

# DS5030 Practice HW

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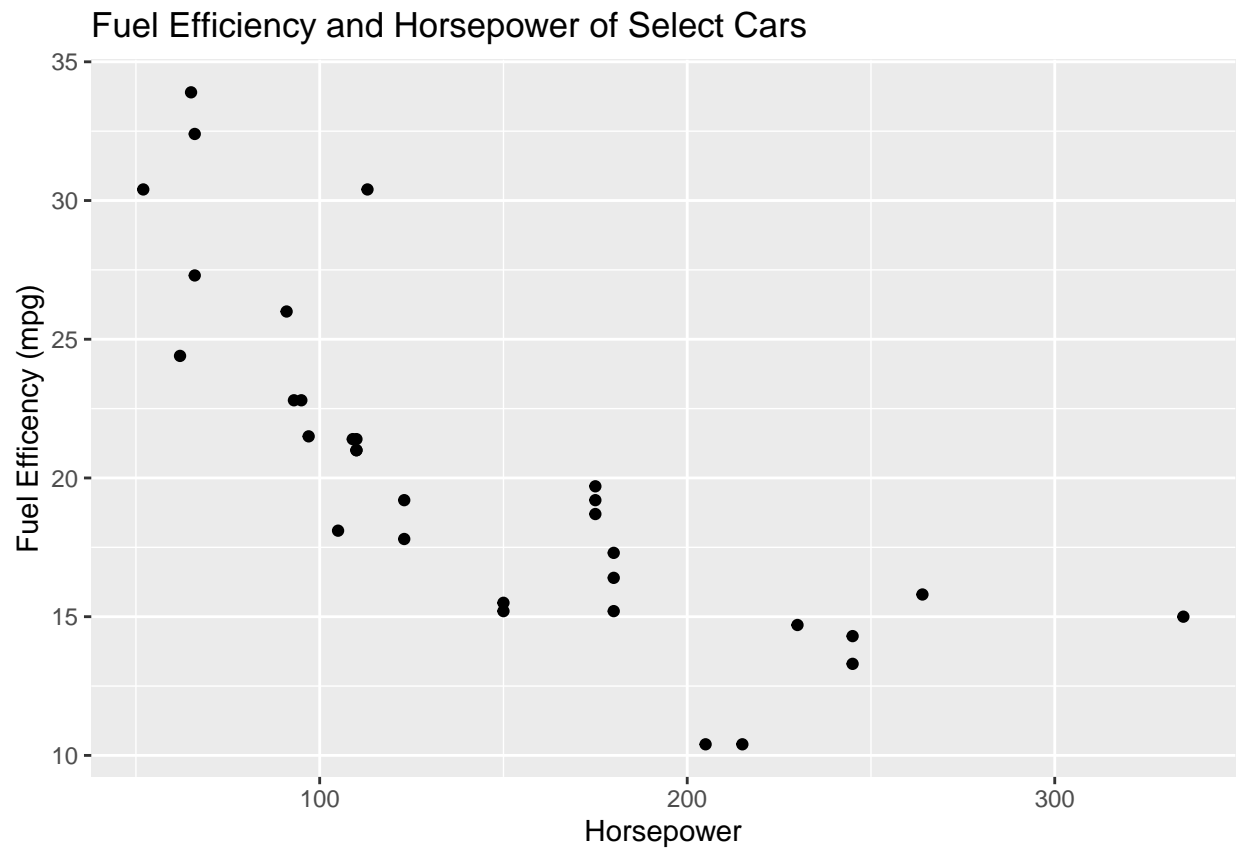
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## Question 1

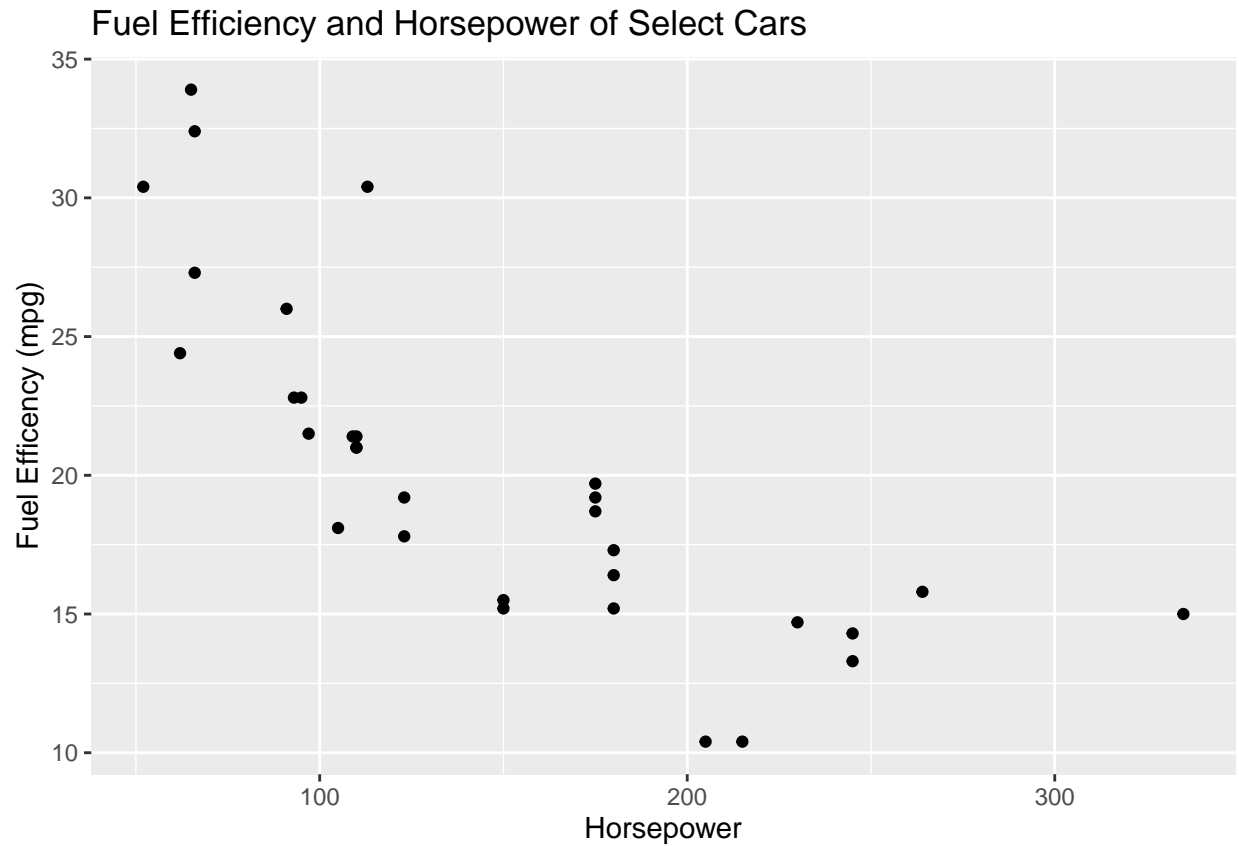
Scatterplot of fuel efficiency (or miles per gallon) and horsepower of cars in the “mtcars” dataset. Fuel efficiency is inversely correlated with horsepower.

### Part A

```
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)"  
  )
```



## 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.

