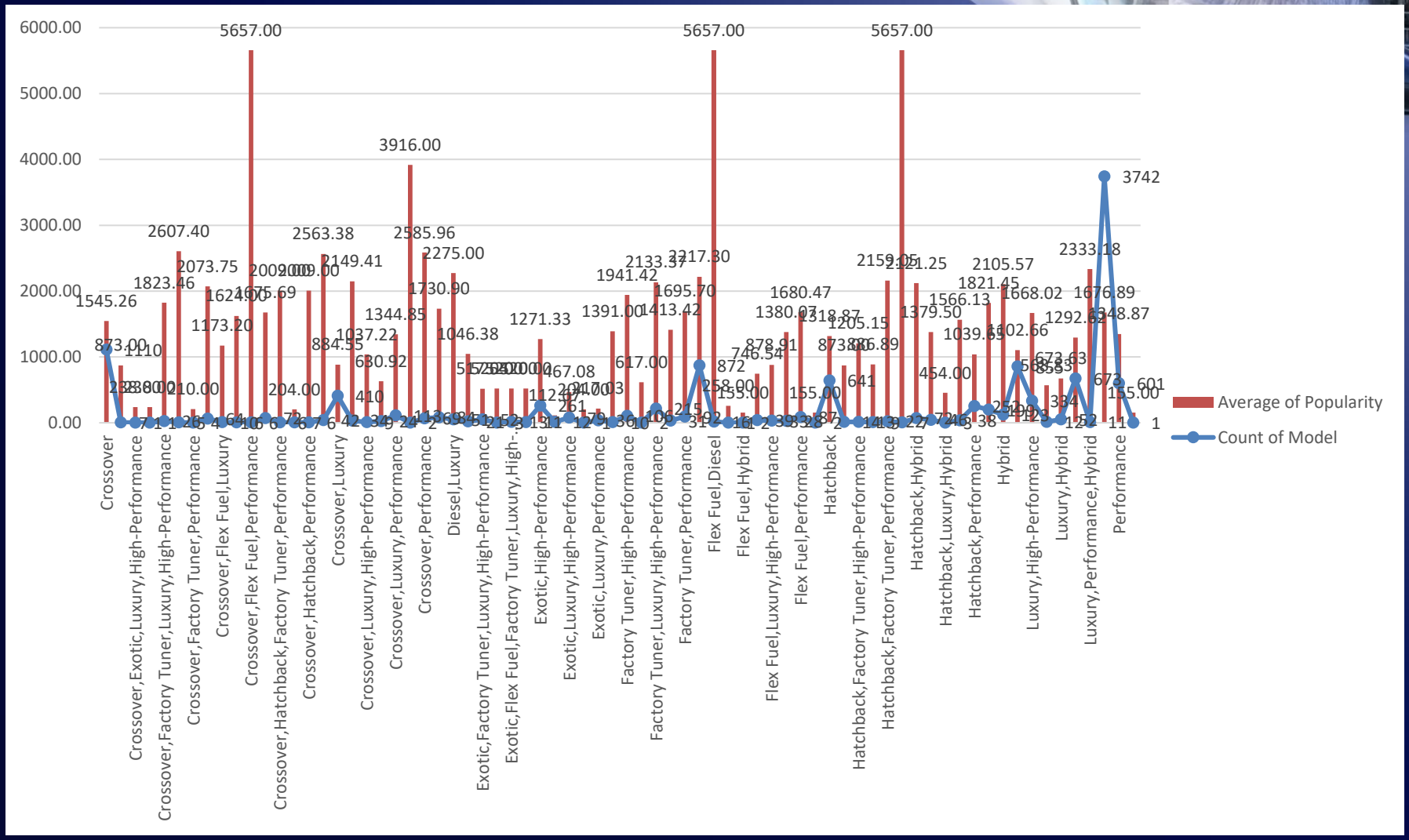
Market Category	Count of Model	Average of Popularity
Hatchback	641	1318.87
Hatchback,Diesel	14	873.00
Hatchback,Factory Tuner,High-Performance	13	1205.15
Hatchback,Factory Tuner,Luxury,Performance	9	886.89
Hatchback,Factory Tuner,Performance	22	2159.05
Hatchback,Flex Fuel	7	5657.00
Hatchback,Hybrid	72	2121.25
Hatchback,Luxury	46	1379.50
Hatchback,Luxury,Hybrid	3	454.00
Hatchback,Luxury,Performance	38	1566.13
Hatchback,Performance	252	1039.65
High-Performance	199	1821.45
Hybrid	123	2105.57
Luxury	855	1102.66
Luxury,High-Performance	334	1668.02
Luxury,High-Performance,Hybrid	12	568.83
Luxury,Hybrid	52	673.63
Luxury,Performance	673	1292.62
Luxury,Performance,Hybrid	11	2333.18
N/A	3742	1676.89
Performance	601	1348.87
Performance,Hybrid	1	155.00
Grand Total	**11914**	**1554.91**



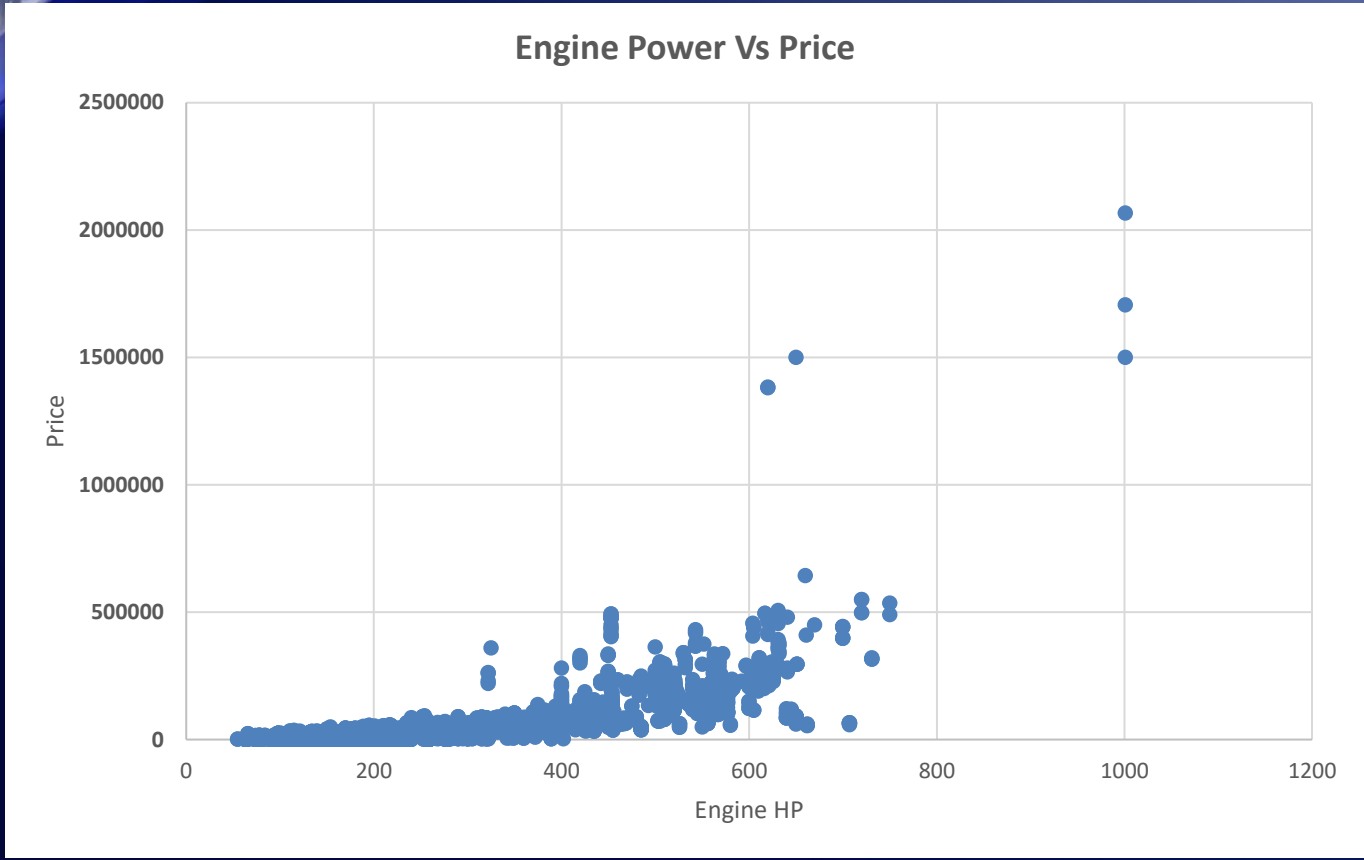
The crossover market category has the most car models, with an average popularity of 1554.91. However, the market category with the highest popularity has a very low count, which has been highlighted in the table.

