Untitled1* | Untitled2*

Source on Save | Run | Source

```
1  data(mtcars)
2  dotchart(mtcars$mpg,labels=row.names(mtca
3                                      rs),cex=.7,
4
5           main="Miles Per Gallon (MPG) of Car Models
6
7           ",
8           xlab="MPG")
9  dotchart(iris$Petal.Length, main="IRIS data")
```

2:1 (Top Level) R Script

Console | Terminal | Background Jobs

R 4.2.1 · ~/

```
citation()' on how to cite R or R packages in publication
s.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[Workspace loaded from ~/.RData]

> dotchart(iris$Petal.Length, main="IRIS data")
>
```

Environment | History | Connections | Tutorial

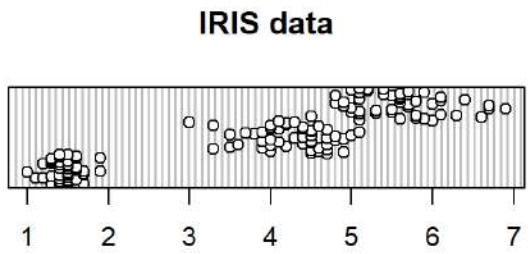
Import Dataset | 177 MiB | List

R | Global Environment

Environment is empty

Files | Plots | Packages | Help | Viewer | Presentation

Zoom | Export



Untitled1* | Untitled2* | Untitled3*

Source on Save | Run | Source

```
1  data(mtcars)
2  head(mtcars,6)
3  barplot(table(mtcars$cyl), main= 'Distribution of Cylinder Counts'
4
5
```

4:1 (Top Level) R Script

Console | Terminal | Background Jobs

R 4.2.1 · ~/

```
Hornet 4 Drive    21.4   6  258 110 3.08 3.215 19.44  1  0    3    1
Hornet Sportabout 18.7   8  360 175 3.15 3.440 17.02  0  0    3    2
Valiant           18.1   6  225 105 2.76 3.460 20.22  1  0    3    1
> barplot(table(mtcars$cyl), main="Distribution of Car Cylinder Count
s",xlab="Number of Cylinders")
Error: unexpected input in "barplot(table(mtcars$cyl), main=""
> barplot(table(mtcars$cyl), main= 'Distribution of Car Cylinder Coun
ts',xlab='Number of Cylinders')
> barplot(table(mtcars$cyl), main= 'Distribution of Cylinder Counts',
xlab='Number of Cylinders')
>
```

Environment | History | Connections | Tutorial

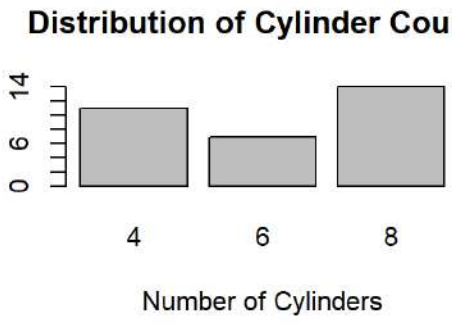
Import | 131 MiB | List

R | Global Environment

Environment is empty

Files | Plots | Packages | Help | Viewer | Presentat

Zoom | Export



Untitled1* Untitled2* Untitled3* Untitled4*

Source on Save | Run | Source

```
1 data(mtcars)
2 head(mtcars,6)
3 Income<-rlnorm(4000,meanlog=4,sdlog = 0.7)
4 hist(Income,breaks=500,xlab='income',ylab='freq', main='histogram')
5
```

5:1 (Top Level) R Script

Console Terminal Background Jobs

R 4.2.1 · ~/

```
Datsun 710              1
Hornet 4 Drive          1
Hornet Sportabout       2
Valiant                 1
> Income<-rlnorm(4000,meanlog=4,sdlog = 0.7)
> hist(income,breaks=500,xlab='income',ylab='freq', main='histogram')
Error in hist(income, breaks = 500, xlab = "income", ylab = "freq", m
ain = "histogram") :
  object 'income' not found
> hist(Income,breaks=500,xlab='income',ylab='freq', main='histogram')
>
```

