

Examples

The examples below share the following data definition. We will omit this from the listed queries for compactness.

```
% ===== Data definitions =====
num_rows(406).

fieldtype(name,string).
cardinality(name,311).
entropy(name,56).

fieldtype(miles_per_gallon,number).
cardinality(miles_per_gallon,129).
entropy(miles_per_gallon,39).
extent(miles_per_gallon,9,46).

fieldtype(cylinders,number).
cardinality(cylinders,5).
entropy(cylinders,11).
extent(cylinders,3,8).

fieldtype(displacement,number).
cardinality(displacement,83).
entropy(displacement,34).
extent(displacement,68,455).

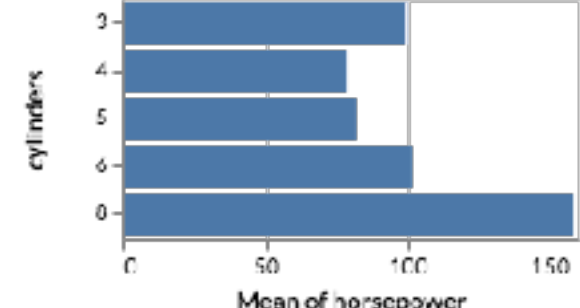
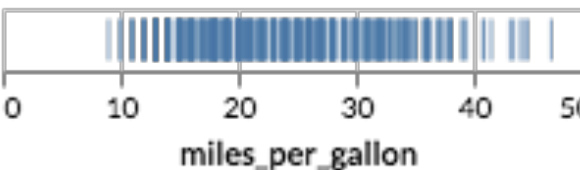

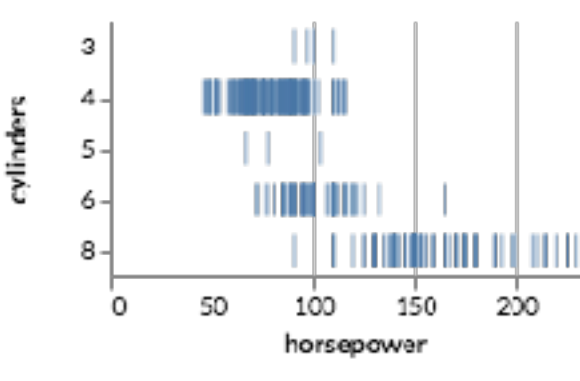
fieldtype(horsepower,number).
cardinality(horsepower,93).
entropy(horsepower,38).
extent(horsepower,46,230).

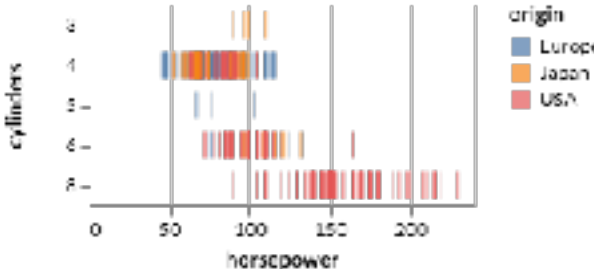
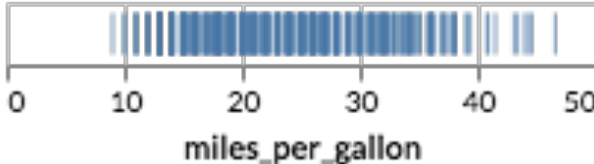
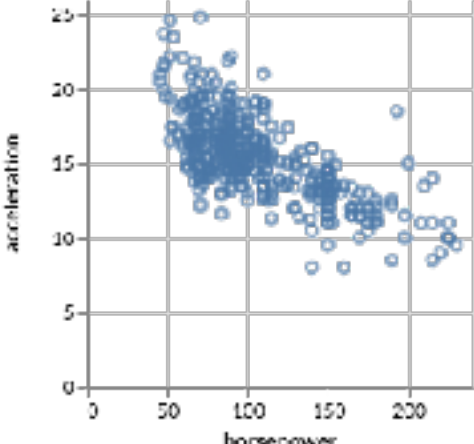
fieldtype(weight_in_lbs,number).
cardinality(weight_in_lbs,356).
entropy(weight_in_lbs,43).
extent(weight_in_lbs,1613,5140).

