R to Latex / HTML

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Univariate & bivariate

- **Two kind of analysis**
  - **Univariate**
  - **Bivariate**
- **Two possible output**
  - **LaTeX**
  - **HTML**

Four functions

		Output	
		LaTeX	HTML
Analysis	Univariate	r2latexUniv	r2htmlUniv
	Bivariate	r2latexBiv	r2htmlBiv

r2latexUniv

Automatic dispatch

- According to the type of variable
  - Logical
  - Factor (3 or +)
  - Ordered
  - Discrete
  - Continuous

Automatic dispatch

- According to the type of variable
  - Logical
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- Univariate analysis
  - Frequency
  - Summary
  - Barplot
  - Boxplot
  - histogram

r2latexUniv(logical)

R

Gender
Male
Male
Female
Female
Female
Male
Female
Male
Male
...

LaTeX

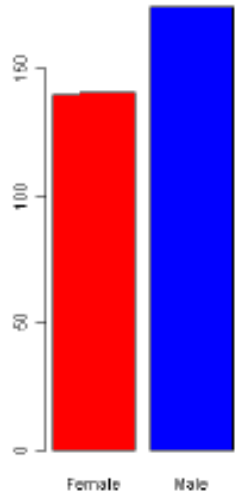
Gender

Nominal(2) N=314 ; NA=0 (0%)

Frequency

Female : 140 (44.59%)
Male : 174 (55.41%)

Histogram



r2latexUniv(factor)

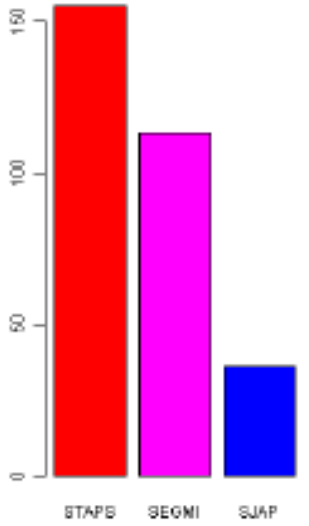
R

Field
STAPS
STAPS
SEGMI
STAPS
SJAP
STAPS
SEGMI
SEGMI
STAPS
...

LaTeX

Field

Nominal(3) N=314 ; NA=10 (3.18%)

Frequency		Histogram
STAPS : 155	(50.99%)	
SEGMI : 113	(37.17%)	
SJAP : 36	(11.84%)	

r2latexUniv(ordered)

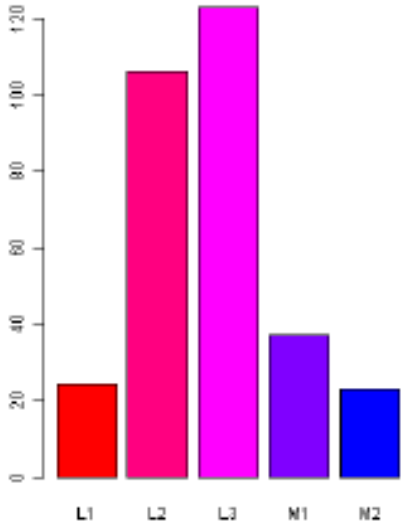
R

YearOfStudy
L1
L3
L2
L3
L3
L2
NA
M2
L3
...

LaTeX

YearOfStudy

Ordered(5) N=314 ; NA=1 (0.32%)

Frequency			Summary		Histogram
L1	: 24	(7.67%)	Min.	: L1	
L2	: 106	(33.87%)	Q1	: L2	
L3	: 123	(39.3%)	Median	: L3	
M1	: 37	(11.82%)	Q3	: L3	
M2	: 23	(7.35%)	Max.	: M2	

r2latexUniv(discrete)

R

BrotherSister
2
0
0
1
4
2
0
1
0
...

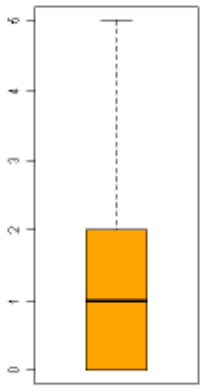
LaTeX

BrotherSister

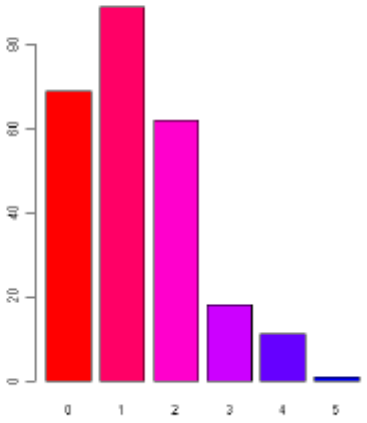
Discrete(6) N=250 ; NA=0 (0%)