- **Task 1.B:** Create a combo chart that visualizes the relationship between market category and popularity.

Combo Chart:

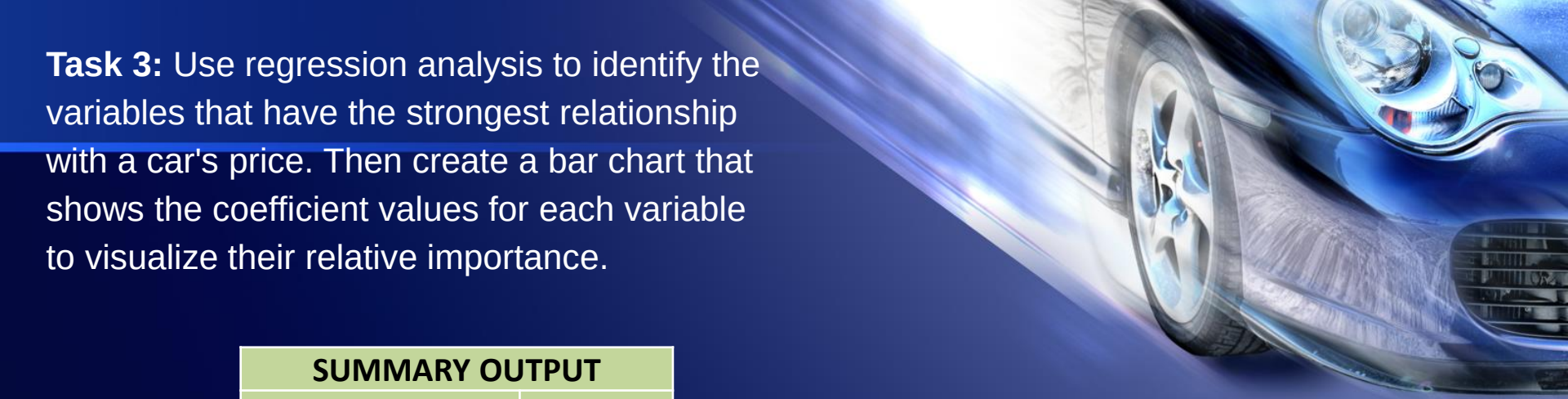


Task-2: Create a scatter chart that plots engine power on the x-axis and price on the y-axis. Add a trendline to the chart to visualize the relationship between these variables.



As observed from the increasing costs linked to higher engine power, there seems to be a positive correlation between a car's price and its engine power (HP). For instance, a 1001 HP car is priced at $2,065,902, $1,705,769, and $1,500,000, showing that in these cases, engine power is associated with higher prices.

Task 3: Use regression analysis to identify the variables that have the strongest relationship with a car's price. Then create a bar chart that shows the coefficient values for each variable to visualize their relative importance.

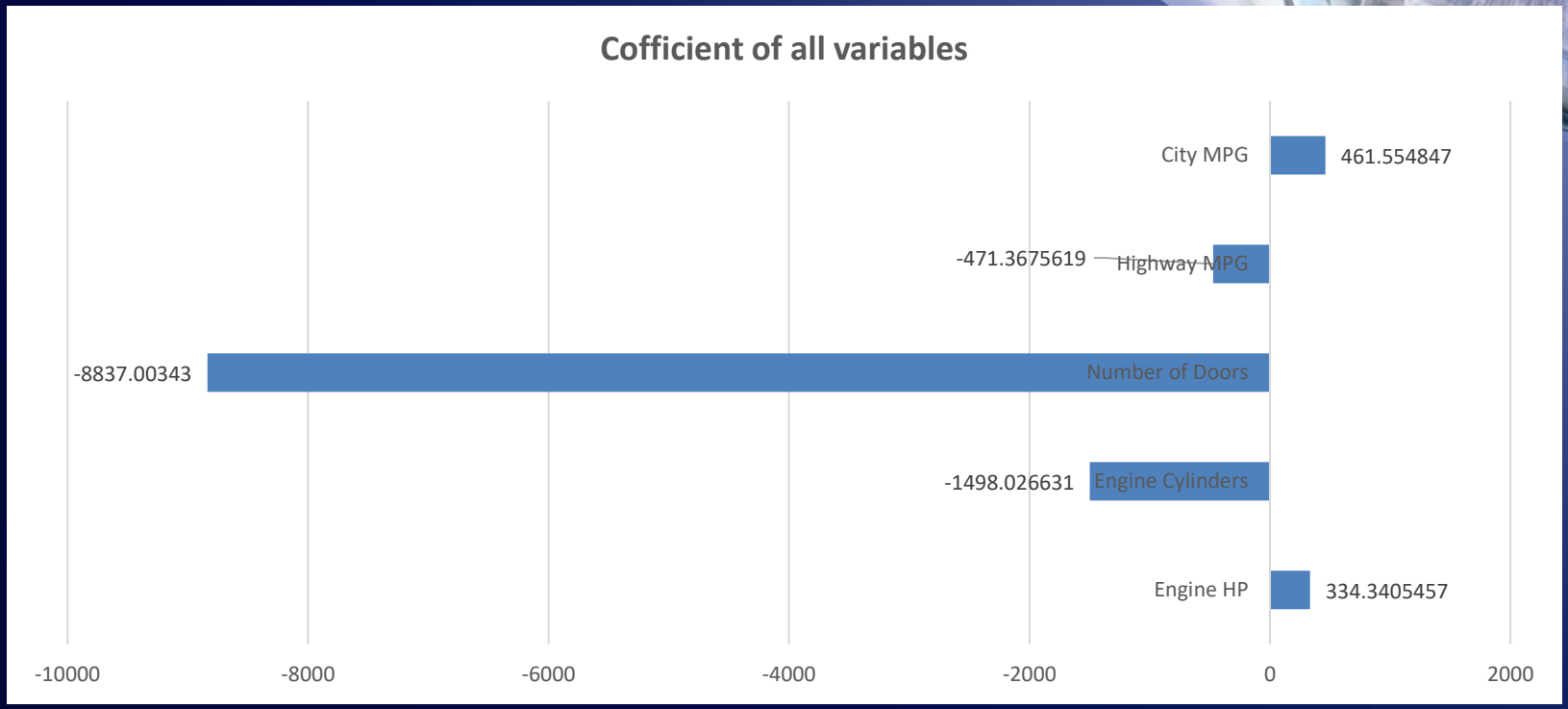


SUMMARY OUTPUT	
Regression Statistics	
Multiple R	0.809072367
R Square	0.654598095
Adjusted R Square	0.654442425
Standard Error	39705.10534
Observations	11099

ANOVA					
	Df	**SS**	**MS**	**F**	**Significance F**
Regression	5	3.3146E+13	6.6292E+12	4205.020973	0
Residual	11094	1.74896E+13	1576495390		
Total	11099	5.06356E+13			

	Coefficients	**Standard Error**	**t Stat**	**P-value**	**Lower 95%**	**Upper 95%**	**Lower 95%**	**Upper 95%**
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Engine HP	334.3405457	5.538655666	60.36492713	0	323.4837959	345.1972955	323.4837959	345.1972955
Engine Cylinders	-1498.026631	300.4372676	-4.986154489	6.25244E-07	-2086.937089	-909.1161727	-2086.937089	-909.1161727
Number of Doors	-8837.00343	386.8729016	-22.84213599	6.863E-113	-9595.343097	-8078.663762	-9595.343097	-8078.663762
Highway MPG	-471.3675619	88.39932138	-5.332253173	9.89066E-08	-644.645948	-298.0891759	-644.645948	-298.0891759
City MPG	461.554847	108.4742457	4.254971712	2.10792E-05	248.9260402	674.1836538	248.9260402	674.1836538

Task 3: A bar chart that shows the coefficient values for each variable to visualize their relative importance.

