finding p-value in pearson correlation in R

Is it possible to find the p-value in pearson correlation in R?

To find the pearson correlation, I usually do this

```
> col1 = c(1,2,3,4)
> col2 = c(1,4,3,5)
> cor(col1,col2)
[1] 0.8315218
```

But how I can find the p-value of this?

Thanks.

r | correlation | p-value | pearson

asked May 25 '15 at 19:20

PepperBoy
138 2 6

The help on `cor` (`?cor`) *explicitly* mentions `cor.test` (under "See Also") – Glen_b ♦ May 26 '15 at 3:37

3 Answers

you can use **cor.test** :

```
> col1 = c(1,2,3,4)
> col2 = c(1,4,3,5)
> cor.test(col1,col2)
```

which gives :

> Pearson's product-moment correlation
> data: col1 and col2
> t = 2.117, df = 2, p-value = 0.1685
> alternative hypothesis: true correlation is not equal to 0
> 95 percent confidence interval:
> -0.6451325 0.9963561
> sample estimates:
> cor
> 0.8315218

More information about the statistics and extra parameters at the official page :
https://stat.ethz.ch/R-manual/R-patched/library/stats/html/cor.test.html

edited May 25 '15 at 19:56

answered May 25 '15 at 19:43

brumar
1,176 1 11

thanks, not enough points to upvote, used it though – PepperBoy May 25 '15 at 23:08

If you want only the P value:

```
> cor.test(col1,col2)$p.value
[1] 0.1684782
```

answered May 26 '15 at 3:25

rnso
2,489 1 7 21

The following will do as you ask:

```
library(Hmisc) # You need to download it first.
rcorr(x, type="pearson") # type can be pearson or spearman
```

Here x is a data frame, and rcorr returns every correlation which it is possible to form from the "x" data frame.

Or you could calculate the statistic yourself:

$$t = \frac{\hat{\rho}}{\sqrt{\frac{1-\hat{\rho}^2}{n-2}}}$$

Where $\hat{\rho}$ is the pearson correlation estimated from the data, and n is the sample size.

edited May 25 '15 at 21:51

answered May 25 '15 at 19:45

Repmat
1,365 1 14

Thanks, but what is x ? I think it's some concatenation of col1 and col2 because we need two vectors to calculate pearson correlation. But can you tell me what x is? – PepperBoy May 25 '15 at 21:49

It is a data frame, see my update. – Repmat May 25 '15 at 21:51

thanks I don't have enough points to upvote – PepperBoy May 25 '15 at 23:08