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library(dplyr)
library(tidyverse)

# import csv file
# example code from 15.2.3
MechaCar_mpg <-
read.csv(file='MechaCar_mpg.csv',check.names=F,stringsAsFactors = F)
# Perform linear regression using the lm() function.
# example code from 15.7.3
# lm(qsec ~ mpg + disp + drat + wt + hp,data=mtcars)

Mecha_lm <- lm(mpg ~ vehicle_length + vehicle_weight + spoiler_angle +
ground_clearance + AWD. data=MechaCar_mpg)
Mecha_lm

# view using summary
summary(Mecha_lm)

# view R-squared
summary(Mecha_lm)$r.squared

####Deliverable 2 area####
#import csv file

Suspension_Coil <-
read.csv(file='Suspension_Coil.csv',check.names=F,stringsAsFactors = F)

#create a summary for suspension coils
total_summary <- Suspension_Coil %>%
  summarize(Mean=mean(PSI), Median=median(PSI), Variance=var(PSI),
Std_Dev=sd(PSI))
total_summary

# view by lots using group_by
lot_summary <- Suspension_Coil %>% group_by(Manufacturing_Lot)
  summarize()

####Deliverable 3 area####
# level of significance is .05

#Ho: mu=1500
#Ha: mu<>1500
t.test(Suspension_Coil$PSI, mu=1500)
# analysis - p-value greater than 0.05. Conclusion: Ho rejection failure

# Lot 1
t.test(subset(Suspension_Coil, Manufacturing_Lot="Lot1")$PSI, mu=1500)
# Lot 2
t.test(subset(Suspension_Coil, Manufacturing_Lot="Lot1")$PSI, mu=1500)
# Lot 3
t.test(subset(Suspension_Coil, Manufacturing_Lot="Lot1")$PSI, mu=1500)

```