5. Suppose that a hospital tested the age and body fat data for 18 randomly selected adults with the following results: AGE %fat 23 95 52 %fat 34.6 23 27 27 39 26.5 7.8 17.8 31.4 54 54 56 57 42.5 28.8 33.4 30.2 34.1 41 47 49 50 25.9 27.4 27.2 31.2 58 58 60 61 32.9 41.2 35.7 (a) Calculate the mean, median, and standard deviation of age and %fat. (b) Draw the boxplots for age and %fat. (c) Draw a scatter plot and a q-q plot based on these two variables.

PROGRAM:

ages <- c(23, 23, 27, 27, 39, 54, 54, 56, 57, 41, 47, 49, 50, 58, 58, 60, 61)

body\_fat <- c(34.6, 26.5, 7.8, 17.8, 31.4, 42.5, 28.8, 33.4, 30.2, 34.1, 25.9, 27.4, 27.2, 31.2, 32.9, 41.2, 35.7)

mean\_age <- mean(ages)

median\_age <- median(ages)

sd\_age <- sd(ages)

mean\_fat <- mean(body\_fat)

median\_fat <- median(body\_fat)

sd\_fat <- sd(body\_fat)

cat("Mean Age:", mean\_age, "\n")

cat("Median Age:", median\_age, "\n")

cat("Standard Deviation Age:", sd\_age, "\n")

cat("Mean %Fat:", mean\_fat, "\n")

cat("Median %Fat:", median\_fat, "\n")

cat("Standard Deviation %Fat:", sd\_fat, "\n")

par(mfrow=c(1,2))

boxplot(ages, main="Boxplot of Age", col="lightblue")

boxplot(body\_fat, main="Boxplot of %Fat", col="lightgreen")

par(mfrow=c(1,2))

plot(ages, body\_fat, main="Scatter Plot of Age vs %Fat", xlab="Age", ylab="%Fat", col="blue", pch=19)

qqplot(ages, body\_fat, main="Q-Q Plot of Age and %Fat", xlab="Age Quantiles", ylab="%Fat Quantiles")

par(mfrow=c(1,1))

OUTPUT:

