Gergely Daróczi

Looong report

Mon Aug 17 21:32:28 2015

Contents

I have written the below report in 10 mins :)

Dataset

Here I will do a pretty fast report on `mtcars` which is:

Table 1: Table continues below

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am
Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0	1
Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0	1
Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1	1
Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1	0
Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0	0
Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1	0
Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0	0
Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1	0
Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1	0
Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1	0
Merc 280C	17.8	6	167.6	123	3.92	3.440	18.90	1	0
Merc 450SE	16.4	8	275.8	180	3.07	4.070	17.40	0	0

	mpg	cyl	disp	hp	drat	wt	qsec	vs	am
Merc 450SL	17.3	8	275.8	180	3.07	3.730	17.60	0	0
Merc 450SLC	15.2	8	275.8	180	3.07	3.780	18.00	0	0
Cadillac Fleetwood	10.4	8	472.0	205	2.93	5.250	17.98	0	0
Lincoln Continental	10.4	8	460.0	215	3.00	5.424	17.82	0	0
Chrysler Imperial	14.7	8	440.0	230	3.23	5.345	17.42	0	0
Fiat 128	32.4	4	78.7	66	4.08	2.200	19.47	1	1
Honda Civic	30.4	4	75.7	52	4.93	1.615	18.52	1	1
Toyota Corolla	33.9	4	71.1	65	4.22	1.835	19.90	1	1
Toyota Corona	21.5	4	120.1	97	3.70	2.465	20.01	1	0
Dodge Challenger	15.5	8	318.0	150	2.76	3.520	16.87	0	0
AMC Javelin	15.2	8	304.0	150	3.15	3.435	17.30	0	0
Camaro Z28	13.3	8	350.0	245	3.73	3.840	15.41	0	0
Pontiac Firebird	19.2	8	400.0	175	3.08	3.845	17.05	0	0
Fiat X1-9	27.3	4	79.0	66	4.08	1.935	18.90	1	1
Porsche 914-2	26.0	4	120.3	91	4.43	2.140	16.70	0	1
Lotus Europa	30.4	4	95.1	113	3.77	1.513	16.90	1	1
Ford Pantera L	15.8	8	351.0	264	4.22	3.170	14.50	0	1
Ferrari Dino	19.7	6	145.0	175	3.62	2.770	15.50	0	1
Maserati Bora	15.0	8	301.0	335	3.54	3.570	14.60	0	1
Volvo 142E	21.4	4	121.0	109	4.11	2.780	18.60	1	1

	gear	carb
Mazda RX4	4	4
Mazda RX4 Wag	4	4
Datsun 710	4	1
Hornet 4 Drive	3	1
Hornet Sportabout	3	2
Valiant	3	1
Duster 360	3	4
Merc 240D	4	2
Merc 230	4	2
Merc 280	4	4
Merc 280C	4	4
Merc 450SE	3	3
Merc 450SL	3	3
Merc 450SLC	3	3
Cadillac Fleetwood	3	4
Lincoln Continental	3	4
Chrysler Imperial	3	4
Fiat 128	4	1
Honda Civic	4	2
Toyota Corolla	4	1
Toyota Corona	3	1
Dodge Challenger	3	2
AMC Javelin	3	2
Camaro Z28	3	4
Pontiac Firebird	3	2
Fiat X1-9	4	1
Porsche 914-2	5	2
Lotus Europa	5	2
Ford Pantera L	5	4
Ferrari Dino	5	6
Maserati Bora	5	8
Volvo 142E	4	2

Descriptives

	Average	Median	Standard.deviation	Variance
mpg	20.0906	19.200	6.0269	3.632e+01
cyl	6.1875	6.000	1.7859	3.190e+00

	Average	Median	Standard.deviation	Variance
disp	230.7219	196.300	123.9387	1.536e+04
hp	146.6875	123.000	68.5629	4.701e+03
drat	3.5966	3.695	0.5347	2.859e-01
wt	3.2172	3.325	0.9785	9.574e-01
qsec	17.8487	17.710	1.7869	3.193e+00
vs	0.4375	0.000	0.5040	2.540e-01
am	0.4062	0.000	0.4990	2.490e-01
gear	3.6875	4.000	0.7378	5.444e-01
carb	2.8125	2.000	1.6152	2.609e+00

In details

mpg

We found the folloing values here:

21, *21*, *22.8*, *21.4*, *18.7*, *18.1*, *14.3*, *24.4*, *22.8*, *19.2*, *17.8*, *16.4*, *17.3*, *15.2*, *10.4*, *10.4*, *14.7*, *32.4*, *30.4*, *33.9*, *21.5*, *15.5*, *15.2*, *13.3*, *19.2*, *27.3*, *26*, *30.4*, *15.8*, *19.7*, *15* and *21.4*

The mean of mpg is *20.09* while the standard deviation is: *6.027*. The most frequent value in mpg is 10.4, but let us check out the frequency table too:

Internal `pander` error: `Wrong number of parameters (11 instead of *12*) passed: justify` while running: `table(mtcars[, v])`

Please report the issue with a reproducible example to help developers fix this ASAP.

