INTRODUCTION TO R

Basic Graphics

Graphics in R

- Create plots with code
- Replication and modification easy
- Reproducibility!
- `graphics` package
- `ggplot2`, `ggvis`, `lattice`

`graphics` package

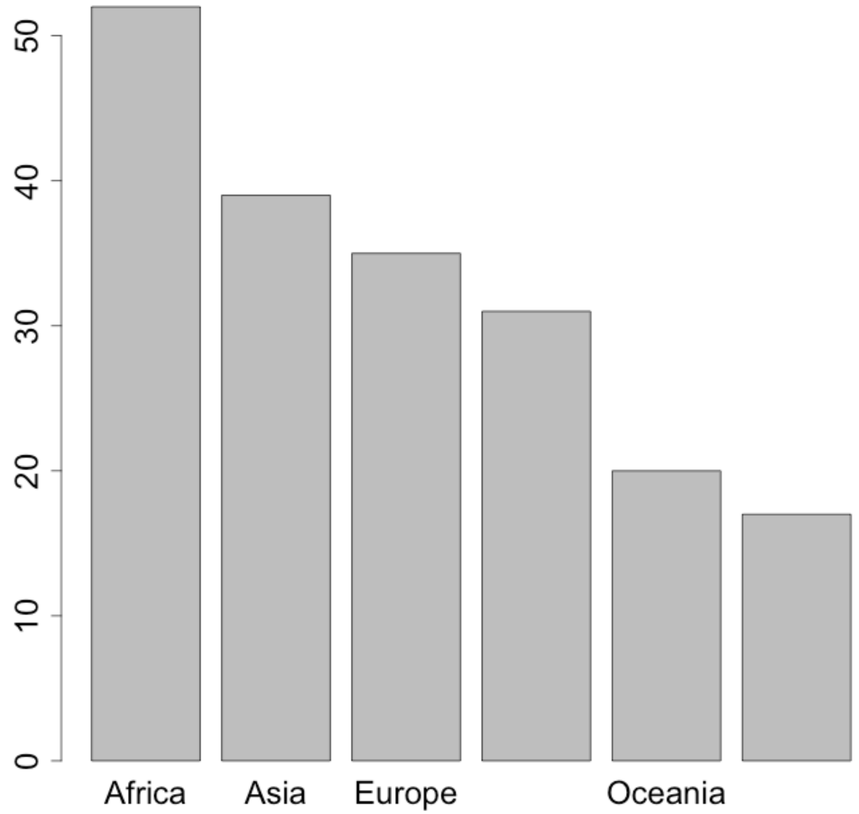
- Many functions
- `plot()` and `hist()`
- `plot()`
  - Generic
  - Different inputs `->` Different plots
  - Vectors, linear models, kernel densities ...

countries

```
> str(countries)
'data.frame': 194 obs. of  5 variables:
 $ name      : chr  "Afghanistan" "Albania" "Algeria" ...
 $ continent : Factor w/ 6 levels "Africa","Asia", ...
 $ area      : int  648 29 2388 0 0 1247 0 0 2777 2777 ...
 $ population: int  16 3 20 0 0 7 0 0 28 28 ...
 $ religion  : Factor w/ 6 levels "Buddhist","Catholic" ...
```

