

# MATH 205: Statistical methods

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Lab 2: Univariate data

- Playing with univariate data
  - Basic statistics
  - Categorical: table, bar plot and pie chart
  - Continuous: Histogram and box plot
- Data input
  - Using `scan()`
  - Built-in dataset in R
- Using ?

- simpleR:

<https://cran.r-project.org/doc/contrib/Verzani-SimpleR.pdf>

- *UsingR* package

<https://cran.r-project.org/web/packages/UsingR/UsingR.pdf>

- The R Datasets Package:

<https://stat.ethz.ch/R-manual/R-devel/library/datasets/html/00Index.html>

- *table*: build a contingency table of the counts of each category

```
> x=c("Yes", "No", "No", "Yes", "Yes")
```

```
> table(x)
```

```
x
```

```
  No  Yes
```

```
   2   3
```

- Bar and pie charts
  - `barplot(table(x))`
  - `pie(table(x))`

# Data input from console

```
> beer = scan()
1: 3 4 1 1 3 4 3 3 1 3 2 1 2 1 2 3 2 3 1 1 1 1 4 3 1
26:
Read 25 items
> barplot(table(beer))
> barplot(table(beer)/length(beer)) # divide by n for proportion
```

# Using apropos and ?

- apropos: find objects by (partial) name
- ?stem: display the documentation of the function *stem*

## Histograms

### Description

The generic function `hist` computes a histogram of the given data values. If `plot = TRUE`, the resulting object of [class](#) "histogram" is plotted by [plot.histogram](#), before it is returned.

### Usage

```
hist(x, ...)
```

```
## Default S3 method:
```

```
hist(x, breaks = "Sturges",  
     freq = NULL, probability = !freq,  
     include.lowest = TRUE, right = TRUE,  
     density = NULL, angle = 45, col = NULL, border = NULL,  
     main = paste("Histogram of" , xname),  
     ..  
     ..)
```

- `data()`
- `attach()`

```
attach {base}
```

R Documentation

## Attach Set of R Objects to Search Path

### Description

The database is attached to the R search path. This means that the database is searched by R when evaluating a variable, so objects in the database can be accessed by simply giving their names.

### Usage

```
attach(what, pos = 2L, name = deparse(substitute(what)), backtick=FALSE),  
       warn.conflicts = TRUE)
```

# Practice problem

- Choose and load one built-in dataset
- Construct a histogram or a box plot
- Configure at least 2 options of the plot