# 1st - step: The Data ------

## Import and rename----

library(readxl) # read\_excel

my\_data <- read\_excel(file.choose())

## Checking------

head(my\_data)

tail(my\_data)

View(my\_data)

table(my\_data$Treat) # Balanced data

## data type------

str(my\_data) # before modification

my\_data$treatment <- as.character(my\_data$Treat)

my\_data$Replication <- as.character(my\_data$Rep)

my\_data$DependentVar <- as.numeric(my\_data$DV)

str(my\_data) # after modification

# 2nd-step: The ANOVA test ----

# APPROACH I: Using Base R (type I)------

## Using aov() & anova() -----

### 1st -build a model-----

mod1 <- aov(DependentVar~treatment,data=my\_data)

### 2nd-ANOVA table-----

anova(mod1)

## Using lm() & anova() -----

### 1st -build a model-----

mod2 <- lm(DependentVar~treatment,data=my\_data)

### 2nd-ANOVA table-----

anova(mod2)

#APPROACH II: Using a package ------

library(car) # type II and type III

# type II anova-----

### 1st -build a model-----

mod3 <- lm(DependentVar~treatment,data=my\_data)

### 2nd-ANOVA table-----

Anova(mod3,type = 2)

# type III anova-----

### 1st -build a model-----

mod4 <- lm(DependentVar~treatment,data=my\_data)

### 2nd-ANOVA table-----

Anova (mod4, type=3)