

# DS5030 Practice HW

Peace Gwam

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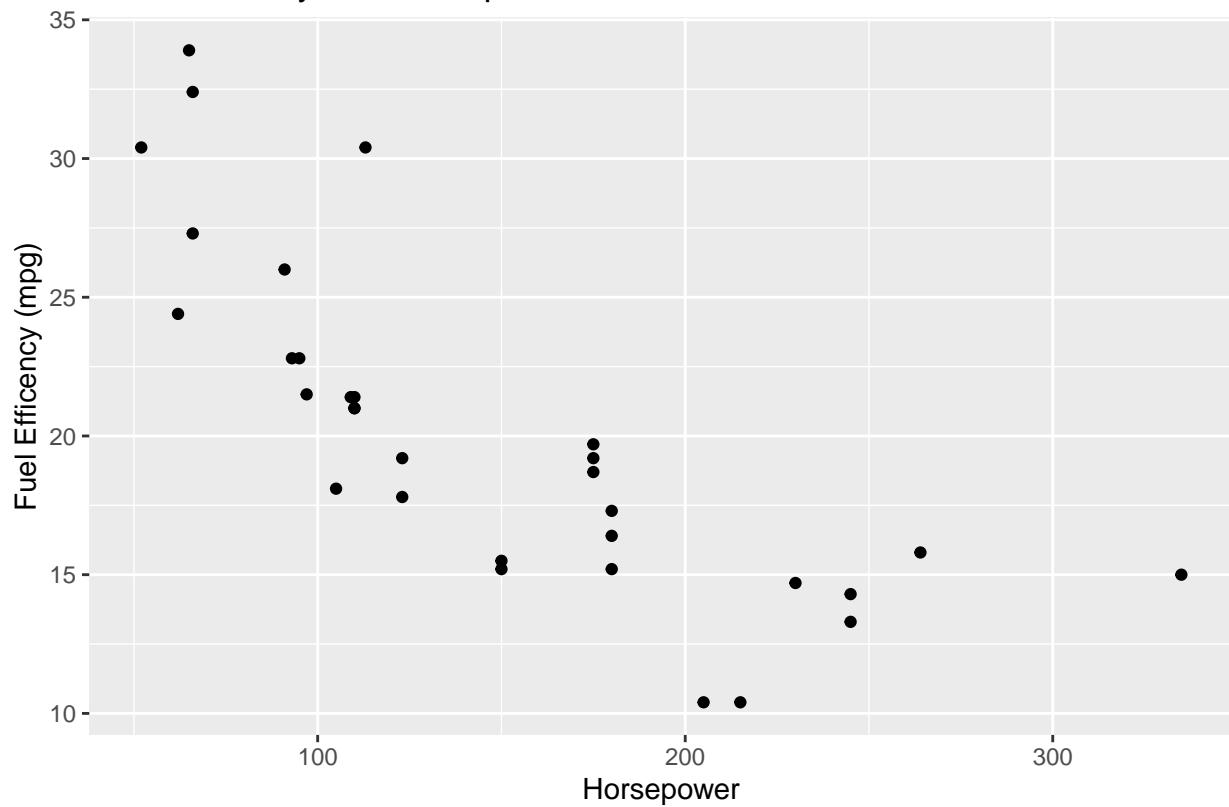
## Question 1

