# Load necessary libraries

library(readr) # For reading CSV files

library(ggplot2) # For creating plots

library(gganimate) # For creating animations

# Step 1: Read the data

SimulationProject <- read\_csv("SimulationProject.csv")

# Step 2: Create two separate models for the regression

model\_work <- lm(duration ~ calls + work, data = SimulationProject)

model\_school <- lm(duration ~ calls + school, data = SimulationProject)

# Step 3: Generate predicted values for both models

SimulationProject$pred\_work <- predict(model\_work, newdata = SimulationProject)

SimulationProject$pred\_school <- predict(model\_school, newdata = SimulationProject)

# Step 4: Create the plot

plot\_regression <- ggplot(SimulationProject, aes(x = calls, y = duration)) +

geom\_point(color = "black", size = 2) + # Plot the actual data points in black

geom\_line(aes(y = duration), color = "black", size = 0.5, alpha = 0.5) + # Connect the actual data points with a line

geom\_line(aes(y = pred\_work), color = "red", size = 1) + # Regression line for work (red)

geom\_line(aes(y = pred\_school), color = "blue", size = 1) + # Regression line for school (blue)

labs(title = "Multiple Regression: Duration vs. Calls with Work and School",

x = "Calls",

y = "Duration") +

theme\_minimal() +

theme(legend.position = "none")

# Step 5: Animate the plot by progressively drawing the lines

animated\_plot <- plot\_regression +

transition\_reveal(calls) + # Animate the plot as calls change

ease\_aes('linear') # Linear animation of the lines

# Step 6: Display the animation

animate(animated\_plot, nframes = 100, fps = 10, width = 800, height = 600)

# Step 7: Optionally save the animation as a .gif or .mp4 file

# anim\_save("regression\_animation.gif", animated\_plot)