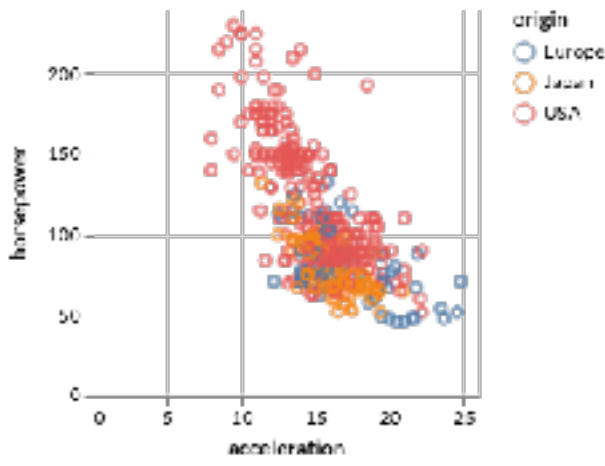
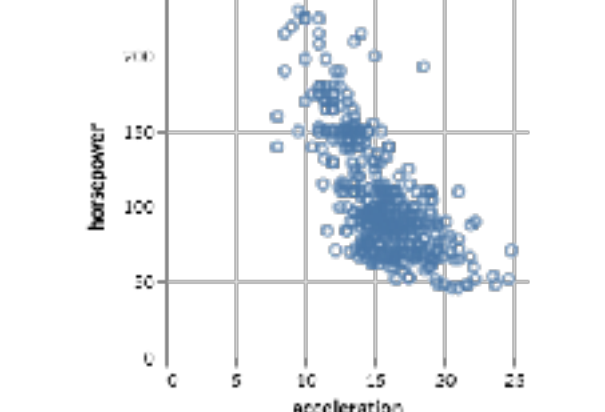
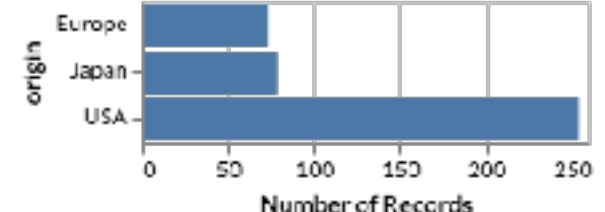
fieldtype(acceleration,number).
cardinality(acceleration,96).
entropy(acceleration,38).
extent(acceleration,8,24).

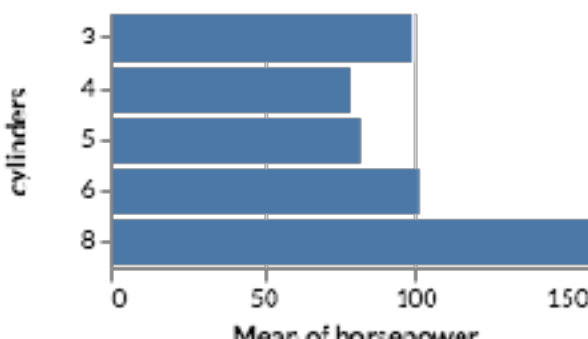
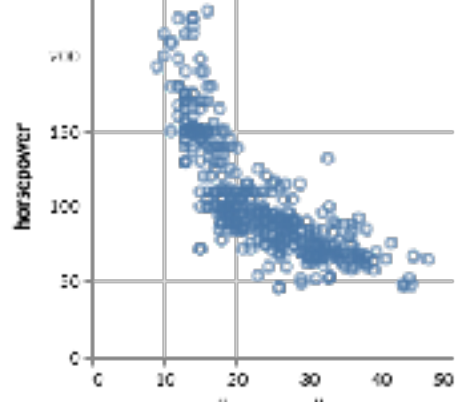
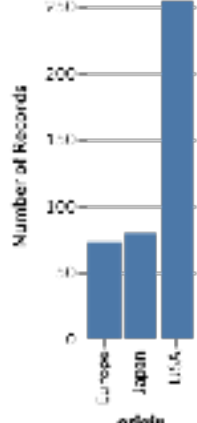
fieldtype(year,datetime).
cardinality(year,12).

