

R you ready?

**IntRo to RStudio and R Markdown
for open data and reproducibility**

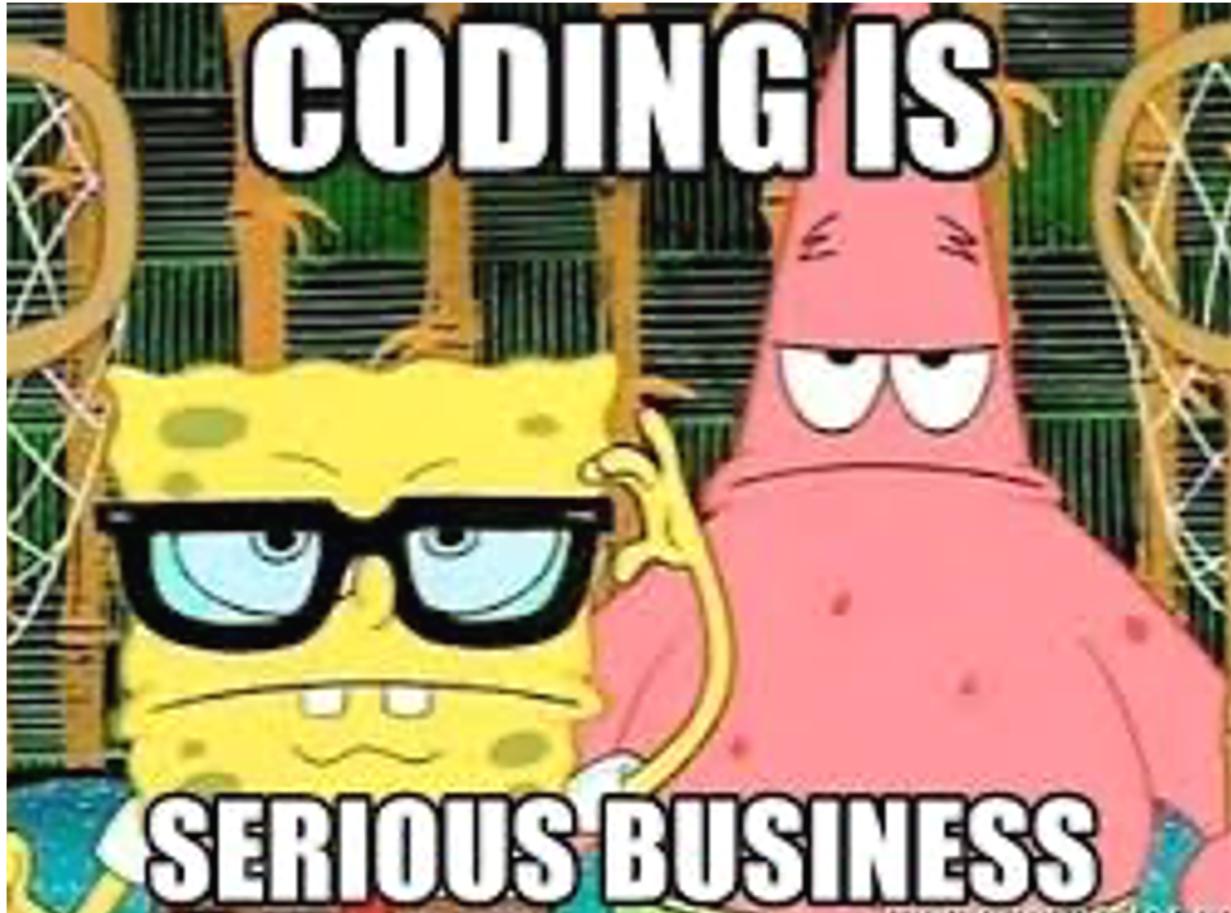
Unit 2:

**Baby steps: Basics of coding in
RStudio, part I**

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**CODING IS
SERIOUS BUSINESS**



Variables

Variables

What is a variable?

A variable (or object, as we refer to them in `R`) is a “container” that stores data

A variable (or object / data container) is...

saved under a name / defined by a name

contains values and / or content

has a data type (numeric, character, logical)

Assigning variables

We can assign variables in a few different ways

Equal operator =
variable = 5

Leftward operator <-
variable <- 5

Rightward operator ->
5 -> variable

Vectors

What is a vector?

A vector...

is the most common data structure in R

**is a 1-D set of values with the same type of
data structure (e.g. numeric, logical,
character)**

Examples

Vectors can have different data structures

Numeric vector

```
> rnorm(n = 5, mean = 12, sd = 1)  
[1] 12.44774 12.56486 12.66925 11.47244 13.25258
```

Logical vector

```
> c(1 == 0, 1 == 0, 1 == 1, 1 == 1, 1 == 0)  
[1] FALSE FALSE TRUE TRUE FALSE
```

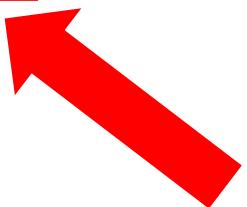
Character vector

```
> c("Mason", "Allen", "Wirtz")  
[1] "Mason" "Allen" "Wirtz"
```

Creating vectors

We can create vectors and save them as objects (i.e. as variables)

```
> v1 = c(1, 2, 3, 4, 5)  
# OR  
> v2 = c(1:5)
```



What we are using here is the **concatenate function**, it binds individual integers, characters, etc. together to make a vector.



Everything in a single concatenate sequence must have the **SAME** data type

Creating vectors

What do you think is going to happen when we call v1 and v2?

```
> v1
```

```
[1] 1 2 3 4 5
```

```
> v2
```

```
[1] 1 2 3 4 5
```

Data frames

Understanding data frames

Let's take a look at our Vampires data frame again

	idVampire	gender	ageOfVampire	deadOrAlive	hasFangs	bornIn	visitedCities	numberOfChildren
1	1	Male	85	Dead	Yes	South America	107	1
2	2	Female	73	Alive	No	Australia	66	3
3	3	Male	100	Alive	Yes	Australia	15	8
4	4	Female	75	Alive	No	Antarctica	11	2
5	5	Male	101	Alive	Yes	Australia	11	2
6	6	Female	55	Dead	Yes	North America	19	4
7	7	Male	105	Alive	No	North America	83	6
8	8	Female	68	Dead	Yes	Australia	50	5
9	9	Female	99	Dead	Yes		7	5
10	10	Female	44	Alive	Yes	Australia	66	1
11	11	Male	42	Alive	Yes	Australia	9	2
12	12	Female	72	Dead	No	Antarctica	29	3
13	13	Male	84	Dead	Yes	Australia	39	3
14	14	Male	60	Alive	No	Antarctica	65	
15	15	Male	129	Alive	No	South America		
16	16	Female	63	Dead	Yes	South America		
17	17	Male	50	Alive	Yes	Australia		
18	18	Female	49	Alive	No	Antarctica		
19	19	Female	41	Dead	No	Australia		

Integer (factor)

Numeric

Character (factor)

What kind of vectors
do we have here in
this data frame?

LET'S GET OUR HANDS DIRTY



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