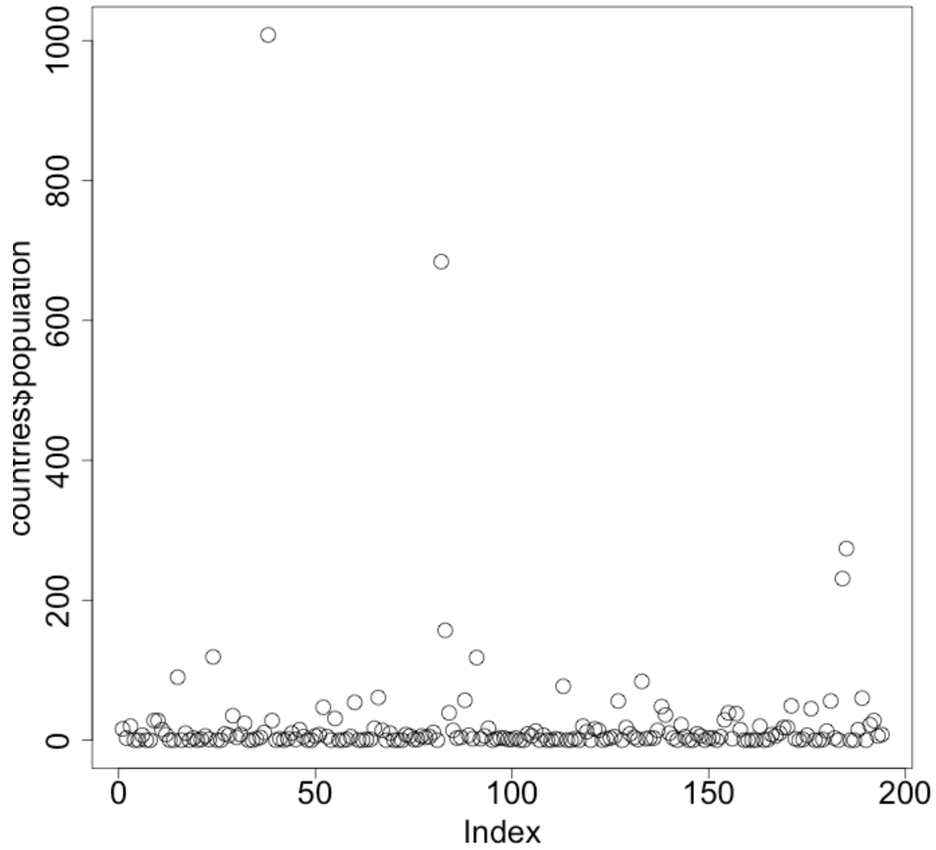
plot() (categorical)

```
> plot(countries$continent)
```



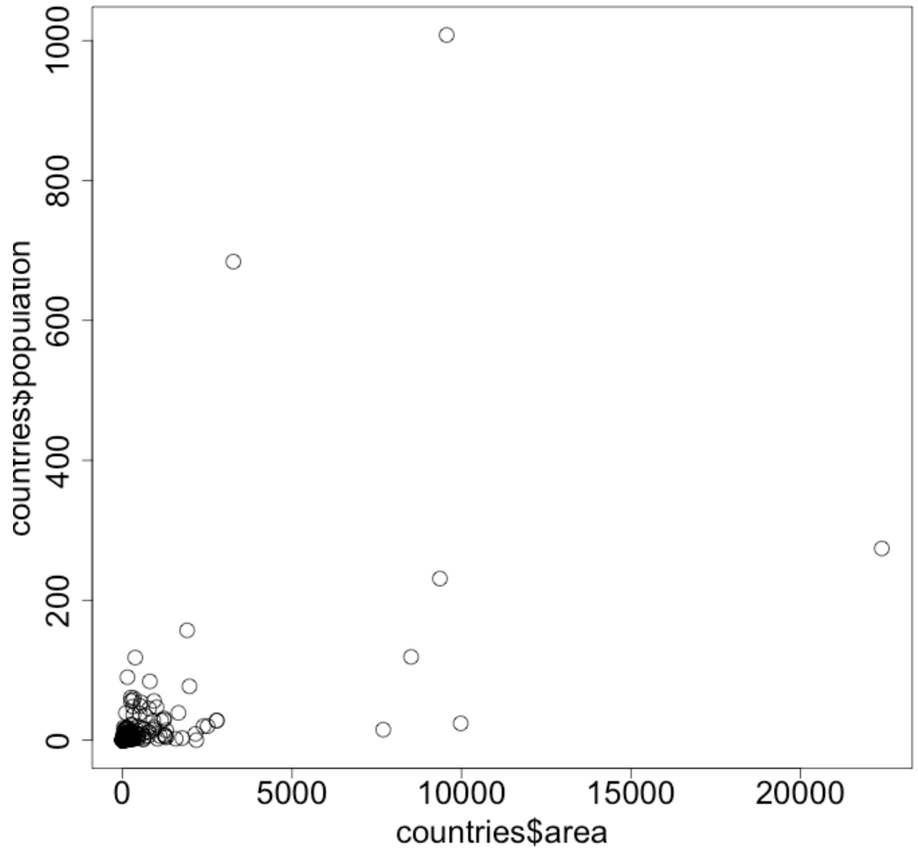
plot() (numerical)

```
> plot(countries$population)
```