Environment History Connections Tutorial

Import | 131 MiB | List

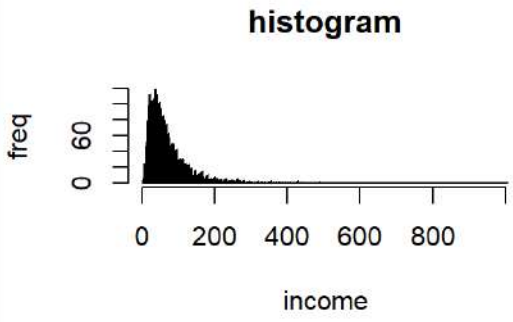
R | Global Environment

Values

Income	num [1:4000] 30.8 84.9 41.…

Files Plots Packages Help Viewer Presentat

Zoom | Export



Untitled1* | Untitled2* | Untitled3* | Untitled4* | Untitled5*

Source on Save | Run | Source

```
1  data(mtcars)
2  head(mtcars,6)
3  Income<-rlnorm(4000,meanlog=4,sdlog = 0.7)
4  plot(density(log10(Income),adjust=0.5),main="distribution")
5  rug(log10(Income))
6
```

5:1 (Top Level) R Script

Console | Terminal | Background Jobs

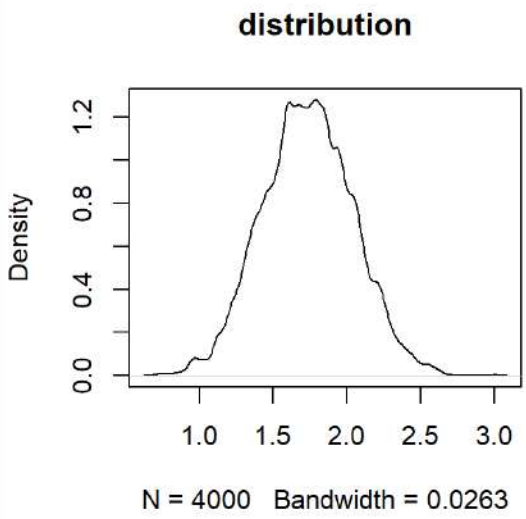
R 4.2.1 · ~/

```
> Income<-rlnorm(4000,meanlog=4,sdlog = 0.7)
> hist(income,breaks=500,xlab='income',ylab='freq', main='histogram')
Error in hist(income, breaks = 500, xlab = "income", ylab = "freq", m
ain = "histogram") :
  object 'income' not found
> hist(Income,breaks=500,xlab='income',ylab='freq', main='histogram')
> rug(log10(income))
Error in as.vector(x) : object 'income' not found
> rug(log10(Income))
> plot(density(log10(Income),adjust=0.5),main="distribution")
>
```

Environment | History | Connections | Tutorial

Files | Plots | Packages | Help | Viewer | Presenta

Zoom | Export



Untitled2* Untitled3* Untitled4* Untitled5* Untitled6*

Source on Save | Run | Source

```
1  data(mtcars)
2  head(mtcars,6)
3  dotchart(mtcars$mpg,labels = row.names(mtcars),cex = 0.7,main=
4
5
```

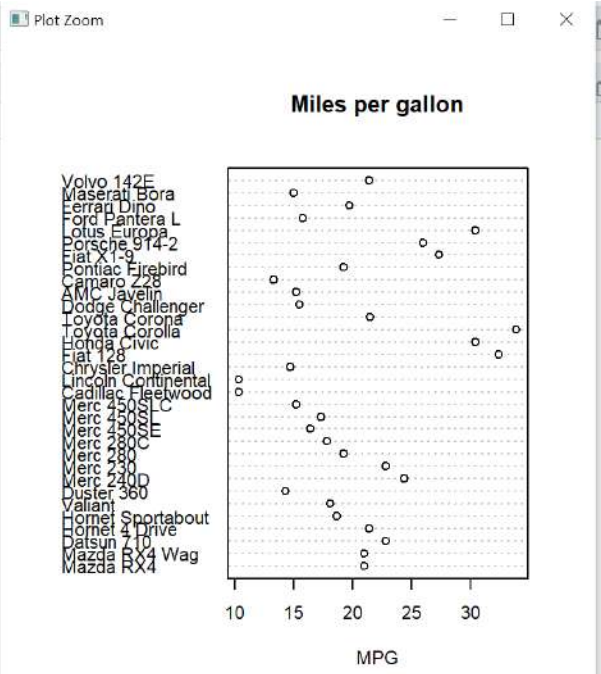
4:1 (Top Level) R Script

Console Terminal Background Jobs

R 4.2.1 · ~/

```
  object 'income' not found
> hist(Income,breaks=500,xlab='income',ylab='freq', main='histogr
am')
> rug(log10(income))
Error in as.vector(x) : object 'income' not found
> rug(log10(Income))
> plot(density(log10(Income),adjust=0.5),main="distribution")
> dotchart(mtcars$mpg,labels=row.names(mtcars),cex=0.7,main="Mile
s per gallon",xlab="MPG")
>
>
```

