rscript1.R

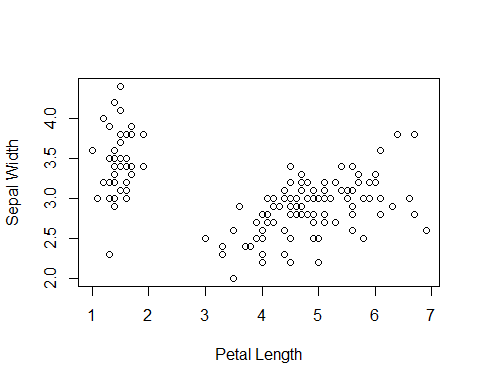
Cody

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# Author  
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# CS-4375.001  
  
# Instantiate and load the iris dataset into the 'iris' local object, define column names for the object, and show  
# the first 6 entries of the dataset  
iris <- read.csv("https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data", header = FALSE)  
colnames(iris) <- c("Sepal.Length", "Sepal.Width", "Petal.Length", "Petal.Width", "Species")  
head(iris)

## Sepal.Length Sepal.Width Petal.Length Petal.Width Species  
## 1 5.1 3.5 1.4 0.2 Iris-setosa  
## 2 4.9 3.0 1.4 0.2 Iris-setosa  
## 3 4.7 3.2 1.3 0.2 Iris-setosa  
## 4 4.6 3.1 1.5 0.2 Iris-setosa  
## 5 5.0 3.6 1.4 0.2 Iris-setosa  
## 6 5.4 3.9 1.7 0.4 Iris-setosa

# Display the iris dataset as a scatter plot, and save the original iris dataset into a local file as a backup  
plot(  
 iris$Petal.Length,  
 iris$Sepal.Width,  
 xlab = "Petal Length",  
 ylab = "Sepal Width"  
)



save(iris, file="iris.rda")  
  
# Display duplicated rows  
iris[duplicated(iris),]

## Sepal.Length Sepal.Width Petal.Length Petal.Width Species  
## 35 4.9 3.1 1.5 0.1 Iris-setosa  
## 38 4.9 3.1 1.5 0.1 Iris-setosa  
## 143 5.8 2.7 5.1 1.9 Iris-virginica

# Copy the iris dataset (without duplicate rows) into the nd\_iris local object (nd\_iris = non-duplicate iris)  
nd\_iris <- iris[!duplicated(iris),]  
  
# Show there are no duplicates in the nd\_iris data set, save it as a backup, and then move the duplicate-free   
# dataset back into the iris object  
nd\_iris[duplicated(nd\_iris),]

## [1] Sepal.Length Sepal.Width Petal.Length Petal.Width Species   
## <0 rows> (or 0-length row.names)

save(nd\_iris, file="nd\_iris.rda")  
iris <- nd\_iris  
  
# Shows there are no missing values in the dataset  
iris[is.na(iris)]

## character(0)

# Add a missing value, and show that the missing value is recognized  
iris[10,3] <- NA  
iris[is.na(iris)]

## [1] NA

# Displays the row with the missing value  
iris[  
 which(  
 is.na(iris),   
 arr.ind=TRUE  
 )[1],  
]

## Sepal.Length Sepal.Width Petal.Length Petal.Width Species  
## 10 4.9 3.1 NA 0.1 Iris-setosa

# Copy the iris dataset (without missing data) into the complete\_iris local object, show that complete\_iris is  
# free of missing data, and save the data as a backup  
complete\_iris <- iris[complete.cases(iris),]  
complete\_iris[is.na(complete\_iris)]

## character(0)

save(complete\_iris, file="complete\_iris.rda")  
  
# Move the new dataset back into the iris object, and display the iris object one final time  
iris <- complete\_iris  
iris