Tables are boring, let us show the same with a `histogram`:

cyl

We found the folloing values here:

6, *6*, *4*, *6*, *8*, *6*, *8*, *4*, *4*, *6*, *6*, *8*, *8*, *8*, *8*, *8*, *8*, *4*, *4*, *4*, *4*, *8*, *8*, *8*, *8*, *4*, *4*, *4*, *8*, *6*, *8* and *4*

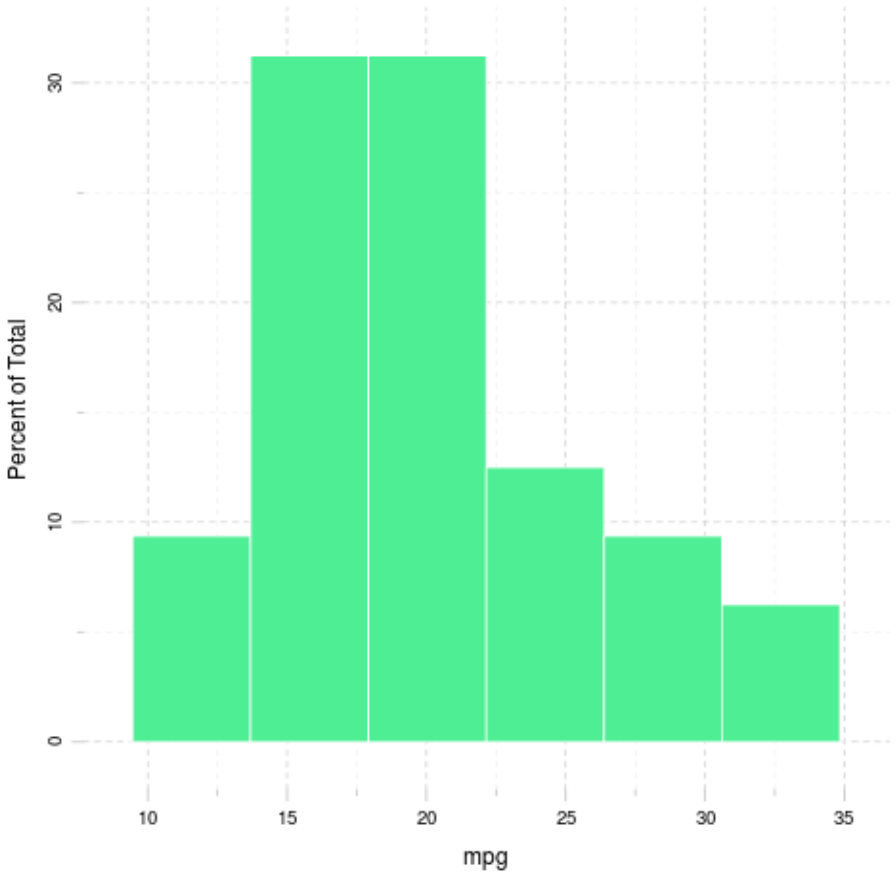

Figure 1:

The mean of cyl is *6.188* while the standard deviation is: *1.786*. The most frequent value in cyl is 8, but let us check out the frequency table too:

4	6	8
11	7	14

Tables are boring, let us show the same with a `histogram`:

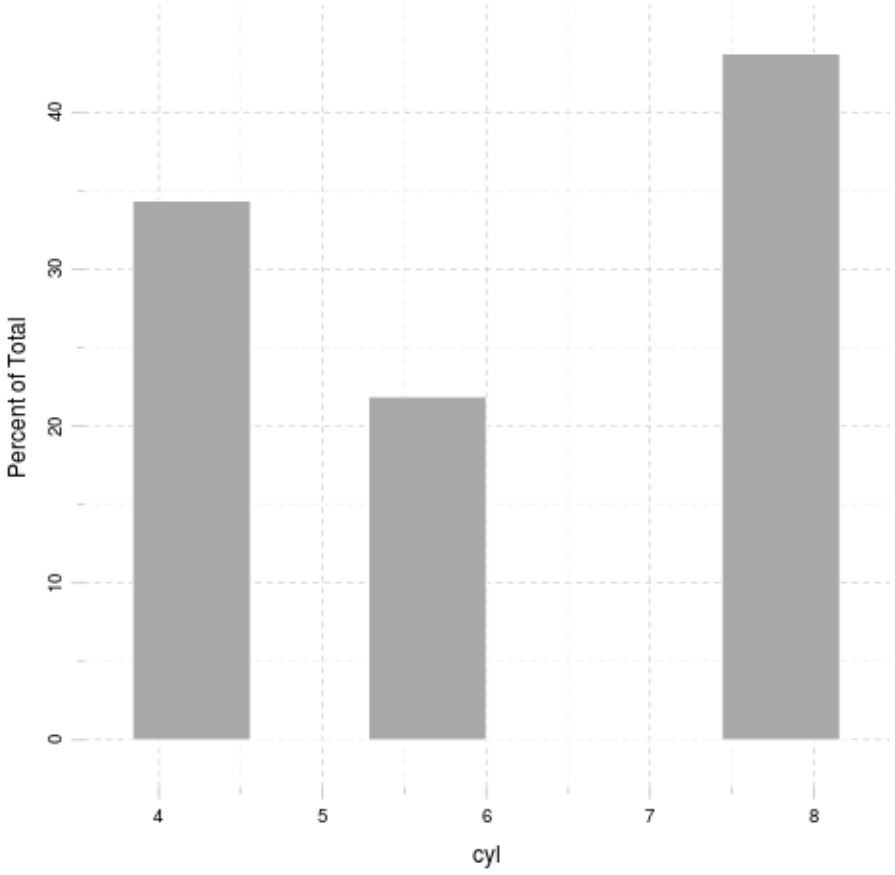

Figure 2:

disp

We found the folloing values here:

160, *160*, *108*, *258*, *360*, *225*, *360*, *146.7*, *140.8*, *167.6*, *167.6*, *275.8*, *275.8*, *275.8*, *472*, *460*, *440*, *78.7*, *75.7*, *71.1*, *120.1*, *318*, *304*, *350*, *400*, *79*, *120.3*, *95.1*, *351*, *145*, *301* and *121*

The mean of disp is *230.7* while the standard deviation is: *123.9*. The most frequent value in disp is 275.8, but let us check out the frequency table too:

Internal `pander` error: `Wrong number of parameters (11 instead of *12*) passed: justify` while running: `table(mtcars[, v])`

Please report the issue with a reproducible example to help developers fix this ASAP.

