

# R

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# 1 1 Introduction

tidyverse

R

R

: (Robert Gentleman) (Ross Ihaka)  
( : ggplot, tidyverse)



1 ( 0 )

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- install.packages(" ")
- library( )

## 1.1



### Front End

- Markup and web languages such as HTML, CSS and Javascript
- Asynchronous requests and Ajax
- Specialized web editing software
- Image editing
- Accessibility
- Cross-browser issues
- Search engine optimisation



### Back End

- Programming and scripting such as Python, Ruby and/or Perl
- Server architecture
- Database administration
- Scalability
- Security
- Data transformation
- Backup

Back end

tidyverse

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8 . ( 1 2 ,

16 )

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## 2 2

1. R , ( 1 )

<https://dplyr.tidyverse.org/articles/dplyr.html>

2. dplyr ( 2 )

<https://m-clark.github.io/data-processing-and-visualization/intro.html>

3. (3 )

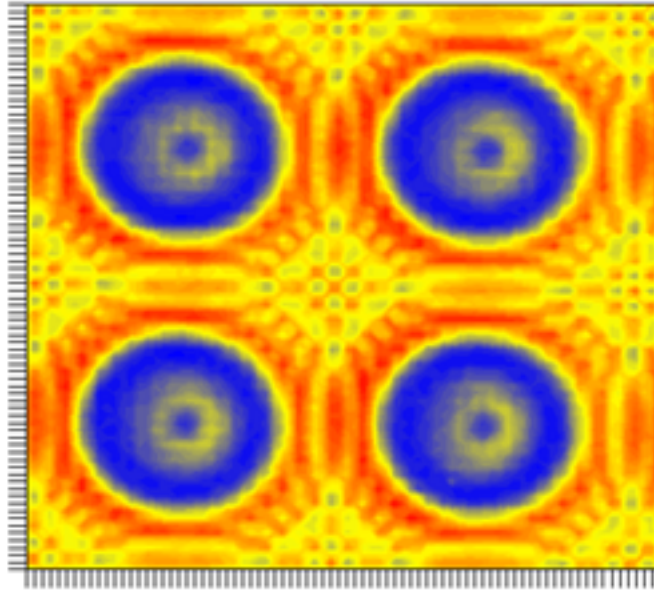
<https://m-clark.github.io/data-processing-and-visualization/intro.html>

4. ggplot (4 )

<https://r-graph-gallery.com/>

5. (5 )

2d, 3d



6. 2 (6 )

- html

[https://waterfirst.github.io/LENS\\_EXPERIMENT/](https://waterfirst.github.io/LENS_EXPERIMENT/)

7. (7 )

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8. (8 )

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