### Part A

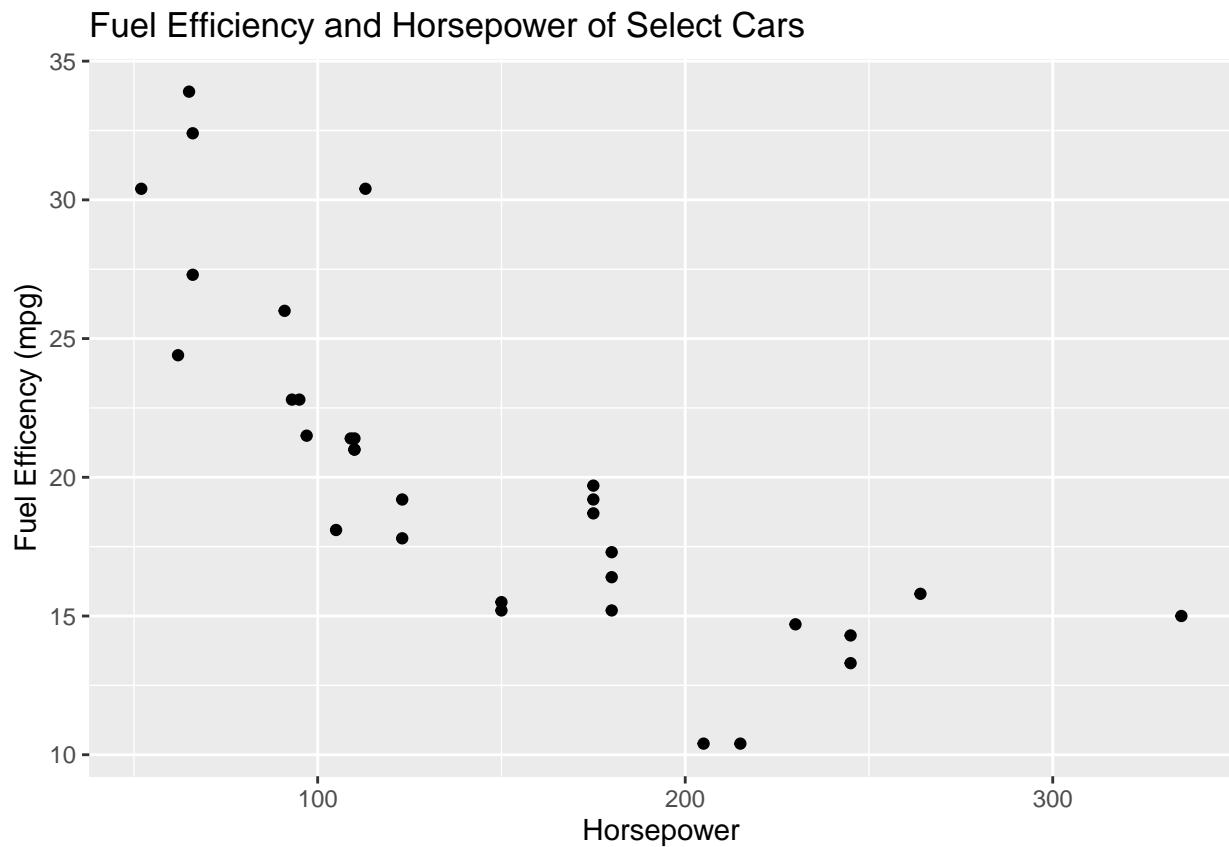
Scatterplot of fuel efficiency (or miles per gallon) and horsepower of cars in the “mtcars” dataset. Fuel efficiency is inversely correlated with horsepower.

```
ggplot(data=mtcars,aes(x=hp,y=mpg))+
  geom_point()+
  labs(
    title = "Fuel Efficiency and Horsepower of Select Cars",
    x = "Horsepower",
    y = "Fuel Efficiency (mpg)"
  )
```

## Fuel Efficiency and Horsepower of Select Cars



## Part B



## Part C

```
mtcars <- mtcars %>%
  mutate(hp_low_high = case_when(
    hp < 200 ~ "low",
    hp >= 200 ~ "high"))

mtcars %>%
  select(mpg, hp, hp_low_high)
```

```
##                      mpg   hp hp_low_high
## Mazda RX4           21.0 110      low
## Mazda RX4 Wag       21.0 110      low
## Datsun 710          22.8  93      low
## Hornet 4 Drive      21.4 110      low
## Hornet Sportabout   18.7 175      low
## Valiant              18.1 105      low
## Duster 360           14.3 245     high
## Merc 240D            24.4  62      low
## Merc 230              22.8  95      low
## Merc 280              19.2 123      low
```

```

## Merc 280C      17.8 123    low
## Merc 450SE     16.4 180    low
## Merc 450SL     17.3 180    low
## Merc 450SLC    15.2 180    low
## Cadillac Fleetwood 10.4 205  high
## Lincoln Continental 10.4 215  high
## Chrysler Imperial 14.7 230  high
## Fiat 128       32.4 66     low
## Honda Civic     30.4 52     low
## Toyota Corolla 33.9 65     low
## Toyota Corona   21.5 97     low
## Dodge Challenger 15.5 150   low
## AMC Javelin     15.2 150   low
## Camaro Z28      13.3 245   high
## Pontiac Firebird 19.2 175   low
## Fiat X1-9       27.3 66     low
## Porsche 914-2    26.0 91     low
## Lotus Europa     30.4 113   low
## Ford Pantera L   15.8 264   high
## Ferrari Dino     19.7 175   low
## Maserati Bora    15.0 335   high
## Volvo 142E       21.4 109   low

```

## Part D

```

mtcars %>%
  group_by(hp_low_high) %>%
  summarize(avg_hp = mean(hp))

```

```

## # A tibble: 2 x 2
##   hp_low_high avg_hp
##   <chr>        <dbl>
## 1 high          248.
## 2 low           118.

```

## Question 2

My dream car is a high speed train. I don't like to drive, but I like to get where I need to go quickly. I wish the United States had more high speed trains.