Tables are boring, let us show the same with a `histogram`:

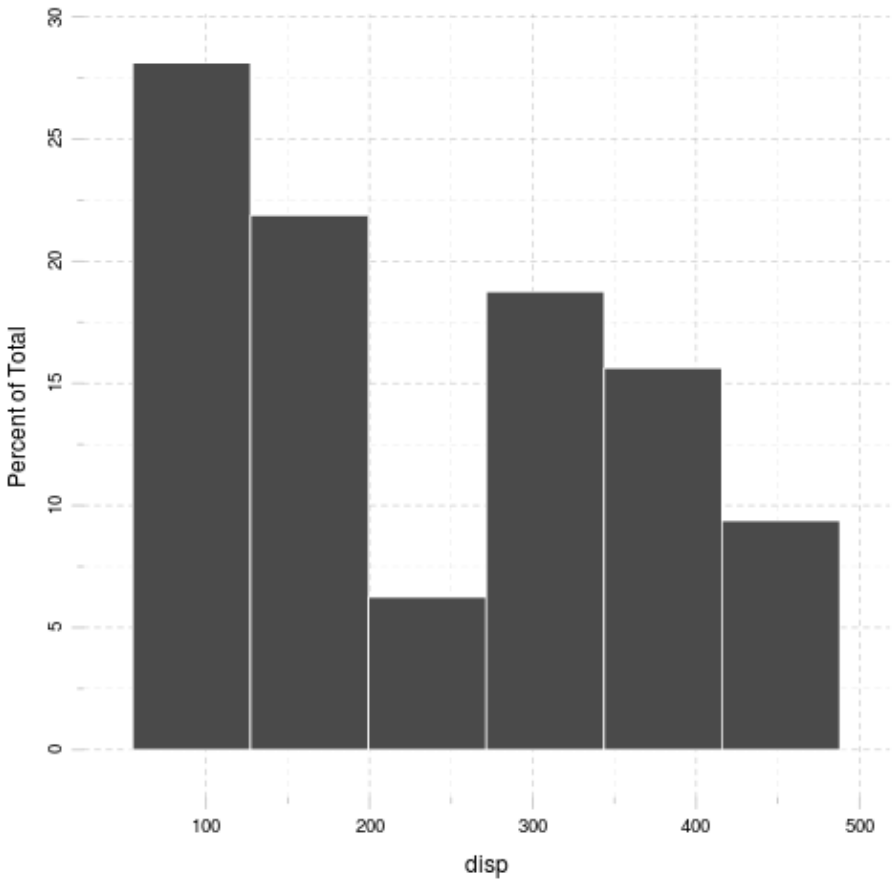

Figure 3:

hp

We found the folloing values here:

110, *110*, *93*, *110*, *175*, *105*, *245*, *62*, *95*, *123*, *123*, *180*, *180*, *180*, *205*, *215*, *230*, *66*, *52*, *65*, *97*, *150*, *150*, *245*, *175*, *66*, *91*, *113*, *264*, *175*, *335* and *109*

The mean of hp is *146.7* while the standard deviation is: *68.56*. The most frequent value in hp is 110, but let us check out the frequency table too:

Internal `pander` error: `Wrong number of parameters (14 instead of *15*) passed: justify` while running: `table(mtcars[, v])`

Please report the issue with a reproducible example to help developers fix this ASAP.

Tables are boring, let us show the same with a `histogram`:

drat

We found the folloing values here:

3.9, *3.9*, *3.85*, *3.08*, *3.15*, *2.76*, *3.21*, *3.69*, *3.92*, *3.92*, *3.92*, *3.07*, *3.07*, *3.07*, *2.93*, *3*, *3.23*, *4.08*, *4.93*, *4.22*, *3.7*, *2.76*, *3.15*, *3.73*, *3.08*, *4.08*, *4.43*, *3.77*, *4.22*, *3.62*, *3.54* and *4.11*

The mean of drat is *3.597* while the standard deviation is: *0.5347*. The most frequent value in drat is 3.07, but let us check out the frequency table too:

Internal `pander` error: `Wrong number of parameters (12 instead of *13*) passed: justify` while running: `table(mtcars[, v])`

Please report the issue with a reproducible example to help developers fix this ASAP.

Tables are boring, let us show the same with a `histogram`:

wt

We found the folloing values here:

2.62, *2.875*, *2.32*, *3.215*, *3.44*, *3.46*, *3.57*, *3.19*, *3.15*, *3.44*, *3.44*, *4.07*, *3.73*, *3.78*, *5.25*, *5.424*, *5.345*, *2.2*, *1.615*, *1.835*, *2.465*, *3.52*, *3.435*, *3.84*, *3.845*, *1.935*, *2.14*, *1.513*, *3.17*, *2.77*, *3.57* and *2.78*

The mean of wt is *3.217* while the standard deviation is: *0.9785*. The most frequent value in wt is 3.44, but let us check out the frequency table too:

Internal `pander` error: `Wrong number of parameters (11 instead of *12*) passed: justify` while running: `table(mtcars[, v])`