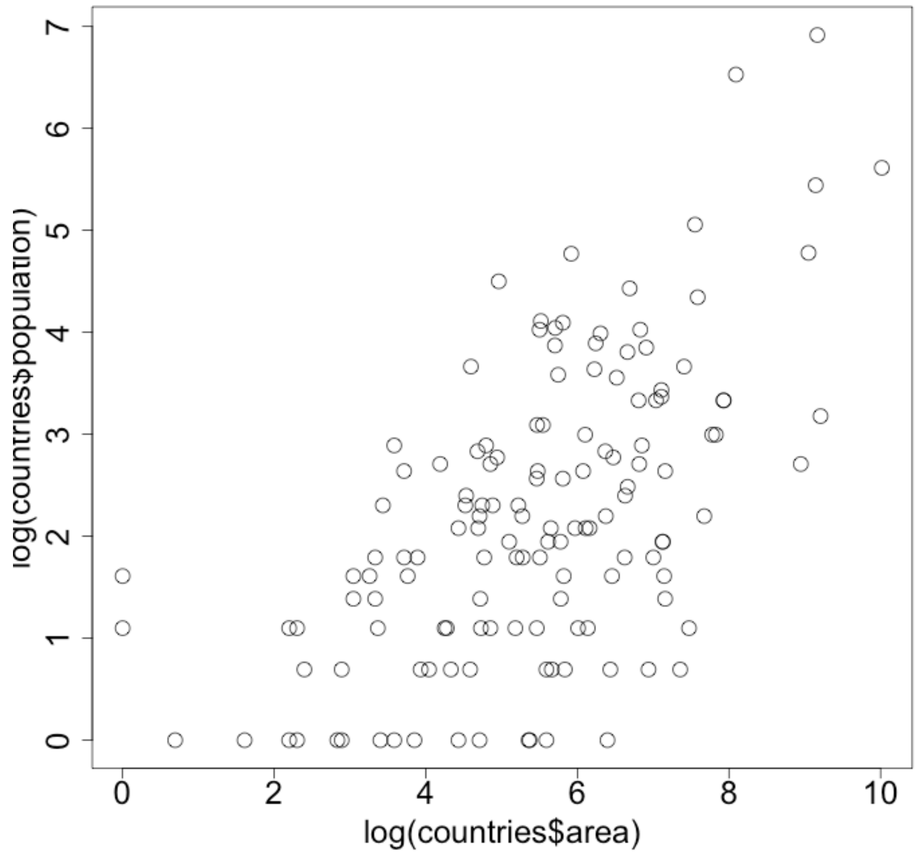
plot() (2x numerical)

```
> plot(countries$area, countries$population)
```



