

WU #3 - Inference on β_1

Math 158 - Jo Hardin

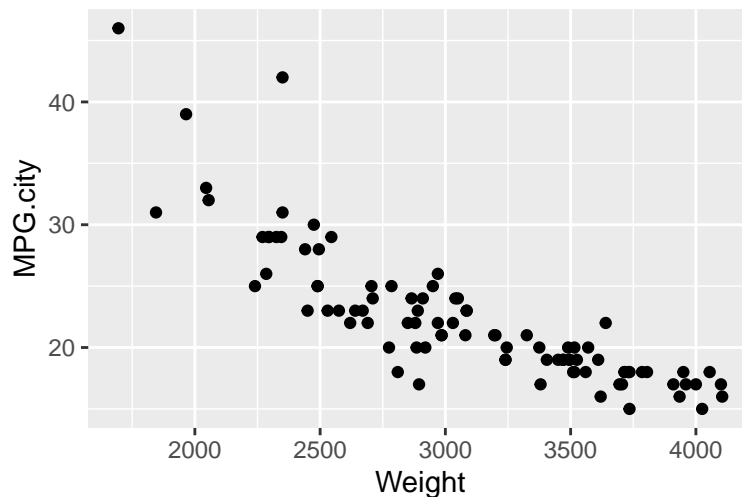
in class: Tuesday 1/25/2022, due: Wednesday 1/26/2022

Name: _____

Names of people you worked with: _____

Consider the following linear model output. The data are based on a random sample of cars from among 1993 passenger car models that were listed in both *Consumer Reports* and the *PACE Buying Guide*. We are considering the variables `weight` and `MPG.city`.

```
Cars93 %>%  
  ggplot(aes(y=MPG.city, x= Weight)) +  
  geom_point()
```



```
Cars93 %>%  
  lm(MPG.city ~ Weight, data = .) %>%  
  tidy() %>%  
  dplyr::select(term, estimate, std.error)
```

```
## # A tibble: 2 x 3  
##   term          estimate std.error  
##   <chr>         <dbl>     <dbl>  
## 1 (Intercept)  47.0       1.68  
## 2 Weight      -0.00803    0.000537
```

1. Find the T test statistic and (approximate) p-value for the test $H_0 : \beta_1 = 0$.
2. Roughly approximate a 95% CI for the true β_1 .

note: There are 93 observations, but for the warm-up use rough approximations where the sample size doesn't play a role.