Class-1.R

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```r
library(tidyverse)
```

```
## ── Attaching core tidyverse packages ──────────────────────── tidyverse
2.0.0 ──
## ✓ dplyr     1.1.4     ✓ readr     2.1.5
## ✓ forcats   1.0.0     ✓ stringr   1.5.1
## ✓ ggplot2   3.5.1     ✓ tibble    3.2.1
## ✓ lubridate 1.9.4     ✓ tidyr     1.3.1
## ✓ purrr     1.0.4
## ── Conflicts ──────────────────────────────────────────────
tidyverse_conflicts() ──
## ✗ dplyr::filter() masks stats::filter()
## ✗ dplyr::lag()    masks stats::lag()
## ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all
conflicts to become errors
```

```r
library(ggplot2)
library(dplyr)
library(tinytex)
auto <- read.csv("C:\\Users\\finle\\OneDrive\\University\\Econometrics and
Statistics\\Computer stuff\\auto.csv", header = TRUE)

glimpse(auto)
```

```
## Rows: 74
## Columns: 12
## $ make       <chr> "Merc. Zephyr", "Chev. Chevette", "Chev. Monza",
"Toyota …
## $ price      <int> 3291, 3299, 3667, 3748, 3798, 3799, 3829, 3895, 3955,
398…
## $ mpg        <int> 20, 29, 24, 31, 35, 22, 22, 26, 19, 30, 30, 18, 18,
19, 2…
## $ rep78      <int> 3, 3, 2, 5, 5, NA, 4, 3, 3, 5, 4, 2, 2, 3, 3, 2, 3,
3, 1,…
## $ headroom   <dbl> 3.5, 2.5, 2.0, 3.0, 2.5, 3.0, 3.0, 3.0, 3.5, 2.0,
3.5, 4.…
## $ trunk      <int> 17, 9, 7, 9, 11, 12, 9, 10, 13, 8, 11, 17, 16, 13,
11, 7,…
## $ weight     <int> 2830, 2110, 2750, 2200, 2050, 2640, 2580, 1830, 3430,
212…
## $ length     <int> 195, 163, 179, 165, 164, 168, 169, 142, 197, 163,
154, 20…
## $ turn       <int> 43, 34, 40, 35, 36, 35, 39, 34, 43, 35, 33, 46, 44,
```

```
42, 4…
## $ displacement <int> 140, 231, 151, 97, 97, 121, 140, 79, 250, 98, 86,
318, 22…
## $ gear_ratio   <dbl> 3.08, 2.93, 2.73, 3.21, 3.81, 3.08, 2.73, 3.72, 2.56,
3.5…
## $ foreign      <chr> "Domestic", "Domestic", "Domestic", "Foreign",
"Foreign",…

expensive <- filter(auto, price>5000)
mpg_efficient <- filter(auto, mpg > 30)

auto <-   auto %>%
  mutate(mpg_metric = 0.425144 * mpg)


auto_summary <- auto %>%
  summarise(across(where(is.numeric), \(x) mean(x, na.rm = TRUE)))

print(auto_summary)

##     price     mpg    rep78 headroom    trunk   weight   length     turn
## 1 6165.257 21.2973 3.405797 2.993243 13.75676 3019.459 187.9324 39.64865
##   displacement gear_ratio mpg_metric
## 1     197.2973   3.014865   9.054418

p <- ggplot(auto, aes(x=mpg, y=weight)) +
  geom_point() +
  geom_smooth(method = "lm", se = FALSE, color = "black", linetype =
"dashed") +
  labs(title = "Car weight vs Miles per Gallon",
       x = "Miles per Gallon (mpg)",
       y = "Weight (lbs) ",
       color = "Car Origin") +
  theme_minimal() +
  theme(
    plot.title = element_text(face = "bold"),
    legend.position = "right"
  )

print(p)

## `geom_smooth()` using formula = 'y ~ x'
```

Car weight vs Miles per Gallon