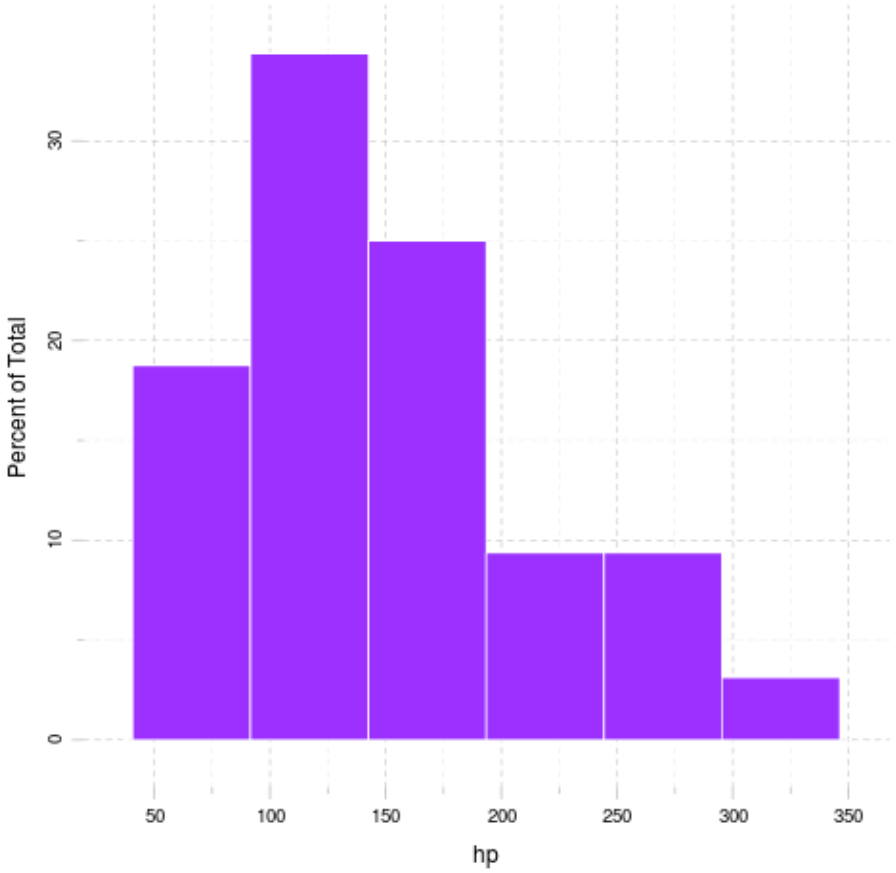

Figure 4:

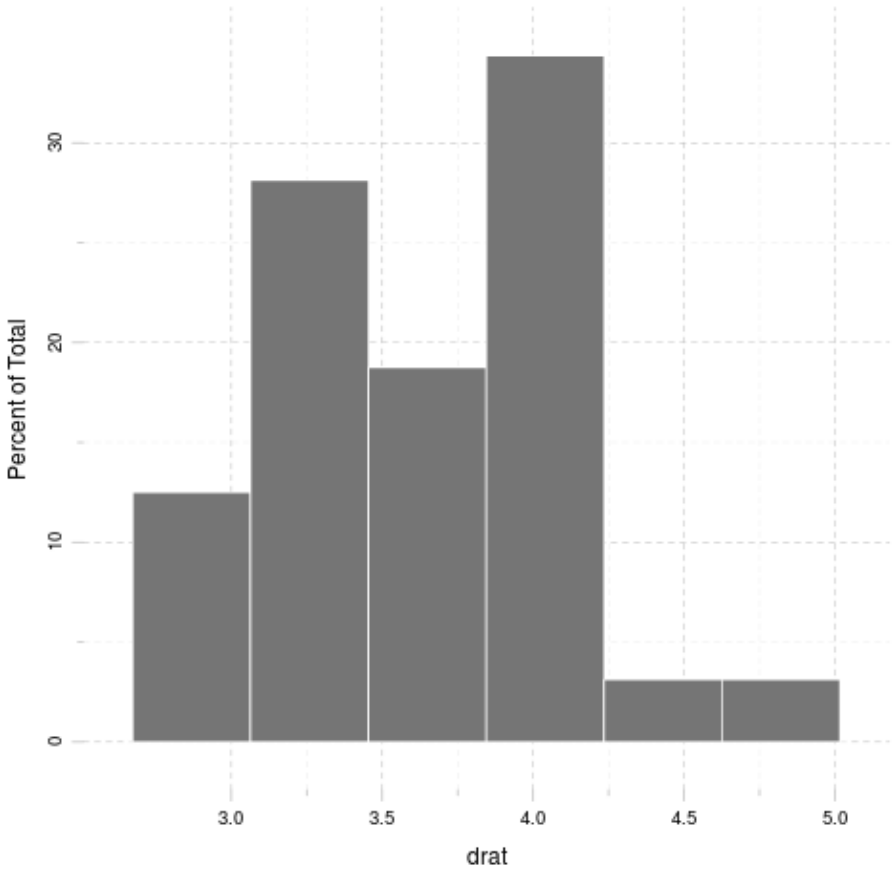

Figure 5:

Please report the issue with a reproducible example to help developers fix this ASAP.