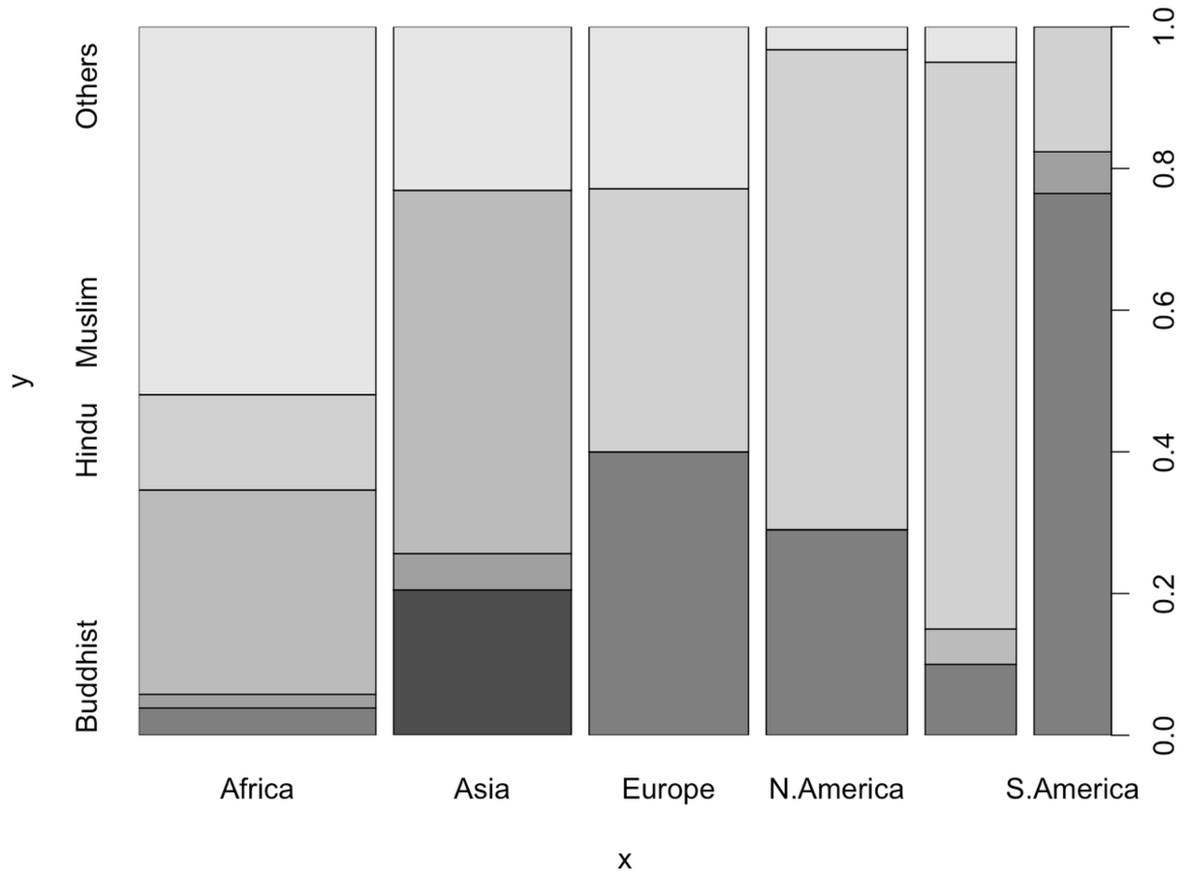
plot() (2x numerical)

```
> plot(log(countries$area), log(countries$population))
```



plot() (2x categorical)

