Review of `R`

STA 360: Lab 1, Fall 2020 (This will not be graded or turned in)

Today's agenda: A review of `R`, getting used to R markdown, vectors, matrices, scatterplots, and functions.

Lab Tasks

1. Store three vectors using `rnorm()` of length $n = 100$ as Var1, Var2, and Var3.

```
set.seed(1)
Var1 <- rnorm(100)
set.seed(2)
Var2 <- rnorm(100)
set.seed(3)
Var3 <- rnorm(100)
```

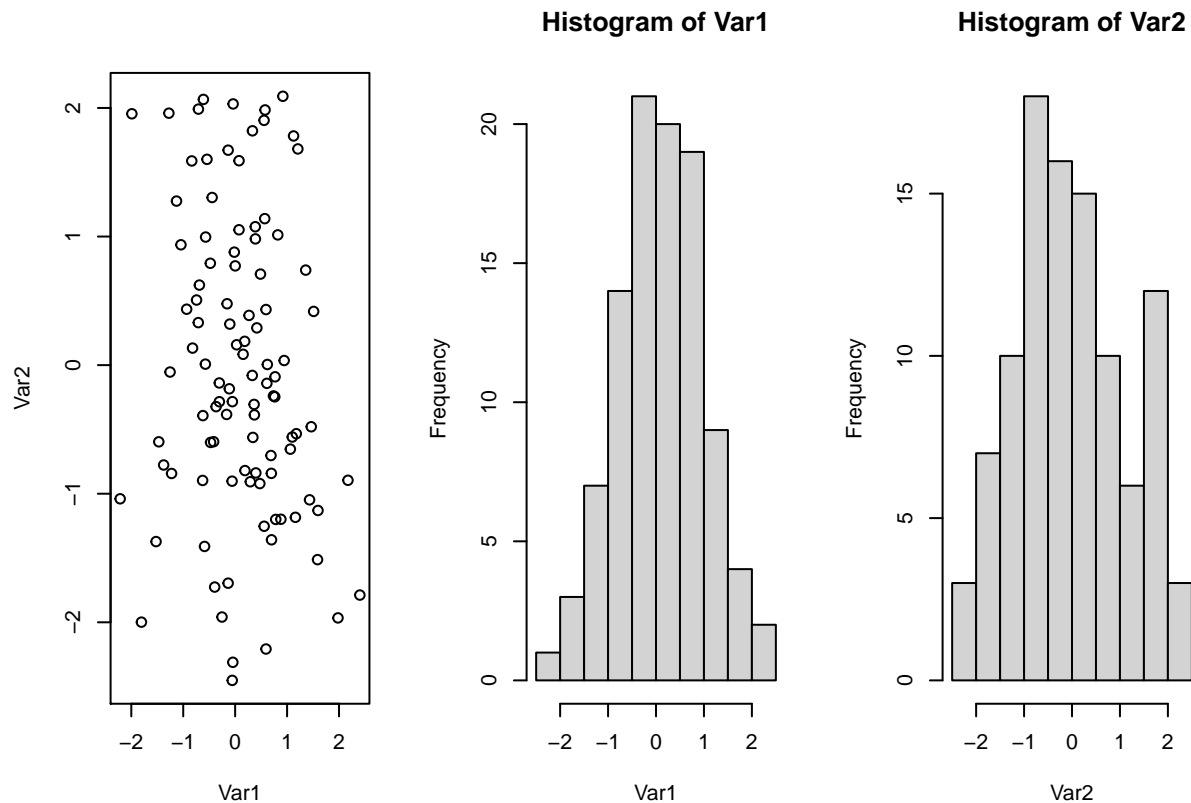2. List all the items currently in the environment.

```
ls()
```

```
## [1] "Var1" "Var2" "Var3"
```

3. Store Var1 in a 10×10 matrix. Call this myMatrix.

```
myMatrix <- matrix(Var1, 10, 10)
```

4. Create a scatterplot of Var1 vs. Var2. On the same plotting window include histograms of Var1 and Var2.

```
par(mfrow=c(1,3))
plot(Var1, Var2)
hist(Var1)
hist(Var2)
```

Histogram of Var1

Histogram of Var2

5. Write a function that takes as its inputs, $p = 2$, n-dimensional vectors and a vector of length p containing the names of these vectors. Your function combine these two vectors into a data.frame(), get the row-wise maximum and store this in a new vector. Finally produce a box-plot of this vector, store it as a separate .pdf, and return the mean value of this vector.

```r
func <- function(v1, v2, myNames) {
  myData = data.frame(v1, v2)
  names(myData) = myNames
  myVector = apply(myData, 1, max)
  pdf('myPlot.pdf')
  boxplot(myVector)
  dev.off()
  final <- mean(myVector)
  return(final)
}

func(Var1, Var2, c('myVar1', 'myVar2'))

## [1] 0.6647518
```