Tables are boring, let us show the same with a `histogram`:

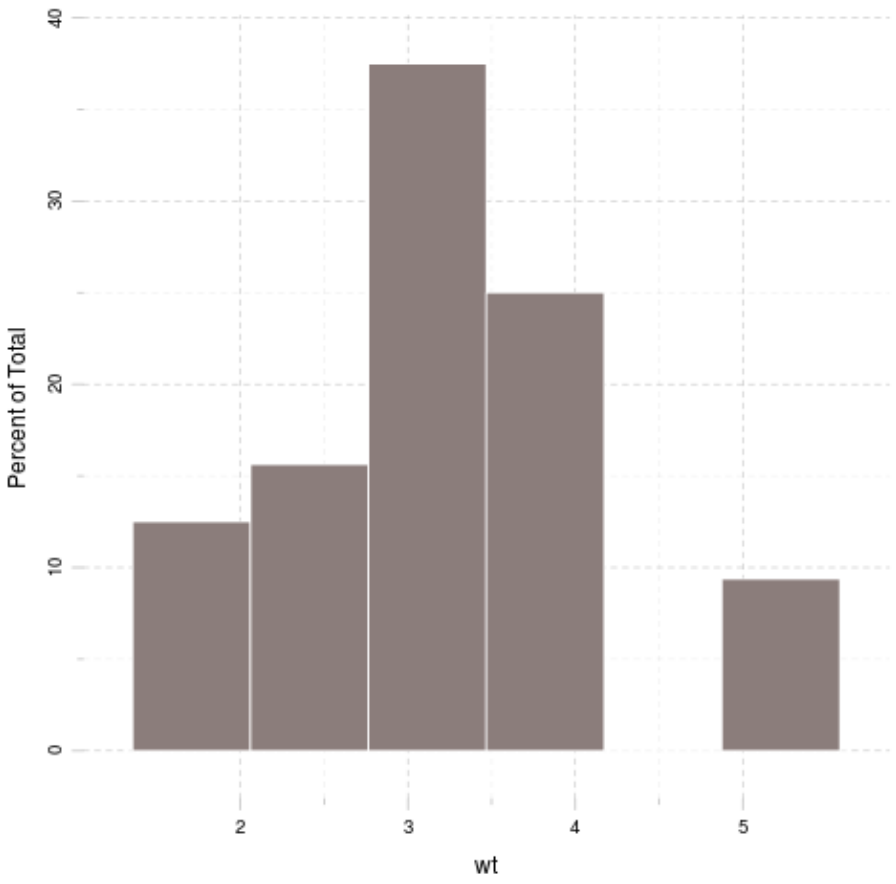

Figure 6:

qsec

We found the folloing values here:

16.46, *17.02*, *18.61*, *19.44*, *17.02*, *20.22*, *15.84*, *20*, *22.9*, *18.3*, *18.9*, *17.4*, *17.6*, *18*, *17.98*, *17.82*, *17.42*, *19.47*, *18.52*, *19.9*, *20.01*, *16.87*, *17.3*, *15.41*, *17.05*, *18.9*, *16.7*, *16.9*, *14.5*, *15.5*, *14.6* and *18.6*

The mean of qsec is *17.85* while the standard deviation is: *1.787*. The most frequent value in qsec is 17.02, but let us check out the frequency table too:

Internal `pander` error: `Wrong number of parameters (10 instead of *11*) passed: justify` while running: `table(mtcars[, v])`

Please report the issue with a reproducible example to help developers fix this ASAP.

Tables are boring, let us show the same with a `histogram`:

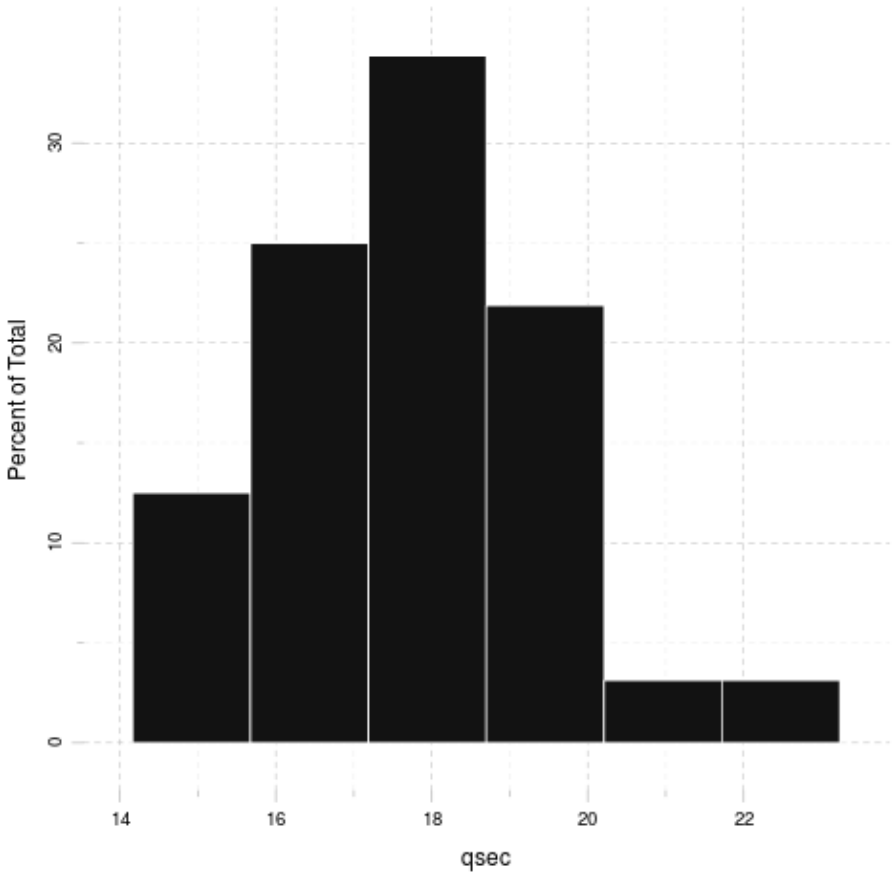

Figure 7:

vs

We found the folloing values here:

0, *0*, *1*, *1*, *0*, *1*, *0*, *1*, *1*, *1*, *1*, *0*, *0*, *0*, *0*, *0*, *0*, *1*, *1*, *1*, *1*, *0*, *0*, *0*, *0*, *1*, *0*, *1*, *0*, *0*, *0* and *1*