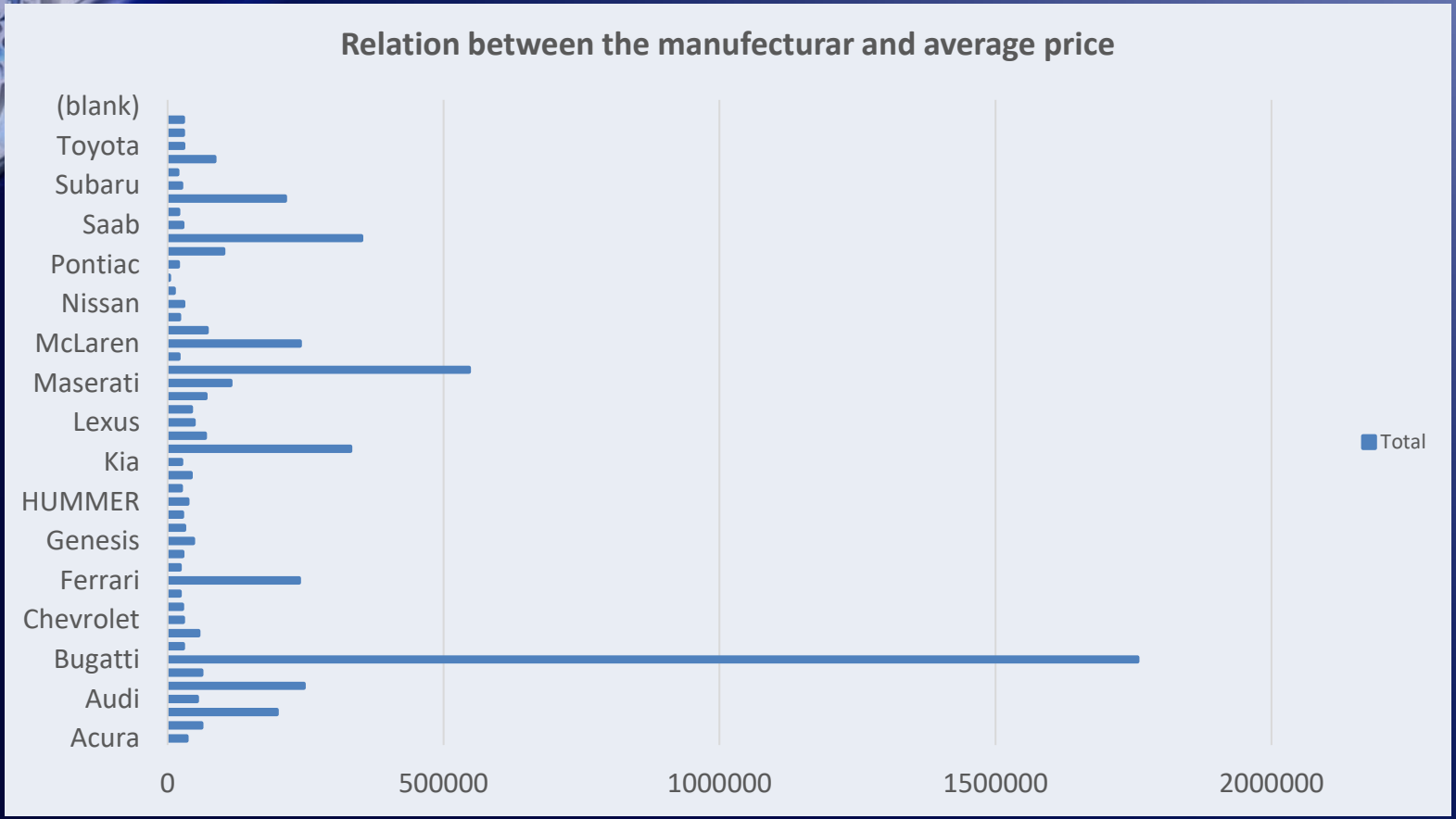


By performing regression analysis, it can be understood that the engine cylinders has the strongest relationship with the car's price. Hence it can be said that as per the analysis the engine cylinders is the most important car feature in determining the car's price.

Task 4.A: A pivot table that shows the average price of cars for each manufacturer.

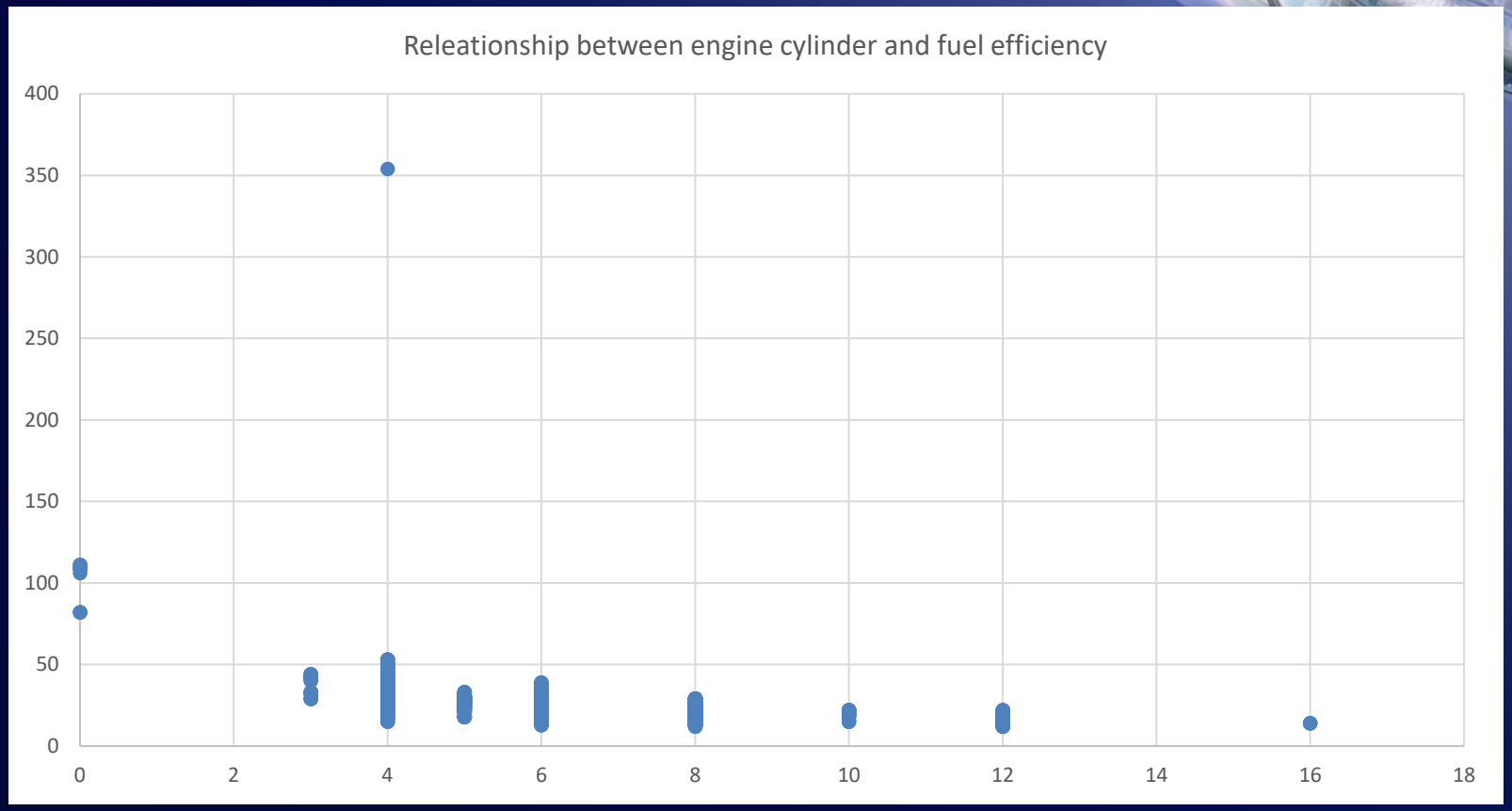
Manufacturer	Average of Price
Acura	34887.5873
Alfa Romeo	61600
Aston Martin	197910.3763
Audi	53452.1128
Bentley	247169.3243
BMW	61546.76347
Bugatti	1757223.667
Buick	28206.61224
Cadillac	56231.31738
Chevrolet	28350.38557
Chrysler	26722.96257
Dodge	22390.05911
Ferrari	238218.8406
FIAT	22670.24194
Ford	27399.26674
Genesis	46616.66667
GMC	30493.29903
Honda	26674.34076
HUMMER	36464.41176
Hyundai	24597.0363
Infiniti	42394.21212
Kia	25310.17316
Lamborghini	331567.3077
Land Rover	67823.21678
Lexus	47549.06931
Lincoln	42839.82927
Lotus	69188.27586
Maserati	114207.7069
Maybach	546221.875
Mazda	20039.38298
McLaren	239805
Mercedes-Benz	71476.22946
Mitsubishi	21240.53521
Nissan	28583.4319
Oldsmobile	11542.54
Plymouth	3122.902439
Pontiac	19321.54839
Porsche	101622.3971
Rolls-Royce	351130.6452
Saab	27413.5045
Scion	19932.5
Spyker	213323.3333
Subaru	24827.50391
Suzuki	17907.20798
Tesla	85255.55556
Toyota	29030.01609
Volkswagen	28102.38072
Volvo	28541.16014
Grand Total	**40594.73703**

Task 4.8: A bar chart or a horizontal stacked bar chart that visualizes the relationship between manufacturer and average price



From the data, we can see that Bugatti has the highest average price among all brands, with an average of $1,757,224. Maybach follows, with an average price of $546,222. This information can be valuable for car manufacturers when it comes to pricing strategies and market positioning.

