Project 2: Data Set Creation 10 variables; Hypotheses; MULTIVARIATE Analysis; Results; Discussion 10-15 pages; can be an individual or joint.

Dataset Instruction

This data set consists of 16 types of entities:   
  
The normalized-losses factor is the relative average loss payment per insured vehicle year. This value is normalized for all autos within a particular size classification (two-door small, station wagons, sports/speciality, etc...), and represents the average loss per car per year.

Attribute: Attribute Range 

1. Car: experimental unit
2. Normalized-losses: continuous from 65 to 256.
3. Wheel-base: continuous from 86.6 120.9.
4. Length: continuous from 141.1 to 208.1.
5. Width: continuous from 60.3 to 72.3.
6. Height: continuous from 47.8 to 59.8.
7. Curb-weight: continuous from 1488 to 4066.
8. Engine-size: continuous from 61 to 326.
9. Bore: continuous from 2.54 to 3.94.
10. Stroke: continuous from 2.07 to 4.17.
11. Compression-ratio: continuous from 7 to 23.
12. Horsepower: continuous from 48 to 288.
13. Peak-rpm: continuous from 4150 to 6600.
14. City-mpg: continuous from 13 to 49.
15. Highway-mpg: continuous from 16 to 54.
16. Price: continuous from 5118 to 45400.

Sources:   
Jeffrey C. Schlimmer (Jeffrey.Schlimmer '@' a.gp.cs.cmu.edu): https://archive.ics.uci.edu/ml/datasets/Automobile  
1) 1985 Model Import Car and Truck Specifications, 1985 Ward's Automotive Yearbook.   
2) Personal Auto Manuals, Insurance Services Office, 160 Water Street, New York, NY 10038   
3) Insurance Collision Report, Insurance Institute for Highway Safety, Watergate 600, Washington, DC 20037

Descriptive Statistics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *normalized.losses* |  | *horsepower* |  | *price* |  |
|  |  |  |  |  |  |
| Mean | 127.1041667 | Mean | 90.3125 | Mean | 11615.6875 |
| Standard Error | 4.713346786 | Standard Error | 3.860506096 | Standard Error | 1101.843286 |
| Standard Deviation | 32.65502443 | Standard Deviation | 26.7463708 | Standard Deviation | 7633.794213 |
| Range | 114 | Range | 128 | Range | 27099 |
| Minimum | 78 | Minimum | 48 | Minimum | 5151 |
| Maximum | 192 | Maximum | 176 | Maximum | 32250 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *wheel.base* |  | *length* |  | *width* |  |
|  |  |  |  |  |  |
| Mean | 97.25416667 | Mean | 167.5166667 | Mean | 65.2875 |
| Standard Error | 0.902954952 | Standard Error | 2.118517089 | Standard Error | 0.358169907 |
| Standard Deviation | 6.255855413 | Standard Deviation | 14.67751694 | Standard Deviation | 2.48147391 |
| Range | 29 | Range | 61.5 | Range | 11.4 |
| Minimum | 86.6 | Minimum | 141.1 | Minimum | 60.3 |
| Maximum | 115.6 | Maximum | 202.6 | Maximum | 71.7 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *height* |  | *curb.weight* |  | *engine.size* |  |
|  |  |  |  |  |  |
| Mean | 53.17916667 | Mean | 2332.3125 | Mean | 113.8541667 |
| Standard Error | 0.346678238 | Standard Error | 84.71293911 | Standard Error | 5.314404818 |
| Standard Deviation | 2.40185729 | Standard Deviation | 586.9084584 | Standard Deviation | 36.81927663 |
| Range | 10.4 | Range | 2578 | Range | 197 |
| Minimum | 49.4 | Minimum | 1488 | Minimum | 61 |
| Maximum | 59.8 | Maximum | 4066 | Maximum | 258 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *bore* |  | *stroke* |  | *compression.ratio* |  |
|  |  |  |  |  |  |
| Mean | 3.145833333 | Mean | 3.35875 | Mean | 9.998125 |
| Standard Error | 0.03251409 | Standard Error | 0.036243886 | Standard Error | 0.513780804 |
| Standard Deviation | 0.225264226 | Standard Deviation | 0.251105005 | Standard Deviation | 3.559577824 |
| Range | 0.72 | Range | 1.37 | Range | 14.5 |
| Minimum | 2.91 | Minimum | 2.8 | Minimum | 7 |
| Maximum | 3.63 | Maximum | 4.17 | Maximum | 21.5 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| *peak.rpm* |  | *city.mpg* |  | *highway.mpg* |  |
|  |  |  |  |  |  |
| Mean | 5321.875 | Mean | 27.91666667 | Mean | 33.3125 |
| Standard Error | 72.94626426 | Standard Error | 1.021416645 | Standard Error | 1.067805901 |
| Standard Deviation | 505.3865437 | Standard Deviation | 7.076582098 | Standard Deviation | 7.39797629 |
| Range | 1750 | Range | 34 | Range | 35 |
| Minimum | 4250 | Minimum | 15 | Minimum | 19 |
| Maximum | 6000 | Maximum | 49 | Maximum | 54 |