The mean of vs is *0.4375* while the standard deviation is: *0.504*. The most frequent value in vs is 0, but let us check out the frequency table too:

0	1
18	14

Tables are boring, let us show the same with a `histogram`:

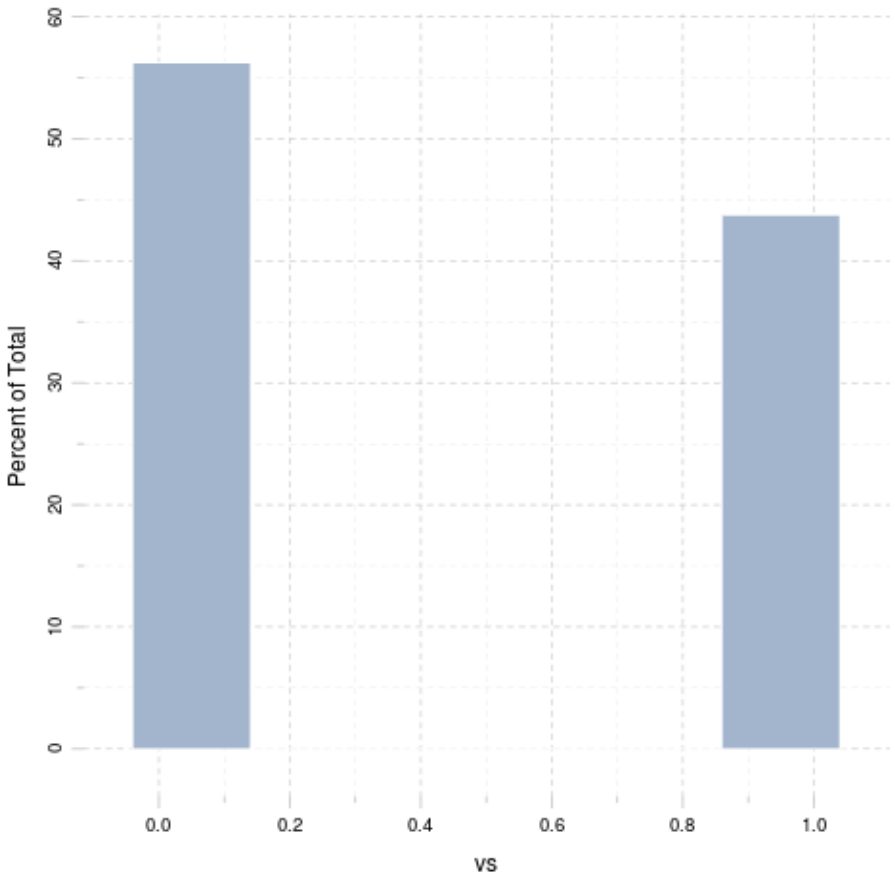

Figure 8:

am

We found the folloing values here:

1, *1*, *1*, *0*, *0*, *0*, *0*, *0*, *0*, *0*, *0*, *0*, *0*, *0*, *0*, *0*, *0*, *1*, *1*, *1*, *0*, *0*, *0*, *0*, *0*, *1*, *1*, *1*, *1*, *1*, *1* and *1*

The mean of am is *0.4062* while the standard deviation is: *0.499*. The most frequent value in am is 0, but let us check out the frequency table too:

0	1
19	13

Tables are boring, let us show the same with a `histogram`:

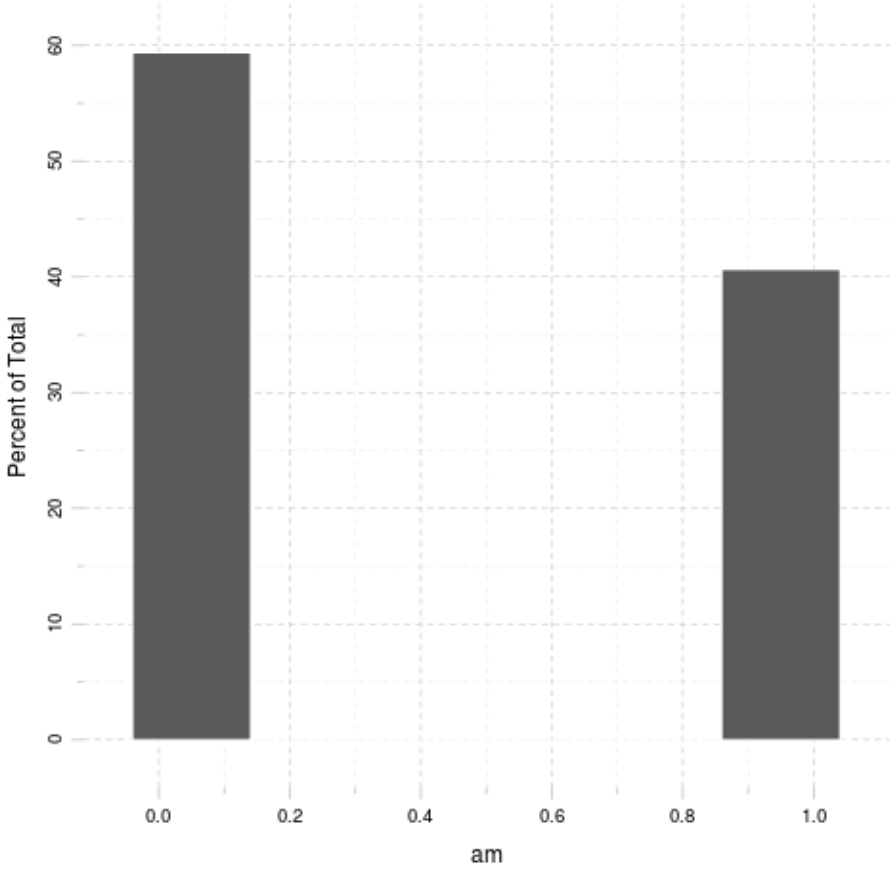

Figure 9:

gear

We found the folloing values here:

4, *4*, *4*, *3*, *3*, *3*, *3*, *4*, *4*, *4*, *4*, *3*, *3*, *3*, *3*, *3*, *3*, *4*, *4*, *4*, *3*, *3*, *3*, *3*, *3*, *4*, *5*, *5*, *5*, *5*, *5* and *4*

The mean of gear is *3.688* while the standard deviation is: *0.7378*. The most frequent value in gear is 3, but let us check out the frequency table too:

3	4	5
15	12	5

Tables are boring, let us show the same with a `histogram`:

carb

We found the folloing values here:

4, *4*, *1*, *1*, *2*, *1*, *4*, *2*, *2*, *4*, *4*, *3*, *3*, *3*, *4*, *4*, *4*, *1*, *2*, *1*, *1*, *2*, *2*, *4*, *2*, *1*, *2*, *2*, *4*, *6*, *8* and *2*

The mean of carb is *2.812* while the standard deviation is: *1.615*. The most frequent value in carb is 2, but let us check out the frequency table too:

1	2	3	4	6	8
7	10	3	10	1	1

Tables are boring, let us show the same with a `histogram`:

Correlation

And here goes a correlation table:

Table 9: Table continues below

	mpg	cyl	disp	hp	drat	wt	qsec	vs
mpg	1.0000	-0.8522	-0.8476	-0.7762	0.68117	-0.8677	0.4187	0.6640
cyl	-0.8522	1.0000	0.9020	0.8324	-0.69994	0.7825	-0.5912	-0.8108

	mpg	cyl	disp	hp	drat	wt	qsec	vs
disp	-0.8476	0.9020	1.0000	0.7909	-0.71021	0.8880	-0.4337	-0.7104
hp	-0.7762	0.8324	0.7909	1.0000	-0.44876	0.6587	-0.7082	-0.7231
drat	0.6812	-0.6999	-0.7102	-0.4488	1.00000	-0.7124	0.0912	0.4403
wt	-0.8677	0.7825	0.8880	0.6587	-0.71244	1.0000	-0.1747	-0.5549
qsec	0.4187	-0.5912	-0.4337	-0.7082	0.09120	-0.1747	1.0000	0.7445
vs	0.6640	-0.8108	-0.7104	-0.7231	0.44028	-0.5549	0.7445	1.0000
am	0.5998	-0.5226	-0.5912	-0.2432	0.71271	-0.6925	-0.2299	0.1683
gear	0.4803	-0.4927	-0.5556	-0.1257	0.69961	-0.5833	-0.2127	0.2060
carb	-0.5509	0.5270	0.3950	0.7498	-0.09079	0.4276	-0.6562	-0.5696

	am	gear	carb
mpg	0.59983	0.4803	-0.55093
cyl	-0.52261	-0.4927	0.52699
disp	-0.59123	-0.5556	0.39498
hp	-0.24320	-0.1257	0.74981
drat	0.71271	0.6996	-0.09079
wt	-0.69250	-0.5833	0.42761

	am	gear	carb
qsec	-0.22986	-0.2127	-0.65625
vs	0.16835	0.2060	-0.56961
am	1.00000	0.7941	0.05753
gear	0.79406	1.0000	0.27407
carb	0.05753	0.2741	1.00000

And the same on a graph:

Yeah, that latter took a while to render in an image file :)

That's not a `pander` issue.

Some models

Okay, let us find out how `weight` affects other variables:

mpg

A simple linear model: `mtcars$wt ~ mtcars$mpg`

Table 11: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	-0.1409	0.01474	-9.559	1.294e-10
(Intercept)	6.0473	0.30869	19.590	1.204e-18