Task 5.A: A scatter plot with the number of cylinders on the x-axis and highway MPG on the y-axis. Then create a trendline on the scatter plot to visually estimate the slope of the relationship and assess its significance.



Task 5.A: Correlation coefficient between the number of cylinders and highway MPG to quantify the strength and direction of the relationship.

Correlation Coefficient
-0.620312551

- **The investigation shows that highway MPG generally decreases as the number of engine cylinders increases, indicating a negative relationship between the two variables. For example, a car with 16 cylinders has the lowest highway MPG at 14, illustrating how larger engines impact fuel efficiency.**

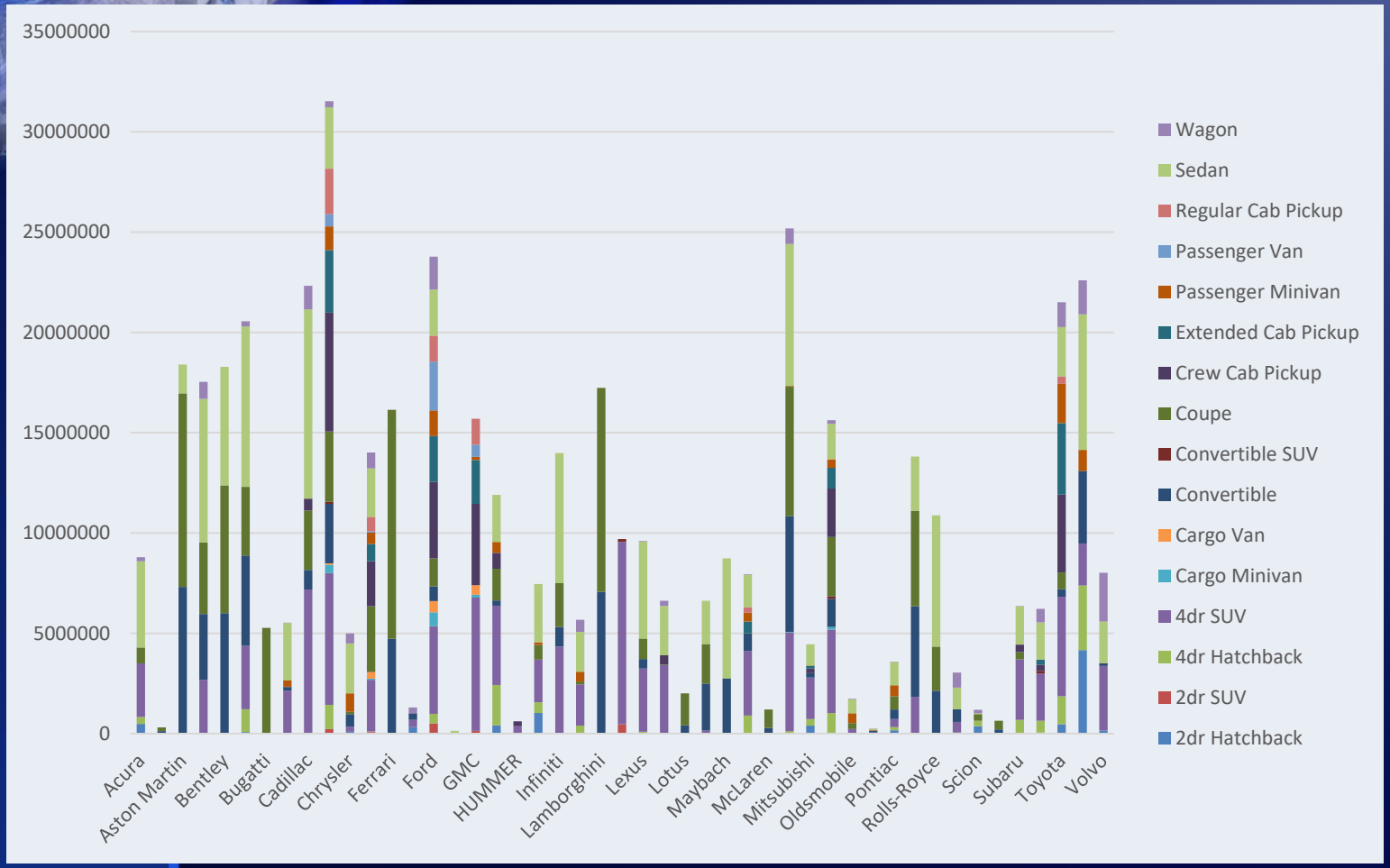
- **Moreover, the correlation coefficient of -0.620312551 highlights a strong negative relationship between the number of cylinders and highway MPG. This statistic confirms that as the cylinder count goes up, highway MPG typically goes down.**

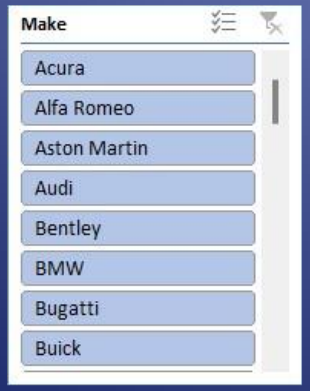
Building the Dashboard

Task 1: How does the distribution of car prices vary by brand and body style?

Row Labels	2dr Hatchback	2dr SUV	4dr Hatchback	4dr SUV	Cargo Minivan	Cargo Van	Convertible	Convertible SUV	Coupe	Crew Cab Pickup	Extended Cab Pickup	Passenger Minivan	Passenger Van	Regular Cab Pickup	Sedan	Wagon	Grand Total
Acura	480917		357440	2663505					793748						4294702	201360	8791672
Alfa Romeo							129800		178200								308000
Aston Martin							7321655		9635275						1448735		18405665
Audi	4000			2674900			3291405		3556290						7158348	847350	17532293
Bentley							6012870		6356760						5920900		18290530
BMW	80097		1144950	3160950			4502671		3419051						7989300	259600	20556619
Bugatti									5271671								5271671
Buick				2141770			179325		18534			330065			2850590	8212	5528496
Cadillac				7182555			985607		2953574	599150					9418847	1184100	22323833
Chevrolet	8000	213310	1209735	6569568	420150	78688	2953245	106300	3504525	5927617	3117951	1178515	607670	2260032	3068812	300675	31524793
Chrysler	98805			250545			630105		114510			922295			2479859	501075	4997194
Dodge	48000	44000	18000	2572405	60520	338497	12000		3264627	2235775	864172	557425	70708	719408	2417585	793055	14016177
Ferrari							4723811		11418289								16142100
FIAT	325315			369305			327965									287570	1310155
Ford	36000	479873	480155	4370871	680770	566351	730007		1398144	3812353	2285584	1271330	2431898	1299240	2299348	1635565	23777489
Genesis															139850		139850
GMC		144319		6641919	142750	468085				4062482	2183866	150630	603670	1306328			15704049
Honda	413200		2015270	3953209			252135		1588705	787720		553185			2340105		11903529
HUMMER				377490						242405							619895
Hyundai	1038050		528880	2128890					724070			133075			2899937		7452902
Infiniti				4340200			980050		2175750						6494090		13990090
Kia			406960	2049645					142630			494650			1980360	601155	5675400
Lamborghini							7064450		10177050								17241500
Land Rover		476394		9076595				145731									9698720
Lexus			94700	3152974			472065		1016472						4837596	31105	9604912
Lincoln				3422570					25342	453260					2458245	269705	6629122
Lotus							413260		1593200								2006460
Maserati				155000			2342963		1972284						2153800		6624047
Maybach							2762750								5976800		8739550
Mazda	22000	24000	853180	3222525			870505		14000		580033	443130		265486	1618571	33350	7946780
McLaren							280225		918800								1199025
Mercedes-Benz			122800	4924810	28950		5753964		6473107			32500			7080243	764935	25181309
Mitsubishi	394868		338850	2066505	2000		209893			240210	134360	2000		8000	1058563		4455249
Nissan	14683		1023090	4149630	128620		1406552	131075	2943632	2422300	1026379	413320		21914	1769130	175000	15625325
Oldsmobile				238150			2000		286015			492055			691161	22000	1731381
Plymouth	42000		16000				85631		14000			33688			46759	18000	256078
Pontiac	163505		162975	401550			473481		667715			541192			1160535	22855	3593808
Porsche	28827			1815200			4504586		4758533						2713500		13820646
Rolls-Royce							2141365		2204675						6539010		10885050
Saab	14000		36586	541905			632628								1066500	751280	3042899
Scion	366325		282470						330210						32500	184445	1195950
Spyker							219990		419980								639970
Subaru	12000		678060	3020230					356476	365975					1913100	10000	6355841
Suzuki	46496	14000	584387	2362141				122194		304131	259659				1850818	685707	6229533
Toyota	473750		1397750	4957050			386668		811995	3893760	3558504	1956518		373446	2459596	1237955	21506992
Volkswagen	4171275		3222275	2084955			3612631		8000			1038130			6760050	1704025	22601341
Volvo	157550			3219000			121600		6000						2086945	2428971	8020066
Grand Total	8439663	1395896	14974513	100258517	1463760	1451621	66789858	505300	91511839	25347138	14010508	10543703	3713946	6253854	117474790	14959050	479093956

