# Exploring Data Distribution in R: A Comprehensive Guide

(https://www.r-bloggers.com/2023/08/exploring-data-distribution-in-r-a-comprehensive-guide/?utm\_source=phpList&utm\_medium=email&utm\_campaign=R-bloggers-daily&utm\_content=HTML)

datasets$iris

Error: object 'datasets' not found

# Plot the density distribution of Sepal Length

plot(

density(iris$Sepal.Length),

main="Density Plot of Sepal Length",

xlab="Sepal Length", ylab="Density"

)



# Create a histogram of Petal Width

hist(iris$Petal.Width, main="Histogram of Petal Width",

xlab="Petal Width", ylab="Frequency", col="skyblue")[[1]]

[1] 0

[2] 0.2

[3] 0.4

[4] 0.6

[5] 0.8

[6] 1

[7] 1.2

[8] 1.4

[9] 1.6

[10] 1.8

[11] 2

[12] 2.2

[13] 2.4

[14] 2.6

[[2]]

[1] 34

[2] 14

[3] 2

[4] 0

[5] 7

[6] 8

[7] 21

[8] 16

[9] 14

[10] 11

[11] 9

[12] 11

[13] 3

[[3]]

[1] 1.13333333333333

[2] 0.466666666666667

[3] 0.0666666666666666

[4] 0

[5] 0.233333333333333

[6] 0.266666666666666

[7] 0.7

[8] 0.533333333333333

[9] 0.466666666666667

[10] 0.366666666666667

[11] 0.3

[12] 0.366666666666666

[13] 0.1

[[4]]

[1] 0.1

[2] 0.3

[3] 0.5

[4] 0.7

[5] 0.9

[6] 1.1

[7] 1.3

[8] 1.5

[9] 1.7

[10] 1.9

[11] 2.1

[12] 2.3

[13] 2.5

[[5]]

[1] "iris$Petal.Width"

[[6]]

[1] TRUE



x <- iris$Sepal.Length

hist(x, prob = TRUE)



lines(density(x))



# Load the required library

install.packages('TidyDensity')

library(TidyDensity)

[1] "TidyDensity"

[2] "stats"

[3] "graphics"

[4] "grDevices"

[5] "utils"

[6] "datasets"

[7] "methods"

[8] "base"

# Extract the 'mpg' column

x <- mtcars$mpg

# Use TidyDensity functions to visualize data distribution

data <- tidy\_empirical(x)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | sim\_number | x | y | dx | dy | p | q |
| 1 | "1" | 1 | 21 | 2.96996268656716 | 0.000114229889951921 | 0.625 | 10.4 |
| 2 | "1" | 2 | 21 | 4.20738444872412 | 0.00045456486527769 | 0.625 | 10.4 |
| 3 | "1" | 3 | 22.8 | 5.44480621088108 | 0.00142412543563395 | 0.78125 | 13.3 |
| 4 | "1" | 4 | 21.4 | 6.68222797303804 | 0.00355124366620745 | 0.6875 | 14.3 |
| 5 | "1" | 5 | 18.7 | 7.91964973519499 | 0.00720808501283288 | 0.46875 | 14.7 |
| 6 | "1" | 6 | 18.1 | 9.15707149735195 | 0.012403274957797 | 0.4375 | 15 |
| 7 | "1" | 7 | 14.3 | 10.3944932595089 | 0.0191912185724185 | 0.125 | 15.2 |
| 8 | "1" | 8 | 24.4 | 11.6319150216659 | 0.0281420275147844 | 0.8125 | 15.2 |
| 9 | "1" | 9 | 22.8 | 12.8693367838228 | 0.0394928475045738 | 0.78125 | 15.5 |
| 10 | "1" | 10 | 19.2 | 14.1067585459798 | 0.0515669442258362 | 0.53125 | 15.8 |
| 11 | "1" | 11 | 17.8 | 15.3441803081367 | 0.0612115518322833 | 0.40625 | 16.4 |
| 12 | "1" | 12 | 16.4 | 16.5816020702937 | 0.0664779146787438 | 0.34375 | 17.3 |
| 13 | "1" | 13 | 17.3 | 17.8190238324506 | 0.0679519780192365 | 0.375 | 17.8 |
| 14 | "1" | 14 | 15.2 | 19.0564455946076 | 0.0670022503550701 | 0.25 | 18.1 |
| 15 | "1" | 15 | 10.4 | 20.2938673567646 | 0.0637140526554636 | 0.0625 | 18.7 |
| 16 | "1" | 16 | 10.4 | 21.5312891189215 | 0.0572740167503369 | 0.0625 | 19.2 |
| 17 | "1" | 17 | 14.7 | 22.7687108810785 | 0.0478958359134758 | 0.15625 | 19.2 |
| 18 | "1" | 18 | 32.4 | 24.0061326432354 | 0.0375781594161274 | 0.96875 | 19.7 |
| 19 | "1" | 19 | 30.4 | 25.2435544053924 | 0.0287979438832059 | 0.9375 | 21 |
| 20 | "1" | 20 | 33.9 | 26.4809761675493 | 0.0229286144634323 | 1 | 21 |
| 21 | "1" | 21 | 21.5 | 27.7183979297063 | 0.0199966519509702 | 0.71875 | 21.4 |
| 22 | "1" | 22 | 15.5 | 28.9558196918633 | 0.0192177631225113 | 0.28125 | 21.4 |
| 23 | "1" | 23 | 15.2 | 30.1932414540202 | 0.0193054148096474 | 0.25 | 21.5 |
| 24 | "1" | 24 | 13.3 | 31.4306632161772 | 0.0187949170714632 | 0.09375 | 22.8 |
| 25 | "1" | 25 | 19.2 | 32.6680849783341 | 0.0167177183029872 | 0.53125 | 22.8 |
| 26 | "1" | 26 | 27.3 | 33.9055067404911 | 0.0131020336128971 | 0.875 | 24.4 |
| 27 | "1" | 27 | 26 | 35.142928502648 | 0.00882340980922521 | 0.84375 | 26 |
| 28 | "1" | 28 | 30.4 | 36.380350264805 | 0.00499633410228404 | 0.9375 | 27.3 |
| 29 | "1" | 29 | 15.8 | 37.617772026962 | 0.00233306878791914 | 0.3125 | 30.4 |
| 30 | "1" | 30 | 19.7 | 38.8551937891189 | 0.00088402077594908 | 0.5625 | 30.4 |
| 31 | "1" | 31 | 15 | 40.0926155512759 | 0.000268493467926981 | 0.1875 | 32.4 |
| 32 | "1" | 32 | 21.4 | 41.3300373134328 | 6.48141936795587E-05 | 0.6875 | 33.9 |

tidy\_autoplot(data)