



INTRODUCTION TO R FOR FINANCE

What is a list?

Lists

```
> cash
  company cash_flow year
1      A      1000    1
2      A      4000    3
3      A       550    4
4      B      1500    1
5      B      1100    2
6      B       750    4
7      B      6000    5

> company_name <- "DataCampers Inc"
```

Lists

```
> my_company <- list(company_name, cash)
```

```
> my_company
```

```
[[1]]
```

```
[1] "DataCampers Inc."
```

```
[[2]]
```

	company	cash_flow	year
1	A	1000	1
2	A	4000	3
3	A	550	4
4	B	1500	1
5	B	1100	2
6	B	750	4
7	B	6000	5

Subsetting lists

```
> my_company[1]
[[1]]
[1] "DataCampers Inc."
```

```
> my_company[[1]]
[1] "DataCampers Inc."
```

```
> my_company[[2]]
  company cash_flow year
1      A      1000    1
2      A      4000    3
3      A       550    4
4      B      1500    1
5      B      1100    2
6      B       750    4
7      B      6000    5
```



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Let's practice!



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A few list creating functions

split() it up

```
> debt
  name payment
1  Dan     100
2  Dan     200
3  Dan     150
4  Rob      50
5  Rob      75
6  Rob     100
```

split() it up

```
> grouping <- debt$name  
  
> split_debt <- split(debt, grouping)  
  
> split_debt  
$Dan  
  name payment  
1  Dan      100  
2  Dan      200  
3  Dan      150  
  
$Rob  
  name payment  
4  Rob       50  
5  Rob       75  
6  Rob      100
```


split() it up

```
> split_debt$Dan
  name payment
1  Dan      100
2  Dan      200
3  Dan      150

> split_debt$Dan$payment
[1] 100 200 150

> unsplit(split_debt, grouping)
  name payment
1  Dan      100
2  Dan      200
3  Dan      150
4  Rob       50
5  Rob       75
6  Rob      100
```

`split()` example

- Unique calculation for Dan versus Rob
- Dan gets a 20% discount, Rob a 10% discount
 - split data frame by name
 - apply discounts
 - combine data frames back
- "split-apply-combine"

split-apply-combine

```
> grouping <- debt$name
> split_debt <- split(debt, grouping)

> split_debt$Dan$new_payment <- split_debt$Dan$payment * .8
> split_debt$Rob$new_payment <- split_debt$Rob$payment * .9
```

```
> split_debt
```

```
$Dan
```

	name	payment	new_payment
1	Dan	100	80
2	Dan	200	160
3	Dan	150	120

```
$Rob
```

	name	payment	new_payment
4	Rob	50	45.0
5	Rob	75	67.5
6	Rob	100	90.0

split-apply-combine

```
> unsplit(split_debt, grouping)
  name payment new_payment
1  Dan     100         80.0
2  Dan     200        160.0
3  Dan     150        120.0
4  Rob      50         45.0
5  Rob      75         67.5
6  Rob     100         90.0
```

Attributes

```
> my_matrix <- matrix(c(1,2,3,4,5,6), nrow = 2, ncol = 3)

> attributes(my_matrix)
$dim
[1] 2 3

> attributes(debt)
$names
[1] "name"      "payment"

$row.names
[1] 1 2 3 4 5 6

$class
[1] "data.frame"
```



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Let's practice!



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Congratulations!

PREMIUM COURSE

Financial Trading in R

Start Course For Free


21 Videos

66 Exercises

5 hours

4,291 Participants

5200 XP



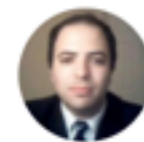
Course Description

This course covers the basics on financial trading, and gives you an overview of how to use quantstrat to build signal-based trading strategies in R. It will teach you how to set up a quantstrat strategy, apply transformations of market data called indicators, create signals based on the interactions of those indicators, and simulate orders. Lastly, you will learn how to analyze your results both from a statistical and a visual perspective.

1 Trading basics FREE

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Instructor(s):



Ilya Kipnis

Ilya Kipnis is a professional quantitative analyst and R programmer. He received

PREMIUM COURSE

Working with Geospatial Data in R

Start Course For Free

15 Videos

58 Exercises

4 hours

1,757 Participants

5000 XP



Course Description

Where should you buy a house to get the most value for your money? Your first step might be to make a map, but spatial data can be intimidating in R because of the complicated objects it often lives in. This course will introduce you to spatial data by starting with objects you already know about, data frames, before introducing you to the special objects from the `sp` and `raster` packages used to represent spatial data in R. You'll learn to read, explore, and manipulate these objects with the big payoff of being able to use the `tmap` package to make maps. By the end of the course you will have made maps of property sales in a small town, populations of the countries of the world, the distribution of people in the North East of the USA, and median income in the neighborhoods of New York

Instructor(s):



Charlotte Wickham

PREMIUM COURSE

Machine Learning Toolbox

Start Course For Free


24 Videos

88 Exercises

4 hours

4,559 Participants

6250 XP



Course Description

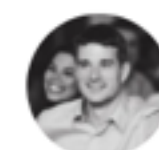
Machine learning is the study and application of algorithms that learn from and make predictions on data. From search results to self-driving cars, it has manifested itself in all areas of our lives and is one of the most exciting and fast growing fields of research in the world of data science. This course teaches the big ideas in machine learning: how to build and evaluate predictive models, how to tune them for optimal performance, how to preprocess data for better results, and much more. The popular `caret` R package, which provides a consistent interface to all of R's most powerful machine learning facilities, is used throughout the course.

1 Regression models: fitting them and evaluating their performance FREE

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In the first chapter of this course, you'll fit regression models with `lm()` and evaluate their out-of-sample

Instructor(s):



Zachary Deane-Mayer

Zach is a Data Scientist at DataRobot and co-author of the `caret` R package. He's fascinated by predicting the future and spends his free time competing in predictive modelling competitions. He's



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Thanks!