## Sepal.Length Sepal.Width Petal.Length Petal.Width Species  
## 1 5.1 3.5 1.4 0.2 Iris-setosa  
## 2 4.9 3.0 1.4 0.2 Iris-setosa  
## 3 4.7 3.2 1.3 0.2 Iris-setosa  
## 4 4.6 3.1 1.5 0.2 Iris-setosa  
## 5 5.0 3.6 1.4 0.2 Iris-setosa  
## 6 5.4 3.9 1.7 0.4 Iris-setosa  
## 7 4.6 3.4 1.4 0.3 Iris-setosa  
## 8 5.0 3.4 1.5 0.2 Iris-setosa  
## 9 4.4 2.9 1.4 0.2 Iris-setosa  
## 11 5.4 3.7 1.5 0.2 Iris-setosa  
## 12 4.8 3.4 1.6 0.2 Iris-setosa  
## 13 4.8 3.0 1.4 0.1 Iris-setosa  
## 14 4.3 3.0 1.1 0.1 Iris-setosa  
## 15 5.8 4.0 1.2 0.2 Iris-setosa  
## 16 5.7 4.4 1.5 0.4 Iris-setosa  
## 17 5.4 3.9 1.3 0.4 Iris-setosa  
## 18 5.1 3.5 1.4 0.3 Iris-setosa  
## 19 5.7 3.8 1.7 0.3 Iris-setosa  
## 20 5.1 3.8 1.5 0.3 Iris-setosa  
## 21 5.4 3.4 1.7 0.2 Iris-setosa  
## 22 5.1 3.7 1.5 0.4 Iris-setosa  
## 23 4.6 3.6 1.0 0.2 Iris-setosa  
## 24 5.1 3.3 1.7 0.5 Iris-setosa  
## 25 4.8 3.4 1.9 0.2 Iris-setosa  
## 26 5.0 3.0 1.6 0.2 Iris-setosa  
## 27 5.0 3.4 1.6 0.4 Iris-setosa  
## 28 5.2 3.5 1.5 0.2 Iris-setosa  
## 29 5.2 3.4 1.4 0.2 Iris-setosa  
## 30 4.7 3.2 1.6 0.2 Iris-setosa  
## 31 4.8 3.1 1.6 0.2 Iris-setosa  
## 32 5.4 3.4 1.5 0.4 Iris-setosa  
## 33 5.2 4.1 1.5 0.1 Iris-setosa  
## 34 5.5 4.2 1.4 0.2 Iris-setosa  
## 36 5.0 3.2 1.2 0.2 Iris-setosa  
## 37 5.5 3.5 1.3 0.2 Iris-setosa  
## 39 4.4 3.0 1.3 0.2 Iris-setosa  
## 40 5.1 3.4 1.5 0.2 Iris-setosa  
## 41 5.0 3.5 1.3 0.3 Iris-setosa  
## 42 4.5 2.3 1.3 0.3 Iris-setosa  
## 43 4.4 3.2 1.3 0.2 Iris-setosa  
## 44 5.0 3.5 1.6 0.6 Iris-setosa  
## 45 5.1 3.8 1.9 0.4 Iris-setosa  
## 46 4.8 3.0 1.4 0.3 Iris-setosa  
## 47 5.1 3.8 1.6 0.2 Iris-setosa  
## 48 4.6 3.2 1.4 0.2 Iris-setosa  
## 49 5.3 3.7 1.5 0.2 Iris-setosa  
## 50 5.0 3.3 1.4 0.2 Iris-setosa  
## 51 7.0 3.2 4.7 1.4 Iris-versicolor  
## 52 6.4 3.2 4.5 1.5 Iris-versicolor  
## 53 6.9 3.1 4.9 1.5 Iris-versicolor  
## 54 5.5 2.3 4.0 1.3 Iris-versicolor  
## 55 6.5 2.8 4.6 1.5 Iris-versicolor  
## 56 5.7 2.8 4.5 1.3 Iris-versicolor  
## 57 6.3 3.3 4.7 1.6 Iris-versicolor  
## 58 4.9 2.4 3.3 1.0 Iris-versicolor  
## 59 6.6 2.9 4.6 1.3 Iris-versicolor  
## 60 5.2 2.7 3.9 1.4 Iris-versicolor  
## 61 5.0 2.0 3.5 1.0 Iris-versicolor  
## 62 5.9 3.0 4.2 1.5 Iris-versicolor  
## 63 6.0 2.2 4.0 1.0 Iris-versicolor  
## 64 6.1 2.9 4.7 1.4 Iris-versicolor  
## 65 5.6 2.9 3.6 1.3 Iris-versicolor  
## 66 6.7 3.1 4.4 1.4 Iris-versicolor  
## 67 5.6 3.0 4.5 1.5 Iris-versicolor  
## 68 5.8 2.7 4.1 1.0 Iris-versicolor  
## 69 6.2 2.2 4.5 1.5 Iris-versicolor  
## 70 5.6 2.5 3.9 1.1 Iris-versicolor  
## 71 5.9 3.2 4.8 1.8 Iris-versicolor  
## 72 6.1 2.8 4.0 1.3 Iris-versicolor  
## 73 6.3 2.5 4.9 1.5 Iris-versicolor  
## 74 6.1 2.8 4.7 1.2 Iris-versicolor  
## 75 6.4 2.9 4.3 1.3 Iris-versicolor  
## 76 6.6 3.0 4.4 1.4 Iris-versicolor  
## 77 6.8 2.8 4.8 1.4 Iris-versicolor  
## 78 6.7 3.0 5.0 1.7 