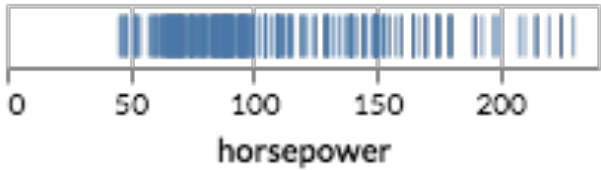
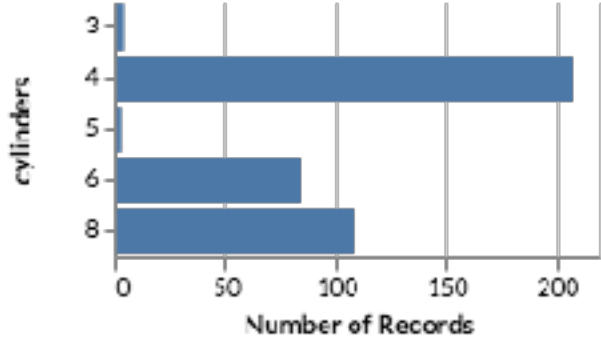
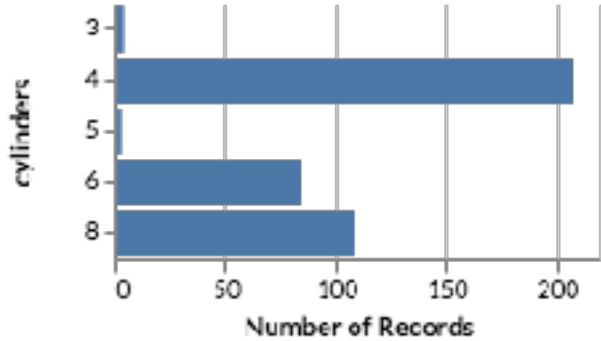
fieldtype(origin,string).
cardinality(origin,3).
entropy(origin,9).
```

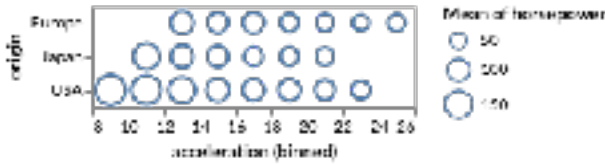
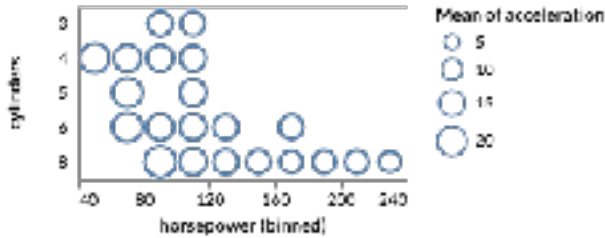
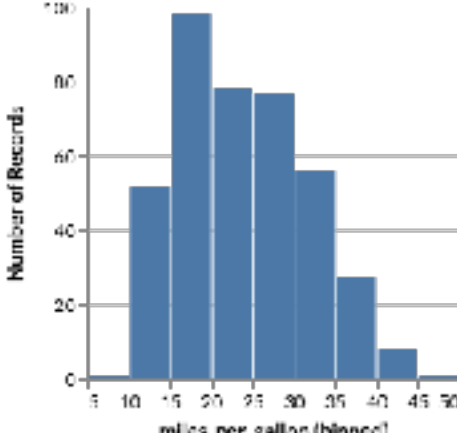
Draco ASP Query	Vega-Lite Chart												
<pre> encoding(e0). field(e0,horsepower). aggregate(e0,mean). encoding(e1). field(e1,cylinders). </pre>	 <table border="1"> <thead> <tr> <th>cylinders</th> <th>Mean of horsepower</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>105</td> </tr> <tr> <td>4</td> <td>85</td> </tr> <tr> <td>5</td> <td>90</td> </tr> <tr> <td>6</td> <td>105</td> </tr> <tr> <td>8</td> <td>155</td> </tr> </tbody> </table>	cylinders	Mean of horsepower	3	105	4	85	5	90	6	105	8	155
cylinders	Mean of horsepower												
3	105												
4	85												
5	90												
6	105												
8	155												
<pre> encoding(e0). field(e0,miles_per_gallon). type(e0,quantitative). </pre>													
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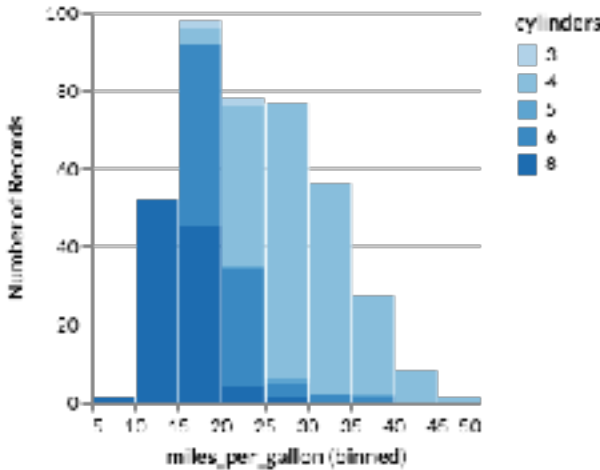
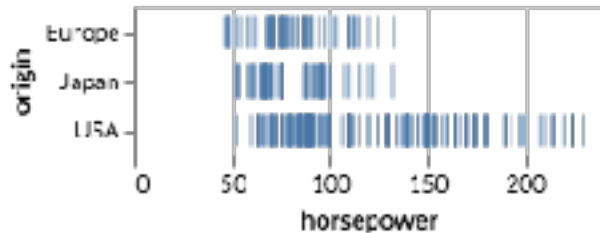
Draco ASP Query	Vega-Lite Chart
<pre> encoding(e0). field(e0,cylinders). type(e0,ordinal). encoding(e1). field(e1,horsepower). type(e1,quantitative). encoding(e2). field(e2,origin). type(e2,nominal). channel(e2,color). </pre>	
<pre> mark(tick). encoding(e0). channel(e0,x). field(e0,miles_per_gallon). type(e0,quantitative). :- log(e0). </pre>	
<pre> encoding(e0). field(e0,horsepower). encoding(e1). field(e1,acceleration). </pre>	

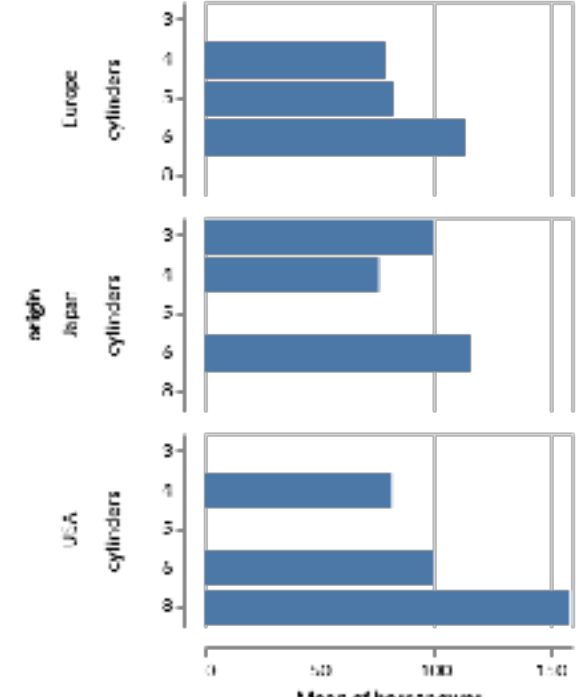
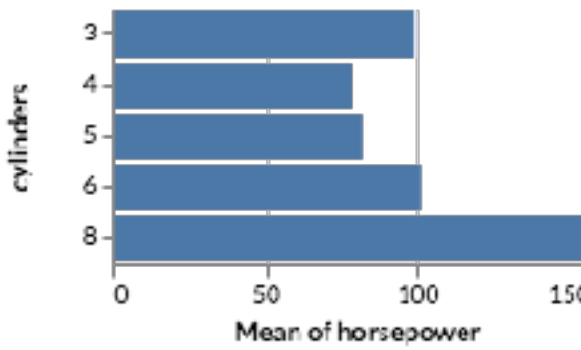
Draco ASP Query	Vega-Lite Chart								
<pre> encoding(e0). field(e0,horsepower). encoding(e1). field(e1,acceleration). encoding(e2). field(e2,origin). channel(e2,color). type(e2,nominal). </pre>	 <p>A scatter plot showing the relationship between acceleration (x-axis, 0 to 25) and horsepower (y-axis, 0 to 200). Data points are colored by origin: Europe (blue), Japan (orange), and USA (red). The plot shows a general negative correlation between acceleration and horsepower, with USA cars generally having higher horsepower and lower acceleration, while European cars tend to have higher acceleration and lower horsepower.</p>								