Frequency		Summary	
0 : 69	(27.6%)	Mean	: 1.264
1 : 89	(35.6%)	Var.	: 1.207
2 : 62	(24.8%)	SD	: 1.099
3 : 18	(7.2%)	Min.	: 0
4 : 11	(4.4%)	Q1	: 0
5 : 1	(0.4%)	Median	: 1
		Q3	: 2
		Max.	: 5

Boxplot



Histogram



r2latexUniv(continuous)

R

CheatScore
2
11
3
8
7
21
15
4
0
…

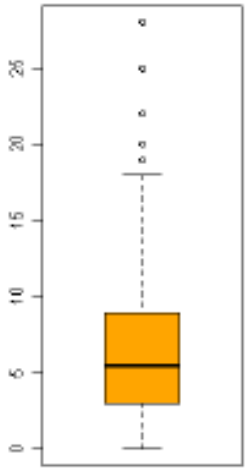
LaTeX

CheatScore

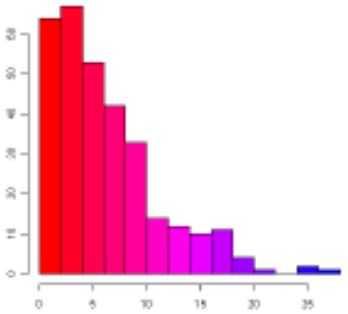
Continuous — N=314 ; NA=0 (0%)

Summary		
Mean	:	6.583
Var.	:	25.471
SD	:	5.047
Min.	:	0
Q1	:	3
Median	:	5.5
Q3	:	9
Max.	:	28

Boxplot

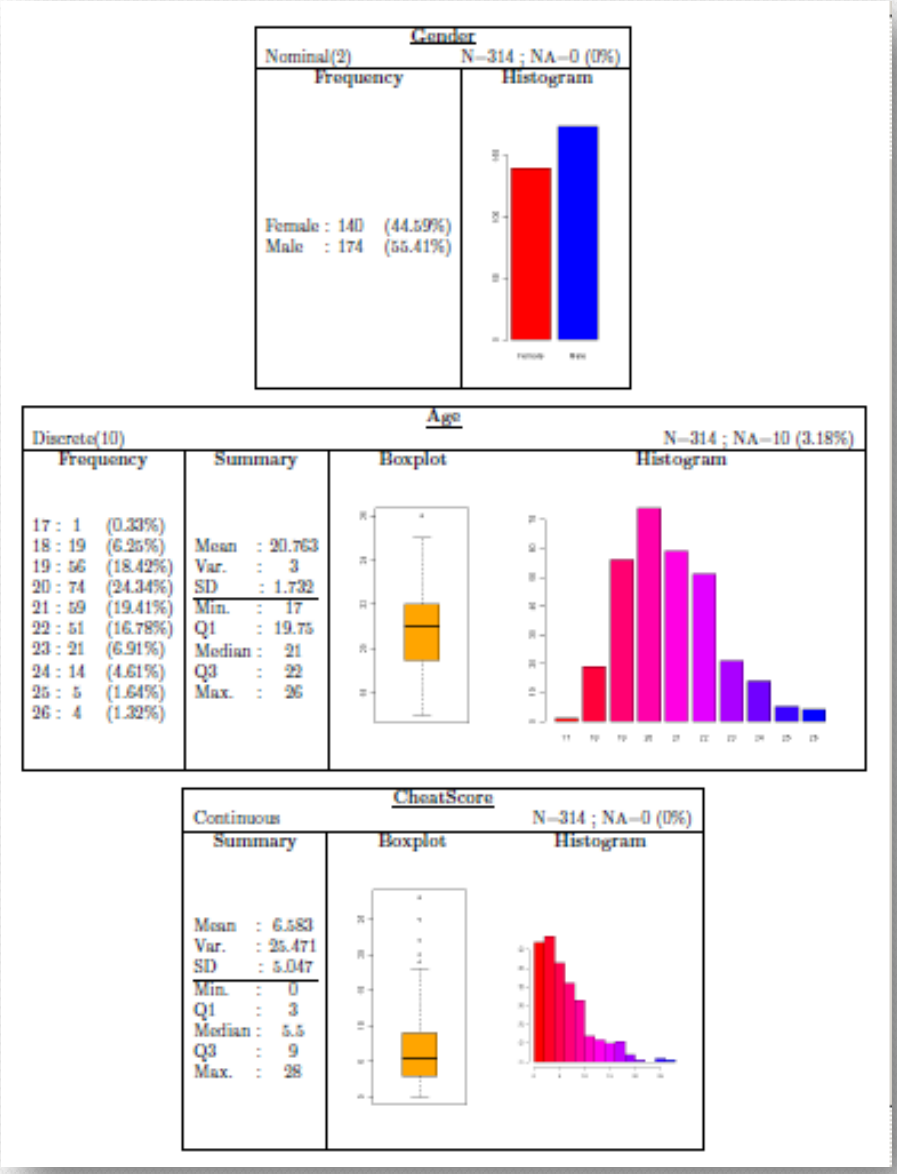


Histogram



r2latexUniv (data.frame)

