# Getting started with R and RStudio







#### The dashboard

The engine

## A tour of RStudio

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### Console

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# R is awaiting your instructions

Type code here, press enter, and R will run it

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# Type 2 + 2 in the console

#### **Press enter**

2 + 2

## [1] 4

#### This is ephemeral though. If you want to run this again, you'll have to type it again.

Store R code in a document instead

## Files pane

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#### Find 01\_gettingstarted.Rmd

# Click on its name to open the file

### Source pane

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#### Documents open here

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#### **Document format that combines text and code**

#### Acts like a notebook for your analysis

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### Text

Code



Text

Code

Output

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#### Read the instructions

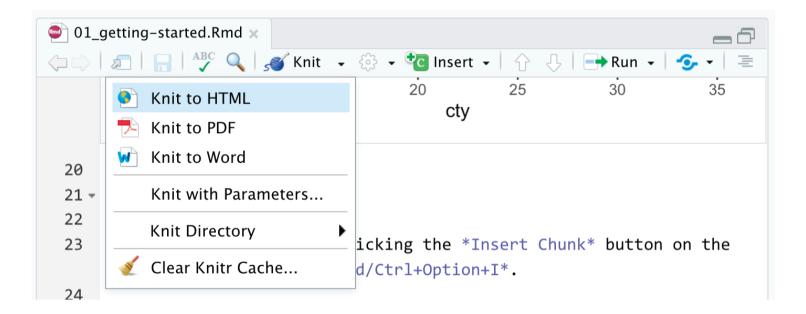
# Run the code chunk by clicking the play button

#### Add a new chunk

Put 2 + 2 in the chunk and run it

## Knitting

#### "Knit" an R Markdown document into a standalone sharable file



The best way to combine R code and narrative

We'll use it throughout the workshop:

I'll provide starter code

You'll complete "Your turns"

In the end, you'll have an annotated record for yourself

**Spot the difference:** 

four\_cyls <- filter(mtcars, cyl == 4)</pre>

Find these chunks in the notebook and run them. What's different about what happens?



<- assigns the output from the righthand side to a variable with the name on the lefthand side

four\_cyls <- filter(mtcars, cyl == 4)</pre>

## **Environment** pane

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four_cyls	1	1 obs. of 11	variables									

#### List of all the variables you've created

Find four\_cyls in the environment pane. Click on the name four\_cyls

What happens?

## Viewer

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2	24.4	4	146.7	62	3.69	3.190	20.00	1	0	4	
3	22.8	4	140.8	95	3.92	3.150	22.90	1	0	4	
4	32.4	4	78.7	66	4.08	2.200	19.47	1	1	4	
5	30.4	4	75.7	52	4.93	1.615	18.52	1	1	4	
6	33.9	4	71.1	65	4.22	1.835	19.90	1	1	4	
7	21.5	4	120.1	97	3.70	2.465	20.01	1	0	3	
8	27.3	4	79.0	66	4.08	1.935	18.90	1	1	4	
9	26.0	4	120.3	91	4.43	2.140	16.70	0	1	5	
10	30.4	4	95.1	113	3.77	1.513	16.90	1	1	5	
11	21.4	4	121.0	109	4.11	2.780	18.60	1	1	4	

Clicking on an object in the environment panel opens it an interactive viewer tab

## Functions

four\_cyls <- filter(mtcars, cyl == 4)</pre>

**Functions do things** 

Functions take arguments, output results

If you want to keep the output, assign it to a variable



#### To look up the help page for an R function, type this in the console:

?function\_name



# Help pane

Files	Plots	Packages	Help	Viewer		
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filter {dplyr}

R Documentation

```
Return rows with matching conditions
```

Description

Use filter() to choose rows/cases where conditions are true. Unlike base subsetting with [, rows where the condition evaluates to NA are dropped.

Usage

```
filter(.data, ..., .preserve = FALSE)
```

Arguments

. dat.a A tbl. All main verbs are S3 generics and provide methods

These help pages prove details about the arguments you can supply a function

> Often full of examples at the bottom

Look at the help page for seq

Add a chunk that uses seq() to create a list of numbers from 3 to 45, spaced by 1.5 (so 3, 4.5, 6, 7.5, ...)



seq(from = 3, to = 45, by = 1.5)

## [1] 3.0 4.5 6.0 7.5 9.0 10.5 12.0 13.5 15.0 16.5 18.0 19
## [16] 25.5 27.0 28.5 30.0 31.5 33.0 34.5 36.0 37.5 39.0 40.5 42

### Cheatsheets

# Go to Help > Cheatsheets to find quick reference guides to different packages

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dd/remove a reakpoint.	Error in get_digit(num, x) : • Show Traceback Error! • Revue with Debug	Modified Open shell to set current type commands	Viewer Pane displays HTML content, such as Shiny app RMarkdown reports, and interactive visualizations
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