Task 1: Stacked column chart to show the distribution of car prices by brand and body style





Pivot table is utilized to create stacked column chart. It can be observed that Cadillac has the highest sum of MSRP indicating highest sales in all vehicle styles.

Task 2: Which car brands have the highest and lowest average MSRPs, and how does this vary by body style?

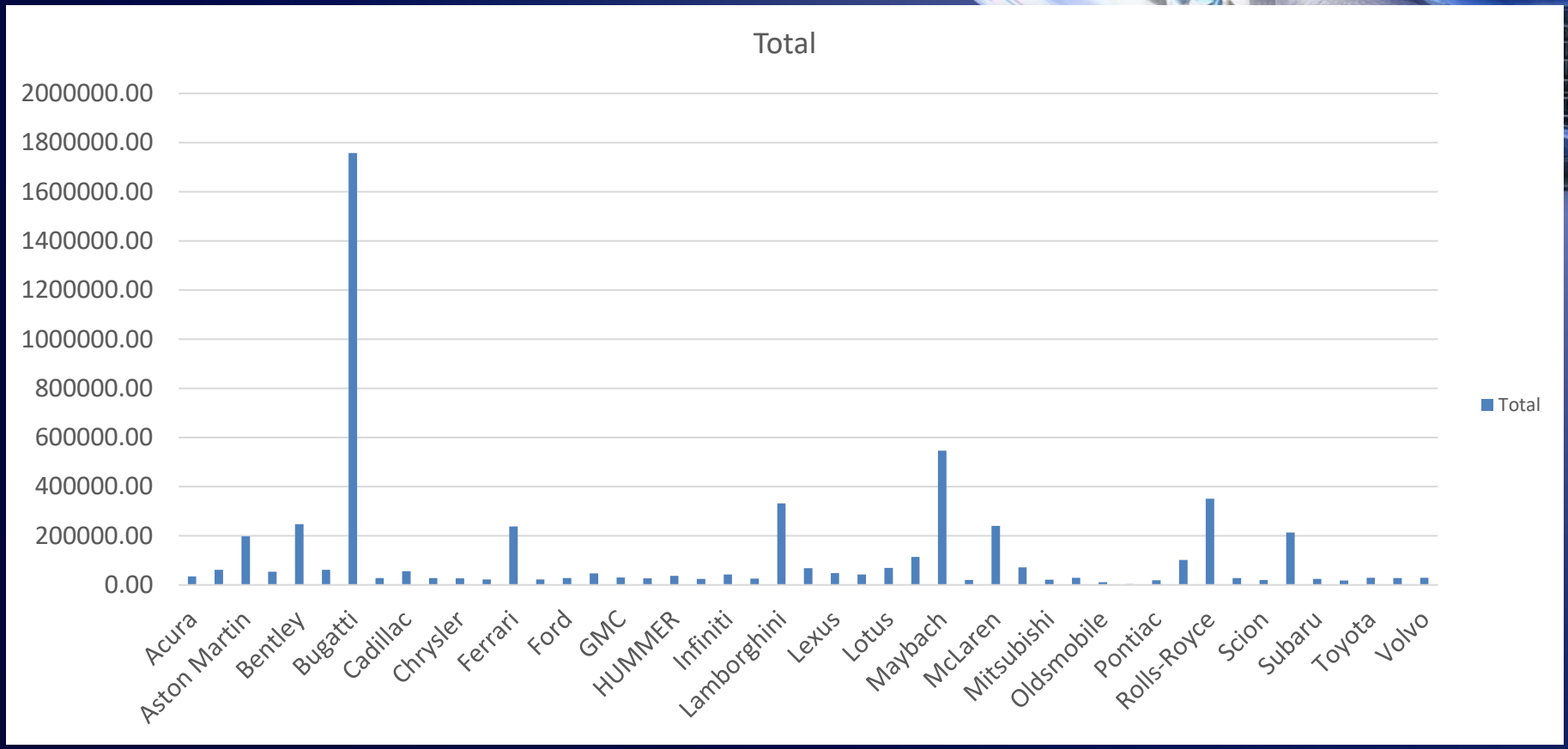
Make	Average of MSRP
Acura	34887.59
Alfa Romeo	61600.00
Aston Martin	197910.38
Audi	53452.11
Bentley	247169.32
BMW	61546.76
Bugatti	1757223.67
Buick	28206.61
Cadillac	56231.32
Chevrolet	28273.36
Chrysler	26722.96
Dodge	22390.06
Ferrari	237383.82
FIAT	22206.02
Ford	27393.42
Genesis	46616.67
GMC	30493.30
Honda	26629.82
HUMMER	36464.41
Hyundai	24597.04
Infiniti	42394.21
Kia	25112.39
Lamborghini	331567.31
Land Rover	67823.22

Make	Average of MSRP
Lexus	47549.07
Lincoln	42494.37
Lotus	69188.28
Maserati	114207.71
Maybach	546221.88
Mazda	19719.06
McLaren	239805.00
Mercedes-Benz	71537.81
Mitsubishi	21215.47
Nissan	28513.37
Oldsmobile	11542.54
Plymouth	3122.90
Pontiac	19321.55
Porsche	101622.40
Rolls-Royce	351130.65
Saab	27413.50
Scion	19932.50
Spyker	213323.33
Subaru	24827.50
Suzuki	17900.96
Toyota	28946.15
Volkswagen	28076.20
Volvo	28541.16

Task 2: how does this vary by body style?