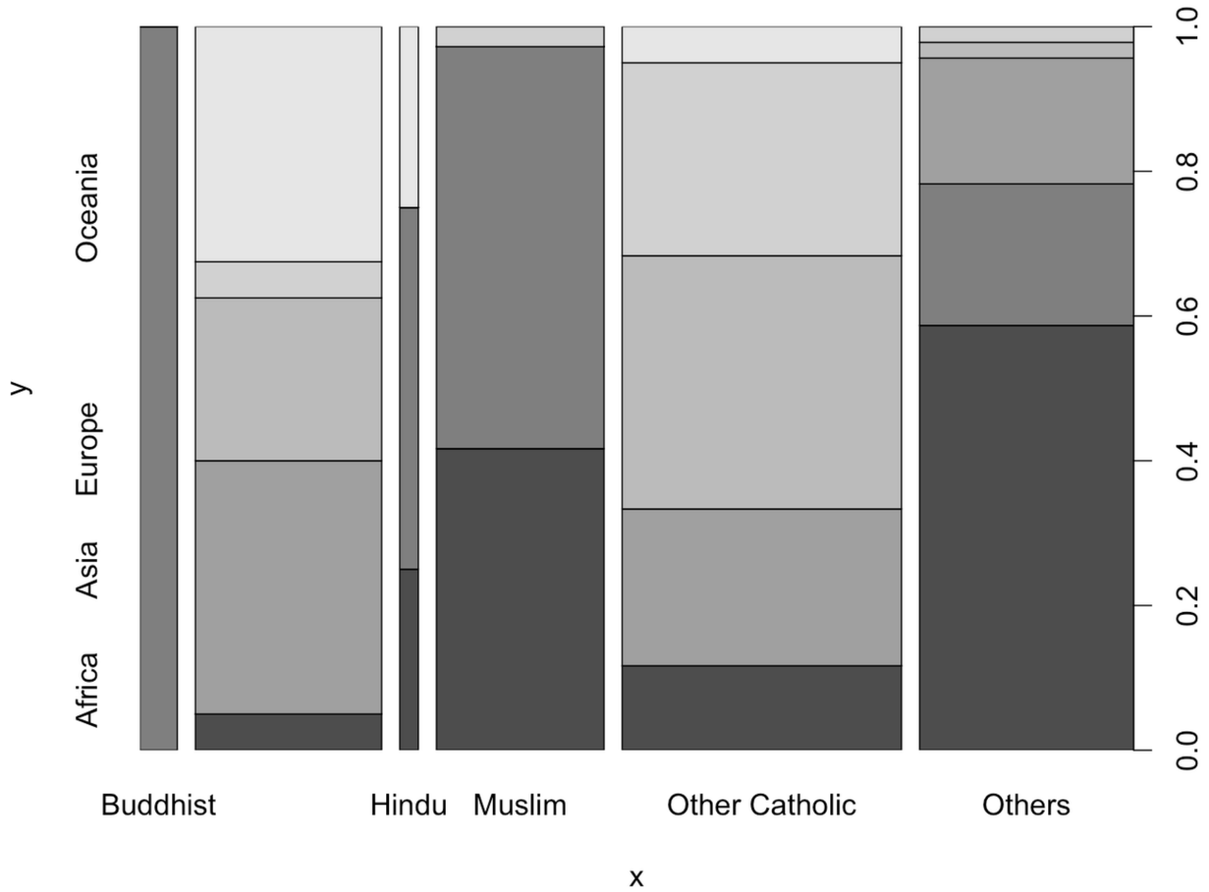
```
> plot(countries$continent, countries$religion)
```



plot() (2x categorical)

x axis (horizontal) y axis (vertical)

```
> plot(countries$religion, countries$continent)
```



`hist()`

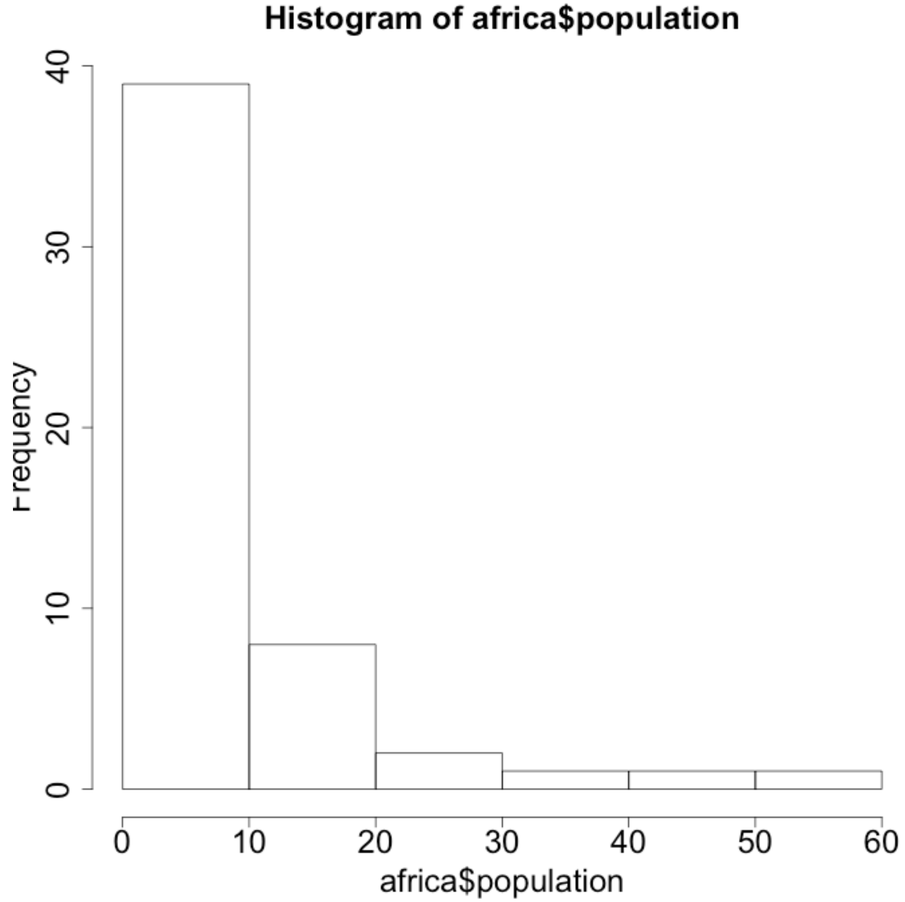
- Short for histogram
- Visual representation of distribution
- Bin all values
- Plot frequency of bins

