**CODE**

y <- read.xlsx("data\_akbilgic.xlsx", sheetIndex = 1, startRow = 2)

# Mode function.

calcMode <- function(x) {

uniqueValues <- unique(x)

uniqueValues[which.max(tabulate(match(x, uniqueValues)))]

}

#1.ISEUSD

meanISEUSD <- apply(y[3],2,mean)

medianISEUSD <- apply(y[3],2,median)

modeISEUSD <- apply(y[3],2,calcMode)

SDISEUSD <- apply(y[3],2,sd)

VarISEUSD <- apply(y[3],2,var)

#1.SP

meanSP <- apply(y[4],2,mean)

medianSP <- apply(y[4],2,median)

modeSP <- apply(y[4],2,calcMode)

SDSP <- apply(y[4],2,sd)

VarSP <- apply(y[4],2,var)

#1.DAX

meanDAX <- apply(y[5],2,mean)

medianDAX <- apply(y[5],2,median)

modeDAX <- apply(y[5],2,calcMode)

SDDAX <- apply(y[5],2,sd)

VarDAX <- apply(y[5],2,var)

#1.FTSE

meanFTSE <- apply(y[6],2,mean)

medianFTSE <- apply(y[6],2,median)

modeFTSE <- apply(y[6],2,calcMode)

SDFTSE <- apply(y[6],2,sd)

VarFTSE <- apply(y[6],2,var)

#1.NIKKEI

meanNIKKEI <- apply(y[7],2,mean)

medianNIKKEI <- apply(y[7],2,median)

modeNIKKEI <- apply(y[7],2,calcMode)

SDNIKKEI <- apply(y[7],2,sd)

VarNIKKEI <- apply(y[7],2,var)

#1.BOVESPA

meanBOVESPA <- apply(y[8],2,mean)

medianBOVESPA <- apply(y[8],2,median)

modeBOVESPA <- apply(y[8],2,calcMode)

SDBOVESPA <- apply(y[8],2,sd)

VarBOVESPA <- apply(y[8],2,var)

#1.EU

meanEU <- apply(y[9],2,mean)

medianEU <- apply(y[9],2,median)

modeEU <- apply(y[9],2,calcMode)

SDEU <- apply(y[9],2,sd)

VarEU <- apply(y[9],2,var)

#1.EM

meanEM <- apply(y[10],2,mean)

medianEM <- apply(y[10],2,median)

modeEM <- apply(y[10],2,calcMode)

SDEM <- apply(y[10],2,sd)

VarEM <- apply(y[10],2,var)

cat("ISE USD")

cat("\nMean of ISE USD Based is ", meanISEUSD )

cat("\nMedian of ISE USD Based is ", medianISEUSD )

cat("\nMode of ISE USD Based is ", modeISEUSD )

cat("\nStandard Deviation of ISE USD Based is ", SDISEUSD )

cat("\nVariance of ISE USD Based is ", VarISEUSD, "\n\n" )

cat("SP")

cat("\nMean of SP is ", meanSP )

cat("\nMedian of SP is ", medianSP )

cat("\nMode of SP is ", modeSP )

cat("\nStandard Deviation of SP is ", SDSP )

cat("\nVariance of SP is ", VarSP,"\n\n" )

cat("DAX")

cat("\nMean of DAX is ", meanDAX )

cat("\nMedian of DAX is ", medianDAX )

cat("\nMode of DAX is ", modeDAX )

cat("\nStandard Deviation of DAX is ", SDDAX )

cat("\nVariance of DAX is ", VarDAX,"\n\n")

cat("FTSE")

cat("\nMean of FTSE is ", meanFTSE )

cat("\nMedian of FTSE is ", medianFTSE )

cat("\nMode of FTSE is ", modeFTSE )

cat("\nStandard Deviation of FTSE is ", SDFTSE )

cat("\nVariance of FTSE is ", VarFTSE,"\n\n" )

cat("NIKKEI")

cat("\nMean of NIKKEI is ", meanNIKKEI )

cat("\nMedian of NIKKEI is ", medianNIKKEI )

cat("\nMode of NIKKEI is ", modeNIKKEI )

cat("\nStandard Deviation of NIKKEI is ", SDNIKKEI )

cat("\nVariance of NIKKEI is ", VarNIKKEI,"\n\n" )

cat("BOVESPA")

cat("\nMean of BOVESPA is ", meanBOVESPA )

cat("\nMedian of BOVESPA is ", medianBOVESPA )

cat("\nMode of BOVESPA is ", modeBOVESPA )

cat("\nStandard Deviation of BOVESPA is ", SDBOVESPA )

cat("\nVariance of BOVESPA is ", VarBOVESPA,"\n\n")

cat("EU")

cat("\nMean of EU is ", meanEU )

cat("\nMedian of EU is ", medianEU )

cat("\nMode of EU is ", modeEU )

cat("\nStandard Deviation of EU is ", SDEU )

cat("\nVariance of EU is ", VarEU,"\n\n")

cat("EM")

cat("\nMean of EM is ", meanEM )

cat("\nMedian of EM is ", medianEM )

cat("\nMode of EM is ", modeEM )

cat("\nStandard Deviation of EM is ", SDEM )

cat("\nVariance of EM is ", VarEM,"\n\n")

#2

cat("\n\n Box plot of ISETL\n")

boxplot(y[2])

cat("\n\n Box plot of ISEUSD\n")

boxplot(y[3])

cat("\n\n Box plot of SP\n")

boxplot(y[4])

cat("\n\n Box plot of DAX\n")

boxplot(y[5])

cat("\n\n Box plot of FTSE\n")

boxplot(y[6])

cat("\n\n Box plot of NIKKIEI\n")

boxplot(y[7])

cat("\n\n Box plot of BOVESPA\n")

boxplot(y[8])

cat("\n\n Box plot of EU\n")

boxplot(y[9])

cat("\n\n Box plot of EM\n")

boxplot(y[10])

outliersISETL <- boxplot(y[2])$out

outliersISEUSD <- boxplot(y[3])$out

outliersSP <- boxplot(y[4])$out

outliersDAX <- boxplot(y[5])$out

outliersFTSE <- boxplot(y[6])$out

outliersNIKKEI <- boxplot(y[7])$out

outliersBOVESPA <- boxplot(y[8])$out

outliersEU <- boxplot(y[9])$out

outliersEM <- boxplot(y[10])$out

cat("\n\nOutliers appearing on ISETL are ", outliersISETL )

cat("\n\nOutliers appearing on ISEUSD are ", outliersISEUSD )

cat("\n\nOutliers appearing on SP are ", outliersSP )

cat("\n\nOutliers appearing on DAX are ", outliersDAX )

cat("\n\nOutliers appearing on FTSE are ", outliersFTSE )

cat("\n\nOutliers appearing on NIKKEI are ", outliersNIKKEI )

cat("\n\nOutliers appearing on BOVESPA are ", outliersBOVESPA )

cat("\n\nOutliers appearing on EU are ", outliersEU )

cat("\n\nOutliers appearing on EM are ", outliersEM, "\n\n" )

#3

qqplot(y$ISE.1,y$EM)

#4

cc1 <- cor(y$ISE.1, y$EM)

cat("Correlation between Istanbul Stock Exchange and MSCI emerging markets is ",cc1,"\n\n")

#5

qqplot(y$NIKKEI,y$BOVESPA)

cc2 <- cor(y$NIKKEI, y$BOVESPA)

cat("Correlation between Stock market return index of Japan and Brazil is ",cc2,"\n\n")