Average of MSRP	Column Labels																
Row Labels	2dr Hatchback	2dr SUV	4dr Hatchback	4dr SUV	Cargo Minivan	Cargo Van	Convertible	Convertible SUV	Coupe	Crew Cab Pickup	Extended Cab Pickup	Passenger Minivan	Passenger Van	Regular Cab Pickup	Sedan	Wagon	Grand Total
Acura	17175.60714		51062.85714	42959.75806					39687.4						33292.26357	33560	34887.5873
Alfa Romeo							64900		59400								61600
Aston Martin							203379.3056		192705.5						206962.1429		197910.3763
Audi	2000			48634.54545			70029.89362		93586.57895						44461.78882	33894	53452.1128
Bentley							250536.25		254270.4						236836		247169.3243
BMW	26699		54521.42857	58536.11111			63417.90141		51803.80303						70701.76991	43266.66667	61546.76347
Bugatti									1757223.667								1757223.667
Buick				33996.34921			25617.85714		2059.333333			30005.90909			27946.96078	2053	28206.61224
Cadillac				72551.06061			70400.5		45439.6	66572.22222					50912.68649	47364	56231.31738
Chevrolet	2000	8887.916667	18329.31818	32046.67317	20007.14286	7153.454545	62835	17716.66667	38939.16667	39255.74172	24170.16279	24552.39583	24306.8	19824.84211	19798.7871	15825	28273.35695
Chrysler	32935			35792.14286			24234.80769		19085			29751.45161			26103.77895	26372.36842	26722.96257
Dodge	2000	2000	2000	30992.83133	20173.33333	12536.92593	2000		45980.66197	31052.43056	13938.25806	25337.5	14141.6	9342.961039	21780.04505	24782.96875	22390.05911
Ferrari							214718.6818		248223.6739								237383.8235
FIAT	19136.17647			24620.33333			23426.07143									22120.76923	22206.01695
Ford	2000	13710.65714	18467.5	42027.60577	21274.0625	17698.46875	34762.2381		34101.07317	41438.61957	23808.16667	23115.09091	32425.30667	17797.80822	21290.25926	27259.41667	27393.42051
Genesis															46616.66667		46616.66667
GMC		5550.730769		36695.68508	23791.66667	18723.4				39062.32692	26632.5122	25105	26246.52174	21069.80645			30493.29903
Honda	17216.66667		25836.79487	28855.54015			36019.28571		21763.08219	34248.69565		36879			26001.16667		26629.81879
HUMMER				37749						34629.28571							36464.41176
Hyundai	18536.60714		17629.33333	30412.71429					20687.71429			26615			27102.21495		24597.0363
Infiniti				45686.31579			46669.04762		40291.66667						40588.0625		42394.21212
Kia			19379.04762	31533					20375.71429			32976.66667			23298.35294	18216.81818	25112.38938
Lamborghini							336402.381		328291.9355								331567.3077
Land Rover		39699.5		70910.89844				48577									67823.21678
Lexus			31566.66667	45042.48571			52451.66667		50823.6						48864.60606	31105	47549.06931
Lincoln				50331.91176					2111.833333	41205.45455					41665.16949	44950.83333	42494.37179
Lotus							51657.5		75866.66667								69188.27586
Maserati				77500			130164.6111		116016.7059						102561.9048		114207.7069
Maybach							1381375								426914.2857		546221.875
Mazda	2000	2000	20809.26829	27080.04202			28080.80645		2000		11600.66	23322.63158		9154.689655	19738.67073	16675	19719.05707
McLaren							280225		229700								239805
Mercedes-Benz			40933.33333	68400.13889	28950		104617.5273		109713.678			32500			49168.35417	44996.17647	71537.80966
Mitsubishi	13162.26667		12101.78571	26158.29114	2000		29984.71429			26690	19194.28571	2000		2000	24058.25		21215.47143
Nissan	2097.571429		22241.08696	34294.46281	21436.66667		39070.88889	43691.66667	34228.27907	32733.78378	20527.58	22962.22222		2191.4	21841.11111	17500	28513.36679
Oldsmobile				34021.42857			2000		9226.290323			32803.66667			8131.305882	2000	11542.54
Plymouth	2000		2000				28543.66667		2000			2105.5			2597.722222	2000	3122.902439
Pontiac	18167.22222		18108.33333	25096.875			22546.71429		15528.25581			20815.07692			20009.22414	5713.75	19321.54839
Porsche	5765.4			82509.09091			115502.2051		99136.10417						123340.9091		101622.3971
Rolls-Royce							428273		367445.8333						326950.5		351130.6452
Saab	2000		2032.555556	41685			28755.81818								36775.86207	34149.09091	27413.5045
Scion	20351.38889		15692.77778						27517.5						16250	18444.5	19932.5
Spyker							219990		209990								213323.3333
Subaru	2000		21189.375	29322.62136					15498.95652	24398.33333					26570.83333	2000	24827.50391
Suzuki	6642.285714	2000	16696.77143	21090.54464				7187.882353		27648.27273	21638.25				18145.27451	15237.93333	17900.9569
Toyota	18950		22186.50794	40631.55738			25777.86667		15615.28846	37803.49515	26359.28889	29201.76119		16236.78261	24844.40404	31742.4359	28946.15343
Volkswagen	24251.59884		27778.23276	41699.1			27789.46923		2000			25320.2439			29911.72566	25818.56061	28076.2
Volvo	26258.33333			45338.02817			40533.33333		2000						20869.45	24785.41837	28541.16014
Grand Total	16778.65408	10115.18841	22086.30236	40426.82137	20910.85714	15280.22105	84224.28499	17424.13793	76900.70504	37220.46696	22488.77689	25591.51214	29015.20313	15953.70918	38989.30966	25483.90119	40559.93532

Task 2: Clustered column chart to compare the average MSRPs across different car brands and body styles

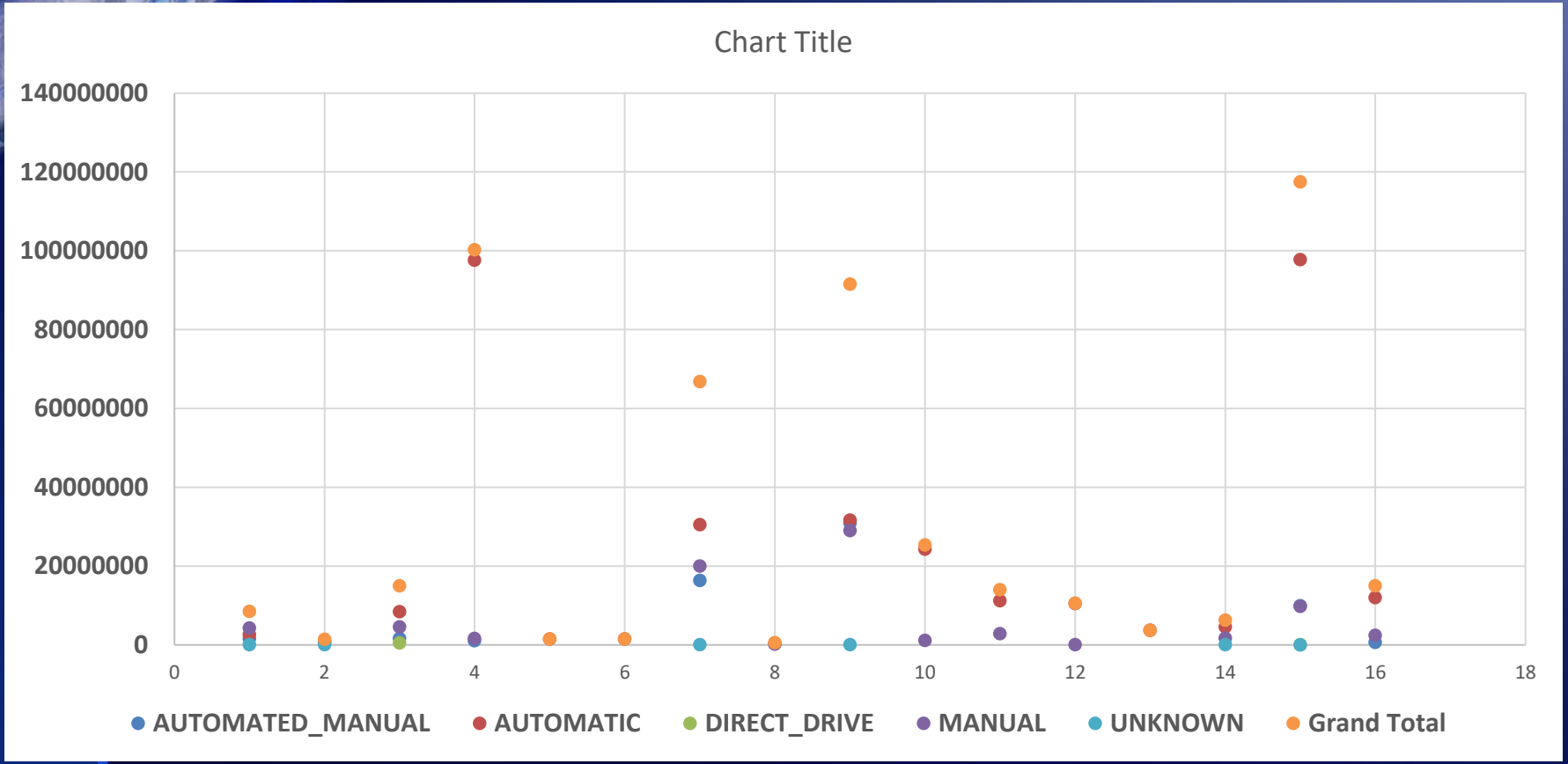


Playmouth has lowest average MSRP of 3122.90 while Bugatti has highest average MSRP of 1757223.67