<pre> encoding(e0). field(e0,acceleration). encoding(e1). field(e1,horsepower). </pre>	 <p>A scatter plot showing the relationship between acceleration (x-axis, 0 to 25) and horsepower (y-axis, 0 to 200). All data points are colored blue, representing the 'Europe' origin. The plot shows a general negative correlation between acceleration and horsepower for European cars.</p>								
<pre> encoding(e0). field(e0,origin). type(e0,nominal). </pre>	 <p>A horizontal bar chart showing the number of records for each origin. The x-axis is labeled 'Number of Records' and ranges from 0 to 250. The y-axis is labeled 'origin' and lists Europe, Japan, and USA. The USA has the highest number of records, followed by Japan, and then Europe.</p> <table border="1"> <thead> <tr> <th>origin</th> <th>Number of Records</th> </tr> </thead> <tbody> <tr> <td>Europe</td> <td>~75</td> </tr> <tr> <td>Japan</td> <td>~80</td> </tr> <tr> <td>USA</td> <td>~250</td> </tr> </tbody> </table>	origin	Number of Records	Europe	~75	Japan	~80	USA	~250
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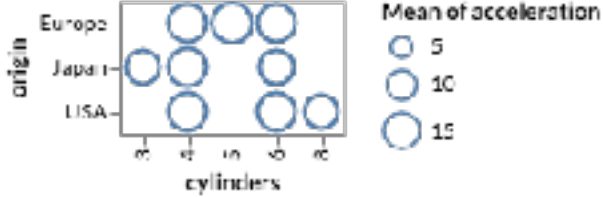
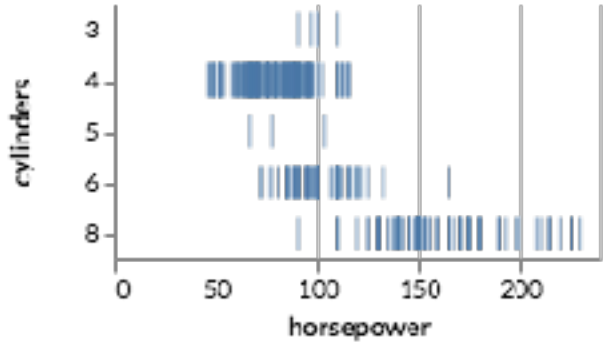
Draco ASP Query	Vega-Lite Chart												
<pre> encoding(e0). channel(e0,x). field(e0,horsepower). type(e0,quantitative). aggregate(e0,mean). encoding(e1). channel(e1,y). field(e1,cylinders). type(e1,ordinal). </pre>	 <table border="1"> <thead> <tr> <th>cylinders</th> <th>Mean of horsepower</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>~100</td> </tr> <tr> <td>4</td> <td>~75</td> </tr> <tr> <td>5</td> <td>~80</td> </tr> <tr> <td>6</td> <td>~100</td> </tr> <tr> <td>8</td> <td>~150</td> </tr> </tbody> </table>	cylinders	Mean of horsepower	3	~100	4	~75	5	~80	6	~100	8	~150
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Draco ASP Query	Vega-Lite Chart
