Data Analysis For Motor Trend Car Road Tests

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Background

The `mtcars` data originated in the **1974 Motor Trend** magazine and records fuel economy alongside various mechanical specs for 32 different car models. In this brief analysis, I will:

1. Calculate basic summary measures for **MPG** and **HP**.
2. Create an interactive scatter showing how miles per gallon changes with engine power.
3. Offer a few observations on what the plot reveals.

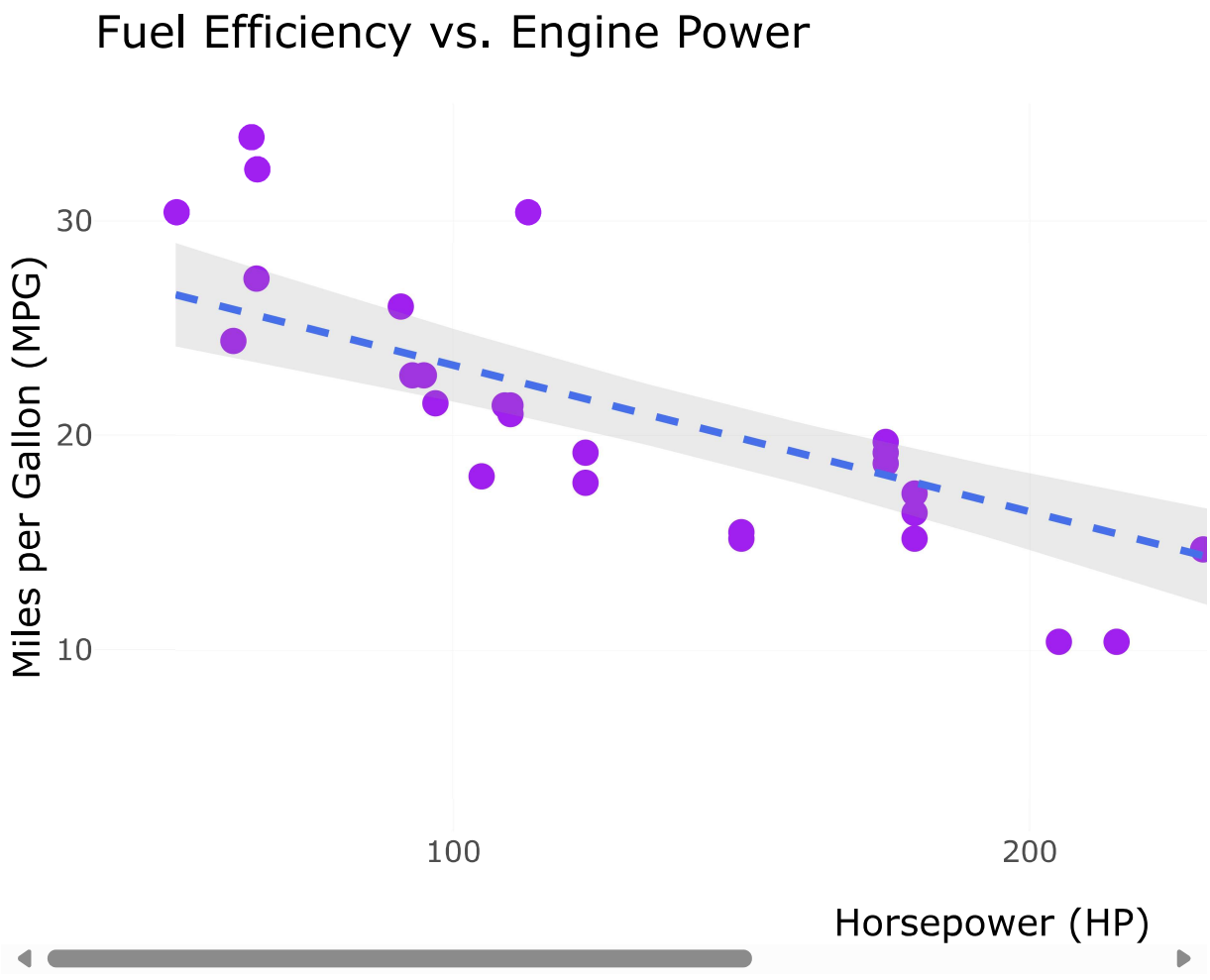
Summary Statistics

First, we will compute means and standard deviations for our two key metrics using `dplyr` package.

```
  Mean_MPG   SD_MPG  Mean_HP    SD_HP
1 20.09062 6.026948 146.6875 68.56287
```

Scatterplot Between Miles Per Gallon & Horsepower

Below is an interactive chart built using `ggplot2` and `plotly` packages. We've added a dashed linear trend and shaded 95% confidence band to highlight the overall relationship between Miles Per Gallon (mpg) and Horsepower (hp).



Interpretation Of Relationship

- There’s a clear inverse trend: as horsepower goes up, miles per gallon tends to go down.
- The shaded ribbon around the dashed line shows our 95% confidence interval for the fitted regression.
- Understanding this trade-off can guide decisions about performance versus economy when selecting a vehicle.