Week -8

**56. Compute Summary Statistics for All Variables**

data\_summary <- summary(df)

print(data\_summary)

**57. Calculate the Range and IQR of Variables using R**

range\_values <- apply(df, 2, range)

iqr\_values <- apply(df, 2, IQR)

print(range\_values)

print(iqr\_values)

**58. Visualize Statistical Summaries with Box Plots**

boxplot(df$y, main = "Boxplot of Y", col = "lightblue")

**59. Compare ARIMA Models Using AIC**

install.packages("forecast")

time\_series <- ts(rnorm(100), frequency=12)

fit\_arima <- auto.arima(time\_series)

print(AIC(fit\_arima))

**60. Conduct Bayesian Analysis with RStan**

install.packages("rstan", repos = "https://cloud.r-project.org/", dependencies = TRUE)

model\_code <- "data { real y\_mean; } parameters { real y; } model { y ~ normal(y\_mean,1); }"

model\_code

stan\_model <- stan(model\_code=model\_code, data=list(y\_mean=0), iter=1000, chains=4)

print(stan\_model**)**

**61. Display column names using R**

print(colnames(df))

**62. Create a sequence of numbers from 1 to 50, with an interval of 5.**

sequence\_numbers <- seq(1, 50, by=5)

print(sequence\_numbers)

**63. Create a named vector using R**

named\_vector <- c(A=1, B=2, C=3, D=4)

print(named\_vector)

**Assessment-8**

**Create a 3x3 matrix with numbers from 1 to 9 using R programming**

matrix\_2x2 <- matrix(1:4, nrow=2, ncol=2)

print(matrix\_2x2)