Plot Zoom



Untitled4* | Untitled5* | Untitled6* | Untitled7* | Untitled8*

Source on Save | Run | Source

```
1  install.packages("ggplot2")
2  library("ggplot2")
3  p <- ggplot(mtcars,aes(factor(cyl),mpg))
4  p + geom_boxplot() + geom_jitter()
5
```

5:1 (Top Level) R Script

Console | Terminal | Background Jobs

R 4.2.1 · ~/

```
package 'withr' successfully unpacked and MD5 sums checked
package 'ggplot2' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
        C:\Users\Saiksha\AppData\Local\Temp\Rtmp4a2lJU\downloaded
_packages
> library("ggplot2")
> p <- ggplot(mtcars,aes(factor(cyl),mpg))
> p <- ggplot(mtcars,aes(factor(cyl),mpg))
> p + geom_boxplot() + geom_jitter()
>
```

Environment | History | Connections | Tutorial

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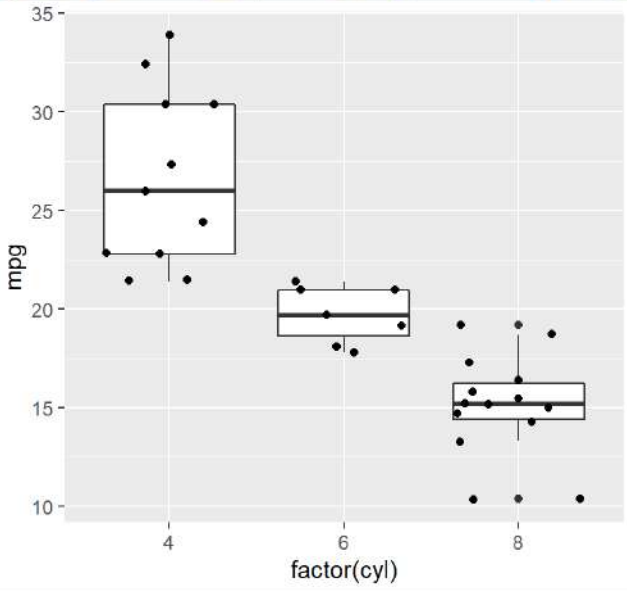
Zoom | Export



Untitled4* | Untitled5* | Untitled6* | Untitled7* | Untitled8*

Source on Save | Run | Source

```
10          main="miles per gallon",xlabel="miles per gallon",
11  #multiple variable barplot
12  counts <-table(mtcars$gear,mtcars$cyl)
13  barplot(counts,main="distribution of cylinders and gears",x
14          col=c("#0000FFFF","#0080FFFF","#00FFFFFF"),
15          legend = rownames(counts),beside=TRUE,
16          args.legend = list(x="top",title="Number of gears"))
17
```

17:1 (Top Level) R Script

Console | Terminal | Background Jobs

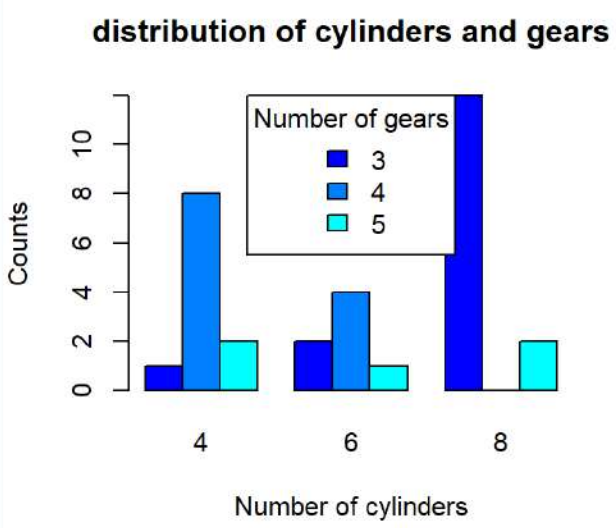
R 4.2.1 · ~/

```
7: In doTryCatch(return(expr), name, parentenv, handler) :
  "xlabel" is not a graphical parameter
8: In doTryCatch(return(expr), name, parentenv, handler) :
  "xlabel" is not a graphical parameter
> counts <-table(mtcars$gear,mtcars$cyl)
> barplot(counts,main="distribution of cylinders and gears",xlab
="Number of cylinders",ylab="Counts",
+         col=c("#0000FFFF","#0080FFFF","#00FFFFFF"),
+         legend = rownames(counts),beside=TRUE,
+         args.legend = list(x="top",title="Number of gears"))
>
```

