# only if not installed

install.packages("ggplot2")

install.packages("cluster")

# Load necessary libraries

library(ggplot2)

library(cluster)

# Generate some sample data

set.seed(246)

data <- data.frame(

x = rnorm(3500, mean = 1.5),

y = rnorm(3500, mean = 1.5)

)

# Perform K-Means clustering with k=4

kmeans\_result <- kmeans (data, centers = 4)

# Add cluster assignment to the original

data$cluster <- as.factor(kmeans\_result$cluster)

# Visualize the results

ggplot(data, aes (x, y, color = cluster)) +

geom\_point() + geom\_point (data = as.data.frame (kmeans\_result$centers), aes(x, y), color = "black", size = 4, shape = 4)







