

# My Report

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## Statistical Thinking

Reference: <https://www.fharrell.com/post/rflow/>

## Summary Staistic

```
library(palmerpenguins)  
library(Hmisc)
```

Warning: package 'Hmisc' was built under R version 4.3.3

Attaching package: 'Hmisc'

The following objects are masked from 'package:base':

format.pval, units

```
latex(describe(penguins), file = "", caption.placement = "top")
```

## body\_mass\_g

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
342	2	94	1	4202	911.8	3150	3300	3550	4050	4750	5400	5650

lowest : 2700 2850 2900 2925 2975, highest: 5850 5950 6000 6050 6300

## sex

n	missing	distinct
333	11	2

Value	female	male
Frequency	165	168
Proportion	0.495	0.505

## year

n	missing	distinct	Info	Mean	Gmd
344	0	3	0.888	2008	0.8919

Value	2007	2008	2009
Frequency	110	114	120
Proportion	0.320	0.331	0.349

For the frequency table, variable is rounded to the nearest 0

```
latex(describe(penguins_raw), file = "", caption.placement = "top")
```

## penguins\_raw

17 Variables 344 Observations

## studyName

n	missing	distinct
344	0	3

Value	PAL0708	PAL0809	PAL0910
Frequency	110	114	120
Proportion	0.320	0.331	0.349

## Sample Number

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
344	0	152	1	63.15	46.35	6.15	12.00	29.00	58.00	95.25	121.00	134.85

lowest : 1 2 3 4 5, highest: 148 149 150 151 152

## Species

n	missing	distinct			
344	0	3			
Value	Adelie Penguin (Pygoscelis adeliae) Chinstrap penguin (Pygoscelis antarctica)				
Frequency			152		68
Proportion			0.442		0.198
Value	Gentoo penguin (Pygoscelis papua)				
Frequency			124		
Proportion			0.360		

## Region

n	missing	distinct	value
344	0	1	Anvers
Value	Anvers		
Frequency			344
Proportion			1

## Island

n	missing	distinct			
344	0	3			
Value	Biscoe Dream Torgersen				
Frequency			168	124	52
Proportion			0.488	0.360	0.151

## Stage

n	missing	distinct	value
344	0	1	Adult, 1 Egg Stage
Value	Adult, 1 Egg Stage		
Frequency			344
Proportion			1

## Individual ID

n	missing	distinct
344	0	190

lowest : N100A1 N100A2 N10A1 N10A2 N11A1 , highest: N98A2 N99A1 N99A2 N9A1 N9A2

## Clutch Completion

n	missing	distinct
344	0	2
Value	No Yes	
Frequency		36 308
Proportion		0.105 0.895

## Date Egg



n	missing	distinct	Info	Mean	Gmd	.05	.10
344	0	50	0.999	2008-11-27	328	2007-11-12	2007-11-16
.25	.50	.75	.90	.95			

2007-11-28 2008-11-09 2009-11-16 2009-11-22 2009-11-26

lowest : 2007-11-09 2007-11-10 2007-11-11 2007-11-12 2007-11-13  
highest: 2009-11-22 2009-11-23 2009-11-25 2009-11-27 2009-12-01

## Culmen Length (mm)



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
342	2	164	1	43.92	6.274	35.70	36.60	39.23	44.45	48.50	50.80	51.99

lowest : 32.1 33.1 33.5 34 34.1, highest: 55.1 55.8 55.9 58 59.6

## Culmen Depth (mm)



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
342	2	80	1	17.15	2.267	13.9	14.3	15.6	17.3	18.7	19.5	20.0

lowest : 13.1 13.2 13.3 13.4 13.5, highest: 20.7 20.8 21.1 21.2 21.5

## Flipper Length (mm)



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
342	2	55	0.999	200.9	16.03	181.0	185.0	190.0	197.0	213.0	220.9	225.0

lowest : 172 174 176 178 179, highest: 226 228 229 230 231

## Body Mass (g)



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
342	2	94	1	4202	911.8	3150	3300	3550	4050	4750	5400	5650

lowest : 2700 2850 2900 2925 2975, highest: 5850 5950 6000 6050 6300

## Sex

n	missing	distinct
333	11	2

Value	FEMALE	MALE
Frequency	165	168
Proportion	0.495	0.505

## Δ 15 N (o/oo):



n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
330	14	330	1	8.733	0.6323	7.897	8.047	8.300	8.652	9.172	9.491	9.689

lowest : 7.6322 7.63452 7.63884 7.68528 7.6887 , highest: 9.93727 9.98044 10.0202 10.0237 10.0254

## Δ 13 C (o/oo):

n	missing	distinct	Info	Mean	Gmd	.05	.10	.25	.50	.75	.90	.95
331	13	331	1	-25.69	0.9093	-26.79	-26.69	-26.32	-25.83	-25.06	-24.53	-24.36

lowest : -27.0185 -26.9547 -26.8964 -26.8648 -26.8635, highest: -24.1657 -24.1026 -23.9031 -23.8902 -23.7877

## Comments

n	missing	distinct
54	290	10

lowest : Adult not sampled.  
highest: No blood sample obtained.

Adult not sampled. Nest never observed with full  
No delta15N data received from lab.