Iris-versicolor  
## 79 6.0 2.9 4.5 1.5 Iris-versicolor  
## 80 5.7 2.6 3.5 1.0 Iris-versicolor  
## 81 5.5 2.4 3.8 1.1 Iris-versicolor  
## 82 5.5 2.4 3.7 1.0 Iris-versicolor  
## 83 5.8 2.7 3.9 1.2 Iris-versicolor  
## 84 6.0 2.7 5.1 1.6 Iris-versicolor  
## 85 5.4 3.0 4.5 1.5 Iris-versicolor  
## 86 6.0 3.4 4.5 1.6 Iris-versicolor  
## 87 6.7 3.1 4.7 1.5 Iris-versicolor  
## 88 6.3 2.3 4.4 1.3 Iris-versicolor  
## 89 5.6 3.0 4.1 1.3 Iris-versicolor  
## 90 5.5 2.5 4.0 1.3 Iris-versicolor  
## 91 5.5 2.6 4.4 1.2 Iris-versicolor  
## 92 6.1 3.0 4.6 1.4 Iris-versicolor  
## 93 5.8 2.6 4.0 1.2 Iris-versicolor  
## 94 5.0 2.3 3.3 1.0 Iris-versicolor  
## 95 5.6 2.7 4.2 1.3 Iris-versicolor  
## 96 5.7 3.0 4.2 1.2 Iris-versicolor  
## 97 5.7 2.9 4.2 1.3 Iris-versicolor  
## 98 6.2 2.9 4.3 1.3 Iris-versicolor  
## 99 5.1 2.5 3.0 1.1 Iris-versicolor  
## 100 5.7 2.8 4.1 1.3 Iris-versicolor  
## 101 6.3 3.3 6.0 2.5 Iris-virginica  
## 102 5.8 2.7 5.1 1.9 Iris-virginica  
## 103 7.1 3.0 5.9 2.1 Iris-virginica  
## 104 6.3 2.9 5.6 1.8 Iris-virginica  
## 105 6.5 3.0 5.8 2.2 Iris-virginica  
## 106 7.6 3.0 6.6 2.1 Iris-virginica  
## 107 4.9 2.5 4.5 1.7 Iris-virginica  
## 108 7.3 2.9 6.3 1.8 Iris-virginica  
## 109 6.7 2.5 5.8 1.8 Iris-virginica  
## 110 7.2 3.6 6.1 2.5 Iris-virginica  
## 111 6.5 3.2 5.1 2.0 Iris-virginica  
## 112 6.4 2.7 5.3 1.9 Iris-virginica  
## 113 6.8 3.0 5.5 2.1 Iris-virginica  
## 114 5.7 2.5 5.0 2.0 Iris-virginica  
## 115 5.8 2.8 5.1 2.4 Iris-virginica  
## 116 6.4 3.2 5.3 2.3 Iris-virginica  
## 117 6.5 3.0 5.5 1.8 Iris-virginica  
## 118 7.7 3.8 6.7 2.2 Iris-virginica  
## 119 7.7 2.6 6.9 2.3 Iris-virginica  
## 120 6.0 2.2 5.0 1.5 Iris-virginica  
## 121 6.9 3.2 5.7 2.3 Iris-virginica  
## 122 5.6 2.8 4.9 2.0 Iris-virginica  
## 123 7.7 2.8 6.7 2.0 Iris-virginica  
## 124 6.3 2.7 4.9 1.8 Iris-virginica  
## 125 6.7 3.3 5.7 2.1 Iris-virginica  
## 126 7.2 3.2 6.0 1.8 Iris-virginica  
## 127 6.2 2.8 4.8 1.8 Iris-virginica  
## 128 6.1 3.0 4.9 1.8 Iris-virginica  
## 129 6.4 2.8 5.6 2.1 Iris-virginica  
## 130 7.2 3.0 5.8 1.6 Iris-virginica  
## 131 7.4 2.8 6.1 1.9 Iris-virginica  
## 132 7.9 3.8 6.4 2.0 Iris-virginica  
## 133 6.4 2.8 5.6 2.2 Iris-virginica  
## 134 6.3 2.8 5.1 1.5 Iris-virginica  
## 135 6.1 2.6 5.6 1.4 Iris-virginica  
## 136 7.7 3.0 6.1 2.3 Iris-virginica  
## 137 6.3 3.4 5.6 2.4 Iris-virginica  
## 138 6.4 3.1 5.5 1.8 Iris-virginica  
## 139 6.0 3.0 4.8 1.8 Iris-virginica  
## 140 6.9 3.1 5.4 2.1 Iris-virginica  
## 141 6.7 3.1 5.6 2.4 Iris-virginica  
## 142 6.9 3.1 5.1 2.3 Iris-virginica  
## 144 6.8 3.2 5.9 2.3 Iris-virginica  
## 145 6.7 3.3 5.7 2.5 Iris-virginica  
## 146 6.7 3.0 5.2 2.3 Iris-virginica  
## 147 6.3 2.5 5.0 1.9 Iris-virginica  
## 148 6.5 3.0 5.2 2.0 Iris-virginica  
## 149 6.2 3.4 5.4 2.3 Iris-virginica  
## 150 5.9 3.0 5.1 1.8 Iris-virginica