<pre>encoding(e0). field(e0,horsepower).</pre>	
<pre>encoding(e0). field(e0,cylinders). type(e0,ordinal).</pre>	
<pre>encoding(e0). encoding(e1). type(e1,quantitative). aggregate(e1,count).</pre>	

Draco ASP Query	Vega-Lite Chart
<pre> encoding(e0). field(e0,origin). type(e0,nominal). encoding(e1). field(e1,horsepower). type(e1,quantitative). encoding(e2). field(e2,acceleration). type(e2,quantitative). </pre>	
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<pre> mark(bar). encoding(e0). channel(e0,x). field(e0,miles_per_gallon). type(e0,quantitative). :- not bin(e0,_). </pre>	

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<pre>mark(bar). encoding(e0). channel(e0,x). field(e0,miles_per_gallon). type(e0,quantitative). :- not bin(e0,_). encoding(e1). channel(e1,color). field(e1,cylinders).</pre>	 <p>A stacked bar chart showing the distribution of miles_per_gallon (binned) by the number of cylinders. The x-axis represents miles_per_gallon (binned) from 5 to 50. The y-axis represents the Number of Records from 0 to 100. The legend indicates cylinders: 3 (lightest blue), 4, 5, 6, and 8 (darkest blue). The highest frequency is in the 15-20 mpg bin, dominated by 8 cylinders.</p> <table><thead><tr><th>miles_per_gallon (binned)</th><th>8 cylinders</th><th>6 cylinders</th><th>5 cylinders</th><th>4 cylinders</th><th>3 cylinders</th></tr></thead><tbody><tr><td>5-10</td><td>1</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>10-15</td><td>33</td><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>15-20</td><td>88</td><td>2</td><td>0</td><td>0</td><td>0</td></tr><tr><td>20-25</td><td>35</td><td>35</td><td>0</td><td>0</td><td>0</td></tr><tr><td>25-30</td><td>5</td><td>5</td><td>28</td><td>0</td><td>0</td></tr><tr><td>30-35</td><td>0</td><td>0</td><td>0</td><td>38</td><td>0</td></tr><tr><td>35-40</td><td>0</td><td>0</td><td>0</td><td>28</td><td>0</td></tr><tr><td>40-45</td><td>0</td><td>0</td><td>0</td><td>8</td><td>0</td></tr><tr><td>45-50</td><td>0</td><td>0</td><td>0</td><td>2</td><td>0</td></tr></tbody></table>	miles_per_gallon (binned)	8 cylinders	6 cylinders	5 cylinders	4 cylinders	3 cylinders	5-10	1	0	0	0	0	10-15	33	0	0	0	0	15-20	88	2	0	0	0	20-25	35	35	0	0	0	25-30	5	5	28	0	0	30-35	0	0	0	38	0	35-40	0	0	0	28	0	40-45	0	0	0	8	0	45-50	0	0	0	2	0