Gender	Age	CheatScore
Male	22	2
Male	21	11
Female	18	3
Female	23	8
Female	19	7
Male	24	21
Female	23	15
Male	22	4
Male	19	0
…	…	…



r2latexBiv

Automatic dispatch

- According to the cross type of variable
  - Logical x Logical
  - Logical x Factor (3 or +)
  - Logical x Ordered
  - …
  - Continuous x Continuous

(25 possibility)

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(25 possibility)

- Bivariate analysis
  - Frequency
  - Summary
  - Graph
  - Test parametric
  - Test non parametric

r2latexBiv(logical~logical)

R

Gender	BacCheat
Male	TRUE
Male	FALSE
Female	FALSE
Female	FALSE
Female	TRUE
Male	TRUE
Female	FALSE
Male	FALSE
Male	TRUE
…	…

LaTeX

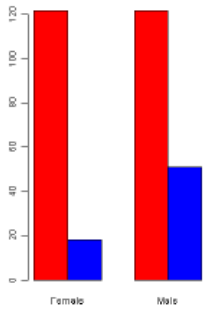
BacCheat ~ Gender

Nominal(2) ~ Nominal(2) N=314 ; NA=1 (0.32%)

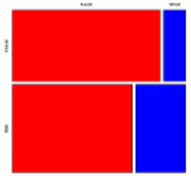
Table

	FALSE	TRUE	Total
Female	122 → 87.14 %	18 → 12.86 %	140 → 100 %
Male	122 → 70.52 %	51 → 29.48 %	173 → 100 %
Total	244 → 77.96 %	69 → 22.04 %	313 → 100 %

Barplot



Mosaic



Tests

χ^2 test	$\chi^2 = 12.4417$	p = 4e-04	***
Fisher's Exact Test		p = 5e-04	***
Odds Ratio	ODD = 2.8333	p = 5.777e-04	***
Relative Risk	RR = 1.2357	p = 3.271e-04	***

r2latexBiv(logical~logical)

BacCheat ~ Gender

Nominal(2) ~ Nominal(2) — N=314 ; NA=1 (0.32%)

Table

	FALSE	TRUE	Total
Female	122 → 87.14 %	18 → 12.86 %	140 → 100 %
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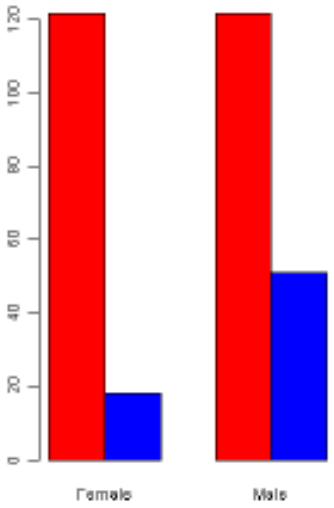
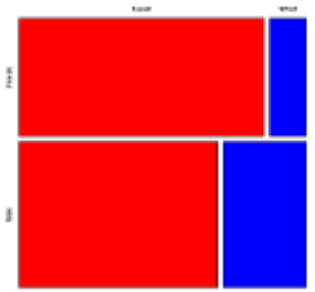


Mosaic



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Fisher's Exact Test		p = 5e-04	***
Odds Ratio	ODD = 2.8333	p = 5.777e-04	***
Relative Risk	RR = 1.2357	p = 3.271e-04	***

r2latexBiv(continuous~logical)

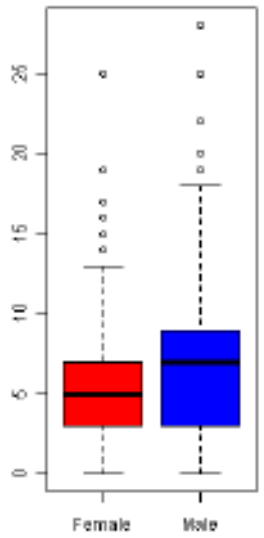
CheatScore ~ Gender

Continuous ~ Nominal(2) N=314 ; NA=0 (0%)