hist()

```
> africa_obs <- countries$continent == "Africa"
> africa <- countries[africa_obs, ]
```

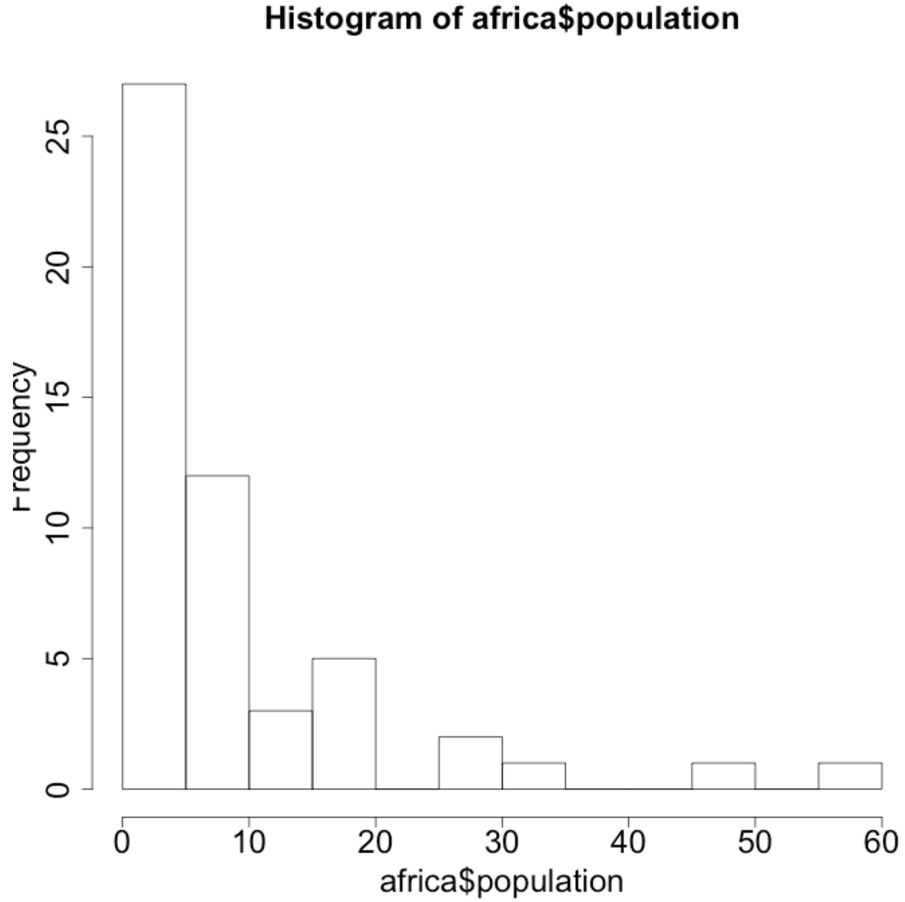
hist()

```
> hist(africa$population)
```



hist()

```
> hist(africa$population, breaks = 10)
```



Other `graphics` functions

- `barplot()`
- `boxplot()`
- `pairs()`

INTRODUCTION TO R

Let’s practice!