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<pre>encoding(e0). field(e0,origin). type(e0,nominal). encoding(e1). field(e1,horsepower). type(e1,quantitative).</pre>	 <p>A faceted dot plot showing the distribution of horsepower by origin. The y-axis lists origins: Europe, Japan, and USA. The x-axis represents horsepower from 0 to 200. Each origin has a horizontal line of dots representing individual data points. Europe has the fewest points, Japan has more, and the USA has the most points, spread across the full range of horsepower.</p>																																																												

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<pre>encoding(e0). channel(e0,x). field(e0,horsepower). type(e0,quantitative). aggregate(e0,mean). encoding(e1). channel(e1,y). field(e1,cylinders). type(e1,ordinal). encoding(e2). field(e2,origin). type(e2,nominal).</pre>	 <table><thead><tr><th>origin</th><th>cylinders</th><th>Mean of horsepower</th></tr></thead><tbody><tr><td>Europe</td><td>3</td><td>~85</td></tr><tr><td>Europe</td><td>4</td><td>~85</td></tr><tr><td>Europe</td><td>5</td><td>~90</td></tr><tr><td>Europe</td><td>6</td><td>~115</td></tr><tr><td>Japan</td><td>3</td><td>~105</td></tr><tr><td>Japan</td><td>4</td><td>~80</td></tr><tr><td>Japan</td><td>5</td><td>~80</td></tr><tr><td>Japan</td><td>6</td><td>~120</td></tr><tr><td>USA</td><td>3</td><td>~85</td></tr><tr><td>USA</td><td>4</td><td>~105</td></tr><tr><td>USA</td><td>5</td><td>~105</td></tr><tr><td>USA</td><td>6</td><td>~155</td></tr></tbody></table>	origin	cylinders	Mean of horsepower	Europe	3	~85	Europe	4	~85	Europe	5	~90	Europe	6	~115	Japan	3	~105	Japan	4	~80	Japan	5	~80	Japan	6	~120	USA	3	~85	USA	4	~105	USA	5	~105	USA	6	~155
origin	cylinders	Mean of horsepower																																						
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