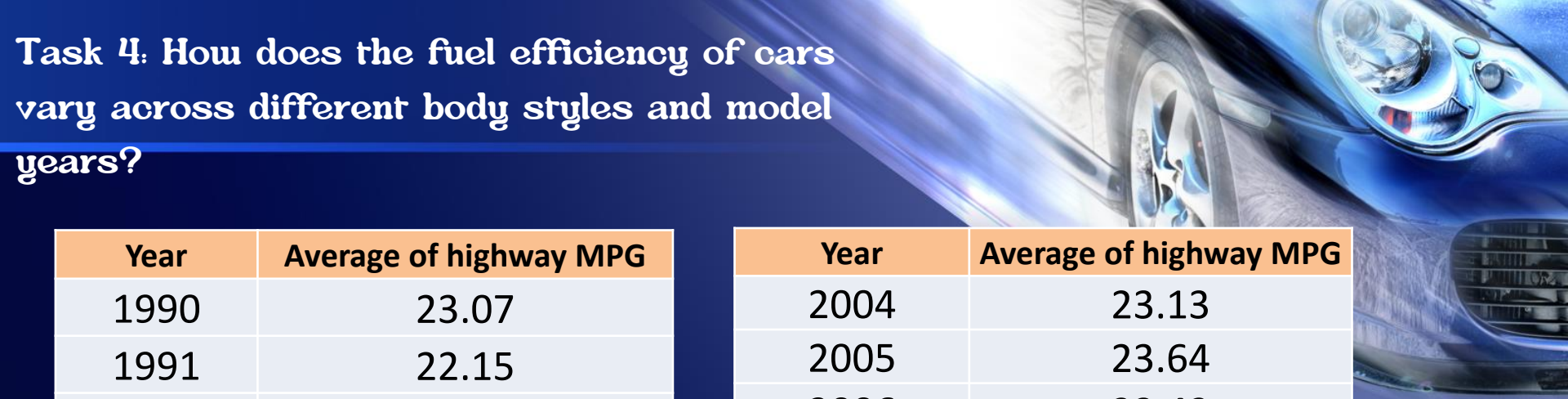
Task 3: How do the different feature such as transmission type affect the MSRP, and how does this vary by body style?

Sum of MSRP	Column Labels					
Row Labels	AUTOMATED_MANUAL	AUTOMATIC	DIRECT_DRIVE	MANUAL	UNKNOWN	Grand Total
2dr Hatchback	1549315	2615808		4259817	14723	8439663
2dr SUV		819069		567343	9484	1395896
4dr Hatchback	1579450	8389455	448655	4556953		14974513
4dr SUV	1051730	97571582		1635205		100258517
Cargo Minivan		1463760				1463760
Cargo Van		1451621				1451621
Convertible	16369647	30454162		19954482	11567	66789858
Convertible SUV		311404		193896		505300
Coupe	30944133	31606744		28956962	4000	91511839
Crew Cab Pickup		24269438		1077700		25347138
Extended Cab Pickup		11213270		2797238		14010508
Passenger Minivan		10477623		66080		10543703
Passenger Van		3713946				3713946
Regular Cab Pickup		4537355		1700499	16000	6253854
Sedan	9927230	97749071	55645	9740844	2000	117474790
Wagon	575735	11956512		2426803		14959050
Grand Total	**61997240**	**338600820**	**504300**	**77933822**	**57774**	**479093956**

Task 3: Scatter plot chart to visualize the relationship between MSRP and transmission type



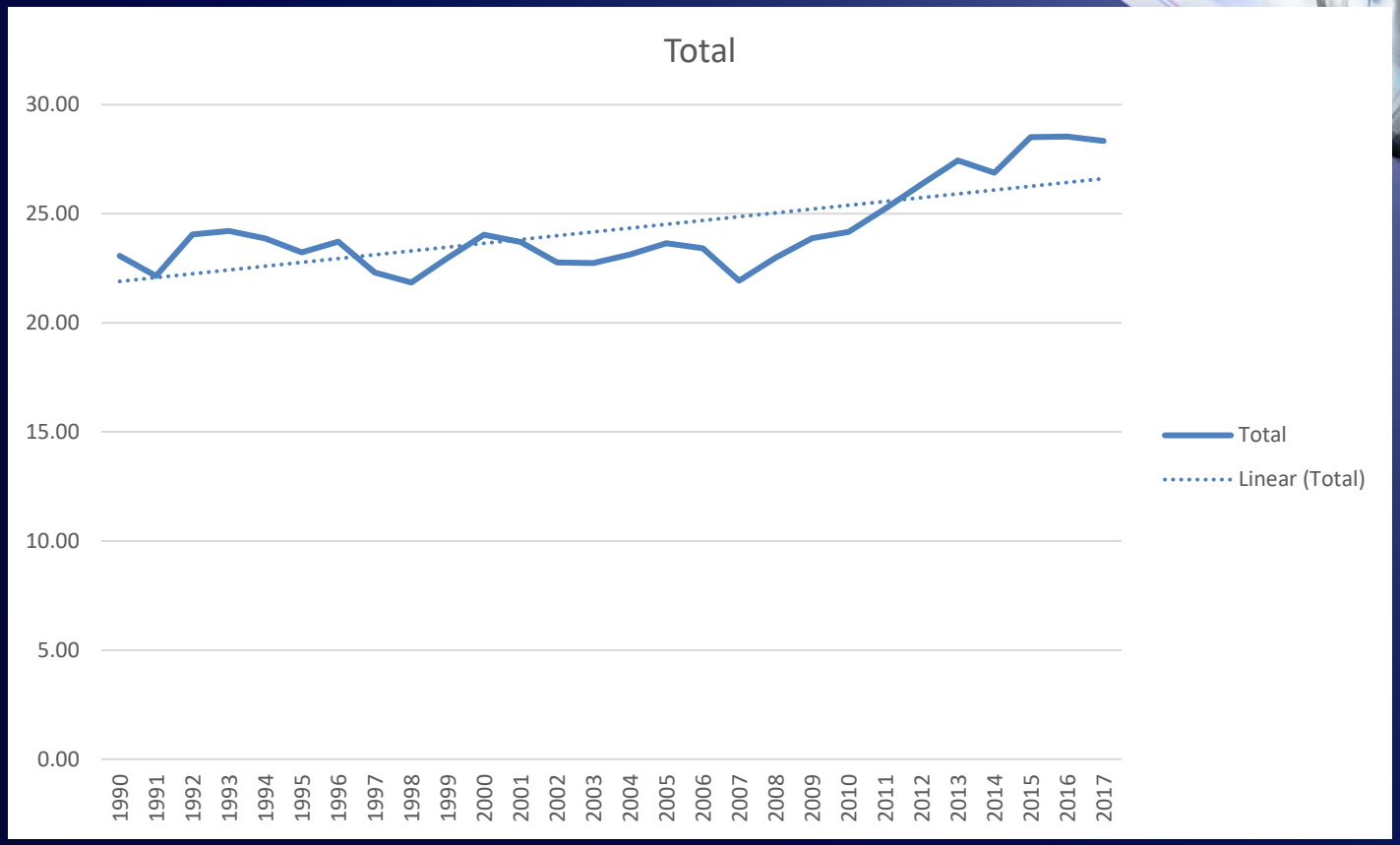
Task 4: How does the fuel efficiency of cars vary across different body styles and model years?

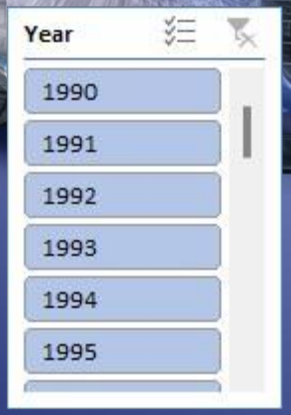


Year	Average of highway MPG
1990	23.07
1991	22.15
1992	24.05
1993	24.22
1994	23.87
1995	23.23
1996	23.73
1997	22.31
1998	21.85
1999	22.98
2000	24.04
2001	23.71
2002	22.77
2003	22.74

Year	Average of highway MPG
2004	23.13
2005	23.64
2006	23.42
2007	21.94
2008	22.99
2009	23.89
2010	24.17
2011	25.23
2012	26.35
2013	27.45
2014	26.89
2015	28.51
2016	28.54
2017	28.33
Grand Total	**26.32**

Task 4: How does the fuel efficiency of cars vary across different body styles and model years?