中文

## Table 1

```
library(palmerpenguins)
summary(penguins)
```

species	island	bill_length_mm	bill_depth_mm
Adelie :152	Biscoe :168	Min. :32.10	Min. :13.10
Chinstrap: 68	Dream :124	1st Qu.:39.23	1st Qu.:15.60
Gentoo :124	Torgersen: 52	Median :44.45	Median :17.30
		Mean :43.92	Mean :17.15
		3rd Qu.:48.50	3rd Qu.:18.70
		Max. :59.60	Max. :21.50
		NA's :2	NA's :2
flipper_length_mm	body_mass_g	sex	year
Min. :172.0	Min. :2700	female:165	Min. :2007
1st Qu.:190.0	1st Qu.:3550	male :168	1st Qu.:2007
Median :197.0	Median :4050	NA's : 11	Median :2008
Mean :200.9	Mean :4202		Mean :2008
3rd Qu.:213.0	3rd Qu.:4750		3rd Qu.:2009
Max. :231.0	Max. :6300		Max. :2009
NA's :2	NA's :2		

```
summary(penguins_raw)
```

studyName	Sample Number	Species	Region
Length:344	Min. : 1.00	Length:344	Length:344
Class :character	1st Qu.: 29.00	Class :character	Class :character
Mode :character	Median : 58.00	Mode :character	Mode :character
	Mean : 63.15		
	3rd Qu.: 95.25		
	Max. :152.00		

Island	Stage	Individual ID	Clutch Completion
Length:344	Length:344	Length:344	Length:344
Class :character	Class :character	Class :character	Class :character
Mode :character	Mode :character	Mode :character	Mode :character

Date Egg	Culmen Length (mm)	Culmen Depth (mm)	Flipper Length (mm)
Min. :2007-11-09	Min. :32.10	Min. :13.10	Min. :172.0
1st Qu.:2007-11-28	1st Qu.:39.23	1st Qu.:15.60	1st Qu.:190.0
Median :2008-11-09	Median :44.45	Median :17.30	Median :197.0
Mean :2008-11-27	Mean :43.92	Mean :17.15	Mean :200.9
3rd Qu.:2009-11-16	3rd Qu.:48.50	3rd Qu.:18.70	3rd Qu.:213.0
Max. :2009-12-01	Max. :59.60	Max. :21.50	Max. :231.0
	NA's :2	NA's :2	NA's :2

Body Mass (g)	Sex	Delta 15 N (o/oo)	Delta 13 C (o/oo)
Min. :2700	Length:344	Min. : 7.632	Min. : -27.02
1st Qu.:3550	Class :character	1st Qu.: 8.300	1st Qu.: -26.32
Median :4050	Mode :character	Median : 8.652	Median : -25.83
Mean :4202		Mean : 8.733	Mean : -25.69
3rd Qu.:4750		3rd Qu.: 9.172	3rd Qu.: -25.06
Max. :6300		Max. :10.025	Max. : -23.79
NA's :2		NA's :14	NA's :13

Comments

Length:344

Class :character

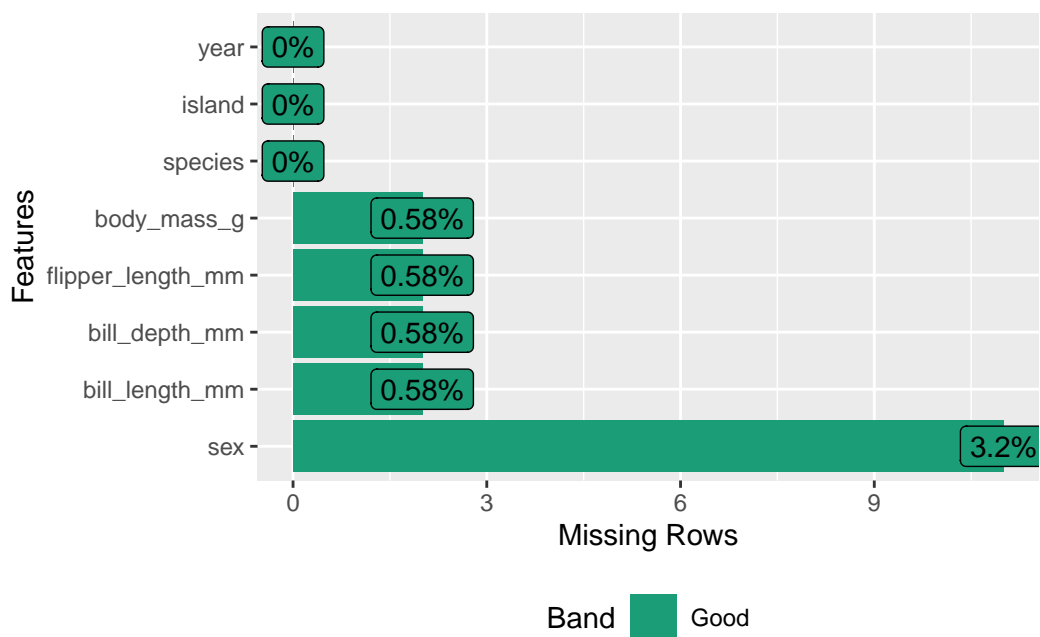
Mode :character

## Missing Values

```
library(Hmisc)
library(DataExplorer)
```

Warning: package 'DataExplorer' was built under R version 4.3.3

```
library(palmerpenguins)
plot_missing(penguins)
```



```
plot_missing(penguins_raw)
```