Environment | History | Connections | Tutorial

Files | Plots | Packages | Help | Viewer | Presentation

Zoom | Export



Untitled5* Untitled6* Untitled7* Untitled9* Untitled8

Source on Save | Run | Source

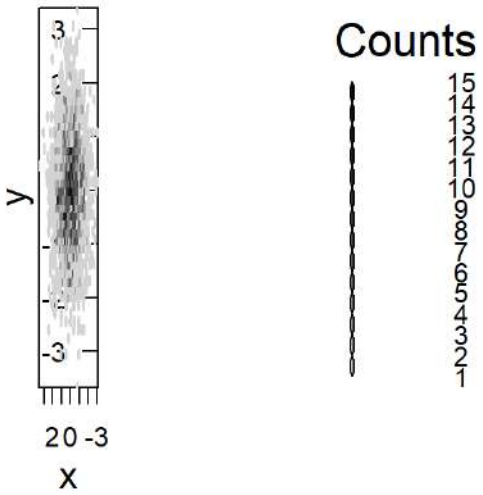
```
1  install.packages("hexbin")
2  library(hexbin)
3  x<-rnorm(2000)
4  y<-rnorm(2000)
5  hbin <- hexbin(x,y,xbins=40)
6  plot(hbin)
7
```

7:1 (Top Level) R Script

Console Terminal Background Jobs

R 4.2.1 · ~/

```
packages
> library(hexbin)
> x<-rnorm(2000)
> y<-rnorm(2000)
> hbin <- hexbin(x,y,xbins=40)
> plot(hbin)
> #scatter plot matrix
> pairs(~mpg+disp+drat+wt, data=mtcars,
+       main="Basic Scatter Plot Matrix")
> plot(hbin)
>
```



Untitled6* | Untitled7* | Untitled8* | Untitled9* | Untitled10*

Source on Save | Run | Source

```
1  pairs(~mpg+disp+drat+wt, data=mtcars,
2        main="Basic Scatter Plot Matrix")
3
```

3:1 (Top Level) R Script

Console | Terminal | Background Jobs

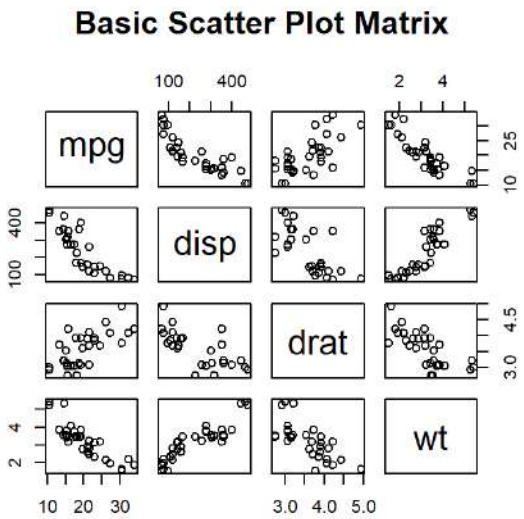
R 4.2.1 · ~/

```
> x<-rnorm(2000)
> y<-rnorm(2000)
> hbin <- hexbin(x,y,xbins=40)
> plot(hbin)
> #scatter plot matrix
> pairs(~mpg+disp+drat+wt, data=mtcars,
+       main="Basic Scatter Plot Matrix")
> plot(hbin)
> pairs(~mpg+disp+drat+wt, data=mtcars,
+       main="Basic Scatter Plot Matrix")
>
```

Environment | History | Connections | Tutorial

Files | Plots | Packages | Help | Viewer | Presentation

Zoom | Export



```
v1 <- c(1,2,4,5)
v2 <- c('red','green')
v3 <- c(T,F)
v4 <- c('TRUE','FALSE')
v5 <- c("a","b","c")

#vector function to intialize the vector.
y <- vector("numeric",length = 10)

numbers = c(2,3,4,5)
numbers
print(numbers)

characters = c('a','b','c','d')
characters
print(characters)

#concatinating the above two
mixed_vec = c(numbers,characters)
#numbers and characters have coerced
print(mixed_vec)
class(mixed_vec)
#One dimentional object
num = (1:10)
class(num)

x <- 0:6
class(x)
as.numeric(x)
as.character(x)
as.logical(x)

#Factors
x <- factor(c("yes","yes","no","yes","no"))
x
table(x)
x
#ARRAYS AND MATRIX
A = array(1:10)
A1 = array (1:8,c(2,4))
A
A1
is.array(A1)
#matrix
m <- matrix(nrow = 2,ncol = 3)
m
attributes(m)
#Data Frames
emp.data <- data.frame(emp_id = c(1:5),emp_name = c("A","B","C","D","E"),
                       salary = c(123,234,345,456,567),
                       start_date =
as.Date(c("1/1/21","1/2/21","1/3/21","1/4/21","1/5/21")),stringsAsFactors =
FALSE)
print(emp.data)
```