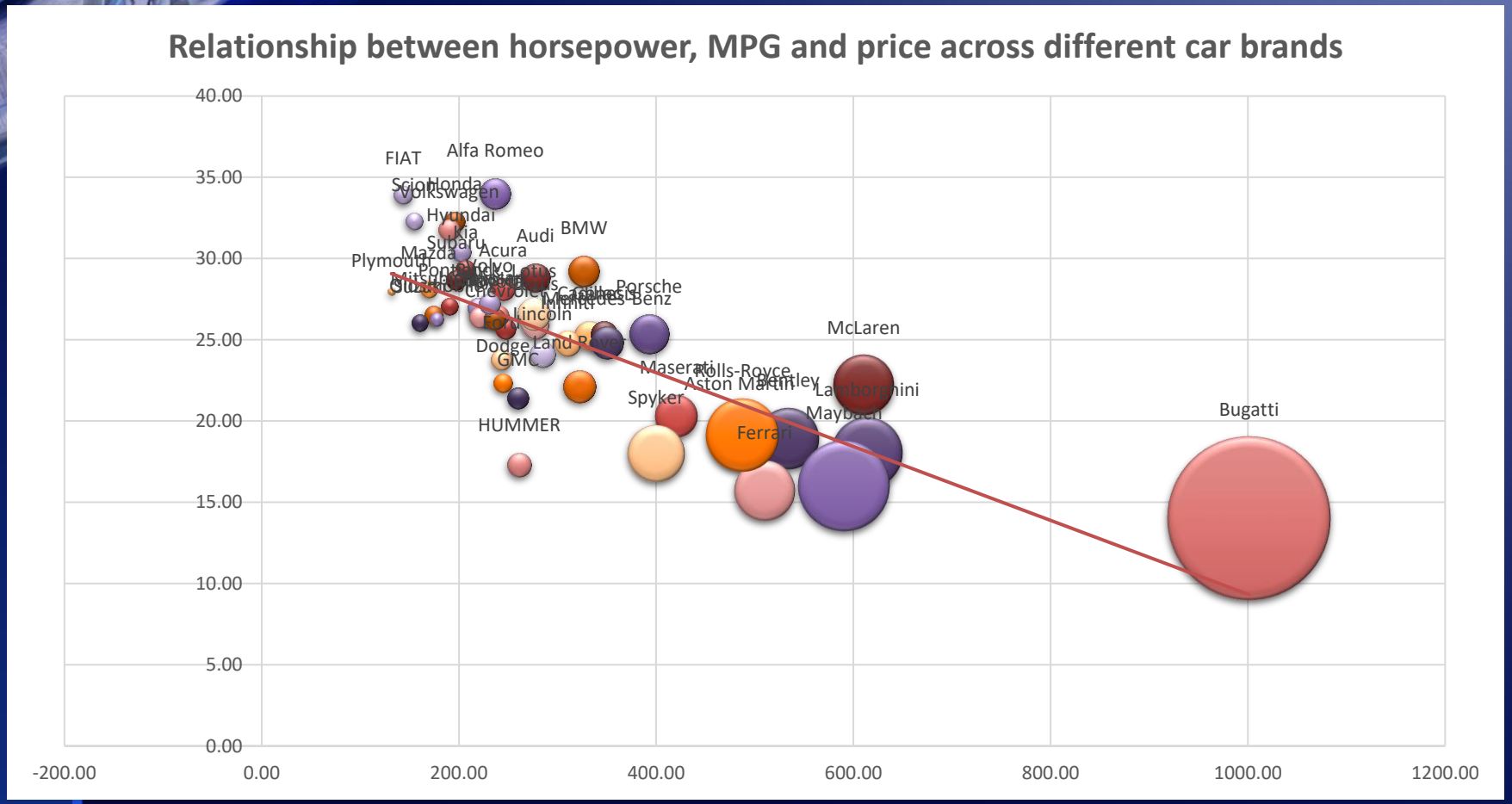
According to the data, there appears to be a tendency towards increased fuel efficiency as car model years advance, which may be attributed to developments in automotive technology and legislation aimed at reducing emissions and improving fuel economy.

Task 5: How does the car's horsepower, MPG, and price vary across different Brands?

Make	Average of Engine HP	Average of Highway MPG	Average of MSRP
Acura	244.797619	28.11111111	34887.5873
Alfa Romeo	237	34	61600
Aston Martin	484.3225806	18.89247312	197910.3763
Audi	277.695122	28.82317073	53452.1128
Bentley	533.8513514	18.90540541	247169.3243
BMW	326.9071856	29.24550898	61546.76347
Bugatti	1001	14	1757223.667
Buick	219.244898	26.94897959	28206.61224
Cadillac	332.3098237	25.23677582	56231.31738
Chevrolet	247.0565022	25.6690583	28273.35695
Chrysler	229.1390374	26.36898396	26722.96257
Dodge	244.4153355	22.34504792	22390.05911
Ferrari	509.9117647	15.72058824	237383.8235
FIAT	143.559322	33.91525424	22206.01695
Ford	243.0979263	23.74078341	27393.42051
Genesis	347.3333333	25.33333333	46616.66667
GMC	259.8446602	21.4038835	30493.29903
Honda	195.7494407	32.25055928	26629.81879
HUMMER	261.2352941	17.29411765	36464.41176
Hyundai	201.9174917	30.39273927	24597.0363
Infiniti	310.0666667	24.77878788	42394.21212
Kia	206.8274336	29.29646018	25112.38938
Lamborghini	614.0769231	18.01923077	331567.3077
Land Rover	322.0979021	22.12587413	67823.21678

Make	Average of Engine HP	Average of Highway MPG	Average of MSRP
Lexus	277.4158416	25.87623762	47549.06931
Lincoln	284.9102564	24.1025641	42494.37179
Lotus	275.9655172	26.55172414	69188.27586
Maserati	420.7931034	20.29310345	114207.7069
Maybach	590.5	16	546221.875
Mazda	169.191067	28.11662531	19719.05707
McLaren	610.4	22.2	239805
Mercedes-Benz	350.1818182	24.81818182	71537.80966
Mitsubishi	174.452381	26.50952381	21215.47143
Nissan	239.9215328	26.46350365	28513.36679
Oldsmobile	177.4666667	26.23333333	11542.54
Plymouth	131.5609756	27.96341463	3122.902439
Pontiac	190.2956989	27.06989247	19321.54839
Porsche	392.7941176	25.36764706	101622.3971
Rolls-Royce	487.5483871	19.12903226	351130.6452
Saab	220.5225225	26.35135135	27413.5045
Scion	154.4333333	32.3	19932.5
Spyker	400	18	213323.3333
Subaru	197.3085938	28.68359375	24827.50391
Suzuki	160.3333333	26.04310345	17900.9569
Toyota	236.2584118	26.26110363	28946.15343
Volkswagen	190.1291925	31.76645963	28076.2
Volvo	230.9715302	27.20284698	28541.16014
Grand Total	**249.504487**	**26.3209448**	**40559.93532**

Task 5: Bubble chart to visualize the relationship between horsepower, MPG, and price across different car brands.



Conclusion

- **Integration of Conservation and Cultural Preservation**: Seacology's strategy effectively combines environmental conservation with the protection of indigenous cultures, recognizing the interdependence of cultural diversity and biodiversity.
- **Empowerment of Local Communities**: By developing culturally sensitive programs, Seacology empowers local communities to protect both their natural environments and cultural heritage.
- **Support for Sustainable Economic Development**: The focus on sustainable, eco-friendly income-generating activities helps preserve cultural traditions while promoting economic stability.
- **Effective Monitoring and Evaluation**: Seacology’s M&E framework ensures project success and sustainability through regular field visits, community feedback, and adaptive management.
- **Long-term Impact and Cultural Resilience**: Seacology's dual focus on conservation and cultural preservation fosters long-term environmental and cultural resilience, serving as a model for future conservation efforts.


Thank You…!