cyl

A simple linear model: `mtcars$wt ~ mtcars$cyl`

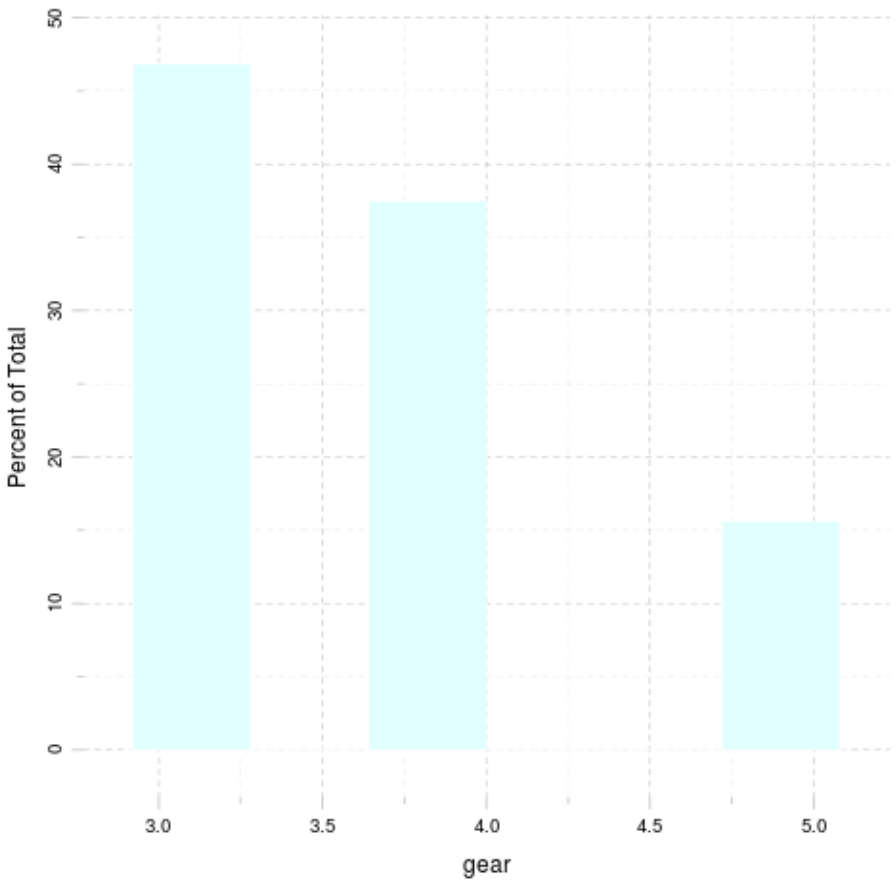

Figure 10:

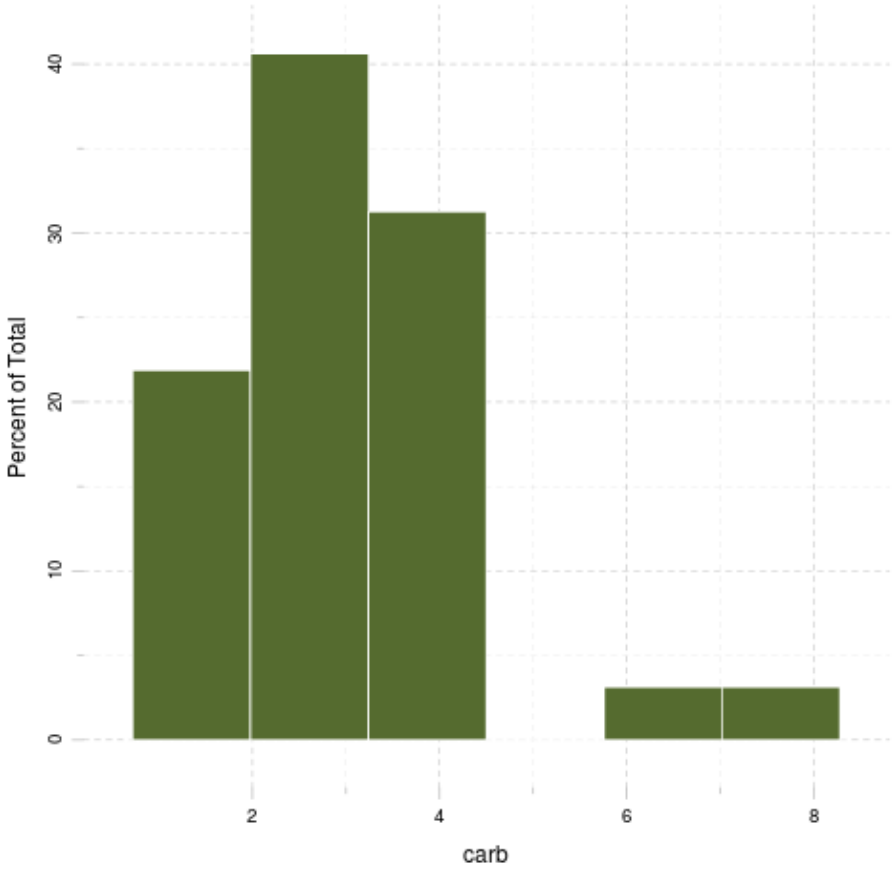

Figure 11:

Table 12: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	0.4287	0.06228	6.883	1.218e-07
(Intercept)	0.5646	0.40062	1.409	1.690e-01

disp

A simple linear model: `mtcars$wt ~ mtcars$disp`

Table 13: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	0.00701	0.0006629	10.576	1.222e-11
(Intercept)	1.59981	0.1729964	9.248	2.738e-10

hp

A simple linear model: `mtcars$wt ~ mtcars$hp`

Table 14: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	0.009401	0.00196	4.796	4.146e-05
(Intercept)	1.838247	0.31652	5.808	2.389e-06

drat

A simple linear model: `mtcars$wt ~ mtcars$drat`

Table 15: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	-1.304	0.2345	-5.561	4.784e-06

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	7.906	0.8522	9.277	2.547e-10

qsec

A simple linear model: `mtcars$wt ~ mtcars$qsec`

Table 16: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	-0.09567	0.09843	-0.9719	0.338868
(Intercept)	4.92479	1.76541	2.7896	0.009081

vs

A simple linear model: `mtcars$wt ~ mtcars$vs`

Table 17: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	-1.077	0.2949	-3.654	9.798e-04
(Intercept)	3.689	0.1950	18.913	3.203e-18

am

A simple linear model: `mtcars$wt ~ mtcars$am`

Table 18: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	-1.358	0.2583	-5.258	1.125e-05
(Intercept)	3.769	0.1646	22.895	1.490e-20

gear

A simple linear model: `mtcars$wt ~ mtcars$gear`

Table 19: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	-0.7735	0.1967	-3.933	4.587e-04
(Intercept)	6.0697	0.7392	8.212	3.632e-09

carb

A simple linear model: `mtcars$wt ~ mtcars$carb`

Table 20: Fitting linear model: mtcars$wt ~ Independent

	Estimate	Std. Error	t value	Pr(>|t|)
Independent	0.259	0.09998	2.591	1.464e-02
(Intercept)	2.489	0.32300	7.705	1.353e-08