Prog 11

# Install and load necessary libraries

if (!require(readxl)) {

install.packages("readxl")

}

if (!require(dplyr)) {

install.packages("dplyr")

}

library(readxl)

library(dplyr)

# Specify the correct path to your Excel file

excel\_file\_path <- "D:/Rayyan College Work/5th Sem Notes/R Lab (Data Analytics)/Original exps/Prog 11/customer\_purchases.xlsx"

# Read the Excel file into a data frame

purchase\_data <- read\_excel(excel\_file\_path)

# Data Summary

total\_records <- nrow(purchase\_data)

total\_unique\_customers <- n\_distinct(purchase\_data$`Customer ID`)

cat("Data Summary\n")

cat("Total Number of Records:", total\_records, "\n")

cat("Total Number of Unique Customers:", total\_unique\_customers, "\n\n")

# Calculate Statistical Measures

mean\_purchase\_amount <- mean(purchase\_data$`Purchase Amount`)

median\_purchase\_amount <- median(purchase\_data$`Purchase Amount`)

std\_dev\_purchase\_amount <- sd(purchase\_data$`Purchase Amount`)

cat("Calculate Statistical Measures\n")

cat("Mean Purchase Amount:", mean\_purchase\_amount, "\n")

cat("Median Purchase Amount:", median\_purchase\_amount, "\n")

cat("Standard Deviation of Purchase Amounts:", std\_dev\_purchase\_amount, "\n\n")

# Customer Segmentation

purchase\_data <- purchase\_data %>%

mutate(Segment = ifelse(`Purchase Amount` < median\_purchase\_amount, "Low Spender", "High Spender"))

cat("Customer Segmentation\n")

print(head(purchase\_data))

# Visualize Data (Histogram)

hist(purchase\_data$`Purchase Amount`, main = "Distribution of Purchase Amounts", xlab = "Purchase Amount", col = "skyblue", border = "black")