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|  | **Assignment 7.1**  **Problem Statement**  **#1)Histogram for all variables in a dataset mtcars. Write a program to create histograms for all columns.** |
|  | library(reshape2) |
|  | head(melt(mtcars)) |
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|  | library(ggplot2) |
|  | ggplot(data= melt(mtcars), mapping= aes(x= value)) + |
|  | geom\_histogram(bins=10) + facet\_wrap(~variable, scales='free\_x') |
|  |  |
|  | ###### OR |
|  |  |
|  | install.packages("purrr") |
|  | install.packages("tidyr") |
|  | library(purrr) |
|  | library(tidyr) |
|  | library(ggplot2) |
|  |  |
|  | mtcars %>% |
|  | keep(is.numeric) %>% |
|  | gather() %>% |
|  | ggplot(aes(value)) + |
|  | facet\_wrap(~ key,scales="free") + |
|  | geom\_histogram() |
|  |  |
|  |  |
|  |  |
|  | #or it can be done individually |
|  | #Histogram for all variables in a dataset mtcars |
|  | hist(mtcars$mpg ,xlab="Mpg", ylab="Frequency",main="Histogram of Mpg",col="red") |
|  | hist(mtcars$cyl ,xlab="cyl", ylab="Frequency",main="Histogram of cyl",col="blue") |
|  | hist(mtcars$disp ,xlab="disp", ylab="Frequency",main="Histogram of disp",col="yellow") |
|  | hist(mtcars$hp ,xlab="hp", ylab="Frequency",main="Histogram of hp",col="darkblue") |
|  | hist(mtcars$drat ,xlab="drat", ylab="Frequency",main="Histogram of drat",col="pink") |
|  | hist(mtcars$wt ,xlab="wt", ylab="Frequency",main="Histogram of wt",col="purple") |
|  | hist(mtcars$qsec ,xlab="qsec", ylab="Frequency",main="Histogram of qsec",col="blue") |
|  | hist(mtcars$vs ,xlab="vs", ylab="Frequency",main="Histogram of vs",col="green") |
|  | hist(mtcars$am ,xlab="am", ylab="Frequency",main="Histogram of am",col="grey") |
|  | hist(mtcars$gear ,xlab="gear", ylab="Frequency",main="Histogram of gear",col="blue") |
|  | hist(mtcars$carb ,xlab="carb", ylab="Frequency",main="Histogram of carb",col="red") |
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|  | **#2)Check the probability distribution of all variables in mtcars** |
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|  | library(ggplot2) |
|  |  |
|  | mtcars %>% |
|  | keep(is.numeric) %>% |
|  | gather() %>% |
|  | ggplot(aes(value)) + |
|  | facet\_wrap(~ key,scales="free") + |
|  | stat\_density() |
|  |  |
|  |  |
|  | #we can do using geom\_density function |
|  |  |
|  | #or alternate way |
|  | #or just do freq=FALSE and get the Probability Distribution/Density of our variables |
|  | hist(mtcars$mpg ,freq=F,xlab="Mpg", ylab="Probability Distribution/Density",main="Histogram of Mpg",col="red") |
|  | hist(mtcars$cyl ,freq=F,xlab="cyl", ylab="Probability Distribution/Density",main="Histogram of cyl",col="blue") |
|  | hist(mtcars$disp ,freq=F,xlab="disp", ylab="Probability Distribution/Density",main="Histogram of disp",col="yellow") |
|  | hist(mtcars$hp ,freq=F,xlab="hp", ylab="Probability Distribution/Density",main="Histogram of hp",col="darkblue") |
|  | hist(mtcars$drat ,freq=F,xlab="drat", ylab="Probability Distribution/Density",main="Histogram of drat",col="pink") |
|  | hist(mtcars$wt ,freq=F,xlab="wt", ylab="Probability Distribution/Density",main="Histogram of wt",col="purple") |
|  | hist(mtcars$qsec ,freq=F,xlab="qsec", ylab="Probability Distribution/Density",main="Histogram of qsec",col="blue") |
|  | hist(mtcars$vs ,freq=F,xlab="vs", ylab="Probability Distribution/Density",main="Histogram of vs",col="green") |
|  | hist(mtcars$am ,freq=F,xlab="am", ylab="Probability Distribution/Density",main="Histogram of am",col="grey") |
|  | hist(mtcars$gear ,freq=F,xlab="gear", ylab="Probability Distribution/Density",main="Histogram of gear",col="blue") |
|  | hist(mtcars$carb ,freq=F,xlab="carb", ylab="Probability Distribution/Density",main="Histogram of carb",col="red") |
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|  | **#Problem 3** |
|  | **#3. Write a program to create boxplot for all variables.** |
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|  | library(ggplot2) |
|  | library(reshape) |
|  | m1 <- melt(mtcars) |
|  | ggplot(m1,aes(x= variable,y= value)) + facet\_wrap(~variable) + geom\_boxplot() |
|  |  |
|  |  |
|  | #or it can be done individually |
|  |  |
|  | boxplot(mtcars$mpg ,xlab="Box plot", ylab="Mpg",main="Box plot of Mpg",horizontal=T,col="red") |
|  | boxplot(mtcars$cyl ,xlab="Box plot", ylab="cyl",main="Box plot of cyl",horizontal=T,col="blue") |
|  | boxplot(mtcars$disp ,xlab="Box plot", ylab="disp",main="Box plot of disp",horizontal=T,col="yellow") |
|  | boxplot(mtcars$hp ,xlab="Box plot", ylab="hp",main="Box plot of hp",horizontal=T,col="darkblue") |
|  | boxplot(mtcars$drat ,xlab="Box plot", ylab="drat",main="Box plot of drat",horizontal=T,col="pink") |
|  | boxplot(mtcars$wt ,xlab="Box plot", ylab="wt",main="Box plot of wt",horizontal=T,col="purple") |
|  | boxplot(mtcars$qsec ,xlab="Box plot", ylab="qsec",main="Box plot of qsec",horizontal=T,col="blue") |
|  | boxplot(mtcars$vs ,xlab="Box plot", ylab="vs",main="Box plot of vs",horizontal=T,col="green") |
|  | boxplot(mtcars$am ,xlab="Box plot", ylab="am",main="Box plot of am",horizontal=T,col="grey") |
|  | boxplot(mtcars$gear ,xlab="Box plot", ylab="gear",main="Box plot of gear",horizontal=T,col="blue") |
|  | boxplot(mtcars$carb ,xlab="Box plot", ylab="carb",main="Box plot of carb",horizontal=T,col="red") |