



### 5. knitr

It is reproducible, used for report creation, and integrates with various types of code structures like LaTeX, HTML, Markdown, LyX, etc.

This package is an amazing one, you can make a beautiful pdf report and editable pdf forms with the help of latex coding.

```
kable
xtable
tikzDevice
```

(\*Additional) Resources: 1, 2

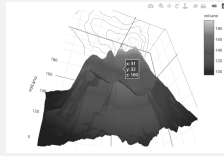
### 6. plotly

Plotly's R graphing library makes interactive, publication-quality graphs. Example of how to make line plots, scatter plots, area charts, bar charts, error bars, box plots, histograms, heatmaps, subplots, multiple--axes, and 3D (WebGL based) charts.

```
library(plotly)
# volcano is a numeric matrix
that ships with R
fig <- plot_ly(z = ~volcano) %>%
add_surface(
contours = list(
z = list( show=TRUE,
usecolormap=TRUE,
highlightcolor="#ff0000",
project=list(z=TRUE) ) ) )
fig <- fig %>% layout(
scene = list( camera= list(
eye = list(x=1.87, y=0.88, z=-
0.64) )))
fig
```

(\*Additional) Resources: 1, 2, 3

### 6. plotly: Output



(\*Additional)

### 7. e1071

Dealing with clustering, Fourier Transform, Naive Bayes, SVM, and other types of modeling data analysis then you can't avoid e1071.

Example:

```
#Author DataFlair
library("e1071")
data("iris")
head(iris)
x <- iris[, -5]
y <- iris[5]
model_svm <- svm(Species ~ .,
data=iris)
summary(svm_model)
pred <- predict(model_svm, x)
confusionMatrix(pred, y$Species)
```

(\*Additional) Resources: 1, 2

### 8. tidyverse

For data manipulation. Covered in lectures (see previous sections).

Example:

```
library(tidyverse)
library(lubridate)
library(nycflights13)
Create a new column basis count option
flights %>%
mutate(long_flight = (air_time
>= 6 * 60)) %>%
```

### 8. tidyverse (cont)

View()

Randomly Shuffle the data

```
flights %>%
slice_sample(n = 15)
```

(\*Additional) Resources: 1, 2

### 9. caret

If you are dealing with classification and regression problems then caret is one of the essential packages.

caret package is the extension of the caret is

CaretEnsemble which is used for combining different models.

Example:

```
Visualization of feature distribution by class
featurePlot(x =
GermanCredit[, c("EmploymentDuratio
"Age")],
y = GermanCredit$Class,
plot = "box")
```

Pre-processing: imputation of missing data, on hot encoding, and normalization

```
set.seed(355)
bagMissing <- preprocess(trainingSet
method = "bagImpute")
trainingSet <- predict(bagMissing,
newdata = trainingSet)
dummyModel <- dummyVars(Class ~ .,
data = trainingSet)
trainingSetX <-
as.data.frame(predict(dummyModel,
newdata = trainingSet))
```

(\*Additional) Resources: 1, 2

### 10. shiny

If you are thinking about an interactive and beautiful web interface then Shiny is the solution.

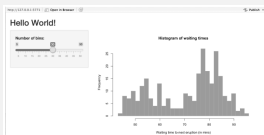
Shiny interfaces are directly written in R and provide a customizable slider widget that has built-in support for animation.

Example:

```
library(shiny)
# See above for the definitions
of ui and server
ui <- ...
server <- ...
shinyApp(ui = ui, server =
server)
```

(\*Additional) Ressources: 1, 2

### 10. shiny: Output



(\*Additional) Ressources: 1, 2

### 11. tidyquant

tidyquant is considered as a financial package that is used to carry out quantitative financial analysis.

Package tidyquant is also widely used for importing, analyzing, and visualizing data.

Example:

```
library(tidyquant)
google <- tq_get(x = "GOOG")
tq_get_options()
?tq_get
tq_exchange_options()
nyse <- tq_exchange("NYSE")
```

(\*Additional) Ressources: 1, 2

### 12. tidyr

tidyr is a new package that makes it easy to "tidy" your data. tidyr package is an evolution of Reshape2.

The data is considered tidy when each variable represents columns and each row represents an observation.

gather() makes "wide" data longer

spread() makes "long" data wider

separate() splits a single column into

multiple columns

unite() combines multiple columns into a single column

and More...

Example:

```
wide_DF <- unite_DF %>%
spread(Quarter, Revenue)
head(wide_DF, 24)
```

(\*Additional) Ressources: 1, 2

### 13. ggraph

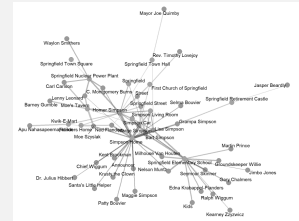
Takes away all the limitations of ggplot2.

Example for Networks:

```
ggraph(ig_loc, layout="fr") +
geom_edge_link(aes(color =
factor(to), width =
log(weight)), alpha = 0.5,
start_cap = circle(2, 'mm'),
end_cap = circle(2, 'mm')) +
scale_edge_width(range = c(0.5,
2.5)) +
geom_node_point(color =
V(ig_loc)$color, size = 5, alpha
= 0.5) +
geom_node_text(aes(label =
name), repel = TRUE) +
theme_void() +
theme(legend.position = "none")
```

(\*Additional) Ressources: 1, 2, 3

### 13. ggraph: Output



(\*Additional)

### 14. ggplot2

ggplot2 is one of the most popular visualization package in R.

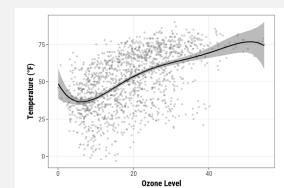
It is famous for its functionality and high-quality graphs that set it apart from other visualization packages.

Example:

```
ggplot(chic, aes(x = o3, y =
temp)) +
labs(x = "Ozone Level", y =
"Temperature (°F)") +
geom_smooth(
method = "lm",
formula = y ~ x + I(x^2) +
I(x^3) + I(x^4) + I(x^5),
color = "black",
fill = "firebrick") +
geom_point(color = "gray40",
alpha = .3)
```

(\*Additional) Ressources: 1, 2, 3

### 14. ggplot2: Output



(\*Additional)