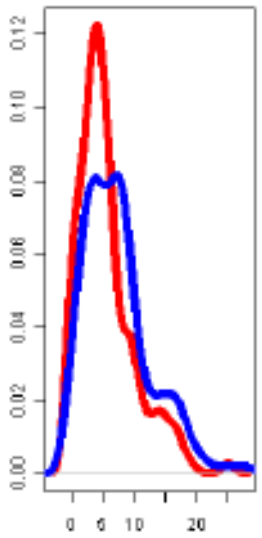
Summary

Modal.		Female	Male
N	:	140	174
NA	:	0	0
Mean	:	5.63	7.35
Var	:	20.71	28.11
SD	:	4.55	5.3
Min	:	0	0
Q1	:	3	3.25
Median	:	5	7
Q3	:	7	9
Max	:	25	28

Boxplot



Density



Tests

T test	T = -3.0953	p = 0.0021	**
Wilcoxon	W = 9674	p = 0.0017	**

r2latexBiv

(continous ~ ordered)

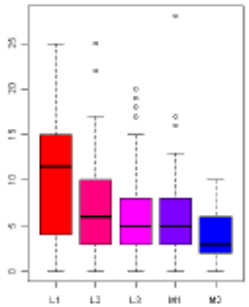
CheatScore ~ YearOfStudy

Continuous ~ Ordered(5) — N=314 ; NA=1 (0.32%)

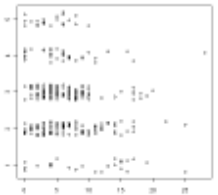
Summary

Modal. :	L1	L2	L3	M1	M2
N :	25	107	124	38	24
NA :	1	1	1	1	1
Mean :	10.21	6.75	6.24	6.16	4
Var :	46	25.73	18.02	32.47	7.82
SD :	6.78	5.07	4.24	5.7	2.8
Min :	0	0	0	0	0
Q1 :	4	3	3	3	2
Median :	11.5	6	5	5	3
Q3 :	15	9.75	8	8	6
Max :	25	25	20	28	10

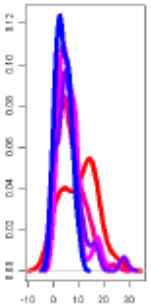
Boxplot



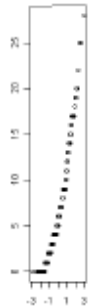
Scatter plot



Density



QQplot (Cont.)



QQplot (Ord.)

Tests

ANOVA	F = 5.1952	p = 5e-04	***
Kruskal-Wallis (y x)	K = 13.8722	p = 0.0077	**
Cor Pearson	ρ_P = -0.2098	p = 2e-04	***
Cor Spearman	ρ_S = -0.1656	p = 0.0033	

r2latexBiv

(logical ~ data.frame)

BacCheat ~ Gender

Nominal(2) ~ Nominal(2) — N=314 ; NA=1 (0.32%)

Table

	FALSE	TRUE	Total
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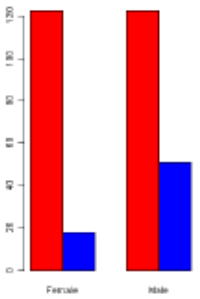
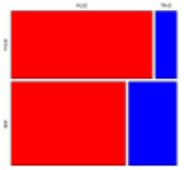


Mosaic



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Relative Risk	RR = 1.2357	p = 3.271e-04	***

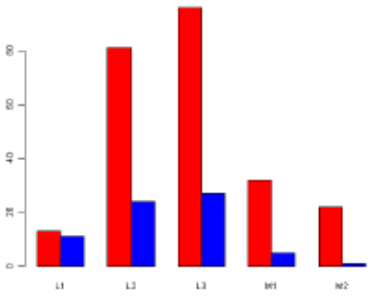
BacCheat ~ YearOfStudy

Nominal(2) ~ Nominal(5) — N=314 ; NA=2 (0.64%)

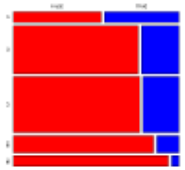
Table

	FALSE	TRUE	Total
L1	13 → 54.17 %	11 → 45.83 %	24 → 100 %
L2	81 → 77.14 %	24 → 22.86 %	105 → 100 %
L3	96 → 78.05 %	27 → 21.95 %	123 → 100 %
M1	32 → 86.49 %	5 → 13.51 %	37 → 100 %
M2	22 → 95.65 %	1 → 4.35 %	23 → 100 %
Total	244 → 78.21 %	68 → 21.79 %	312 → 100 %

Barplot



Mosaic



Tests

χ^2 test	$\chi^2 = 13.804$	p = 0.0079	**
Fisher's Exact Test		p = 0.0135	*

Example of code

Very simple code

```
### Read the data
myData <- read.csv(…)

### Preparing ordered variable(s)
myData$YearOfStudy <-
  ordered(myData$YearOfStudy,…)

### Univariate analysis
r2latexUniv(myData[,c(3,9:18,22)])

### Bivariate analysis
r2latexBiv(myData[,22]~myData[,c(3,9:18)])
```

Thank for your attention

Questions?

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