

Adv Spatial Viz

Projection + CRS

Vector = Point
Line
Polygon

Raster

Adv Data Wrangling

- strings (tricky verse)

Escape " \ "

```
[str_c ("Hi ", name, "!")  
str_give ("Hi {name}!")  
str_flatten cel("x", "y"))
```

```
| separate - longer - delim  
| or wider or position
```

```
| str_sub
```

MISSING DATA

* tidyverse

coalesce(x, 0) NA → 0

na_if(x, -99) -99 → NA

Explicit vs Implicit

FUNCTIONS

```
name <- function (arguments) {  
  body  
}
```

name (c(...))

helper functions

```
function(data, var1 {  
  code  
}
```

BASE R

SUBSET \rightarrow vectors $[c'(3, 2)]$
 $\gg df[, "x"]$

df\$var

df %>% subset(x > 1, c(4, 2))
same as filter \rightarrow select

numeric cols = sapply(df, is.numeric)