

Sheth I.u.j. And sir m.v. college of arts science and commerce

Practical no. 6 mod2

Aim: Performing paired t-tests using `t.test(paired=TRUE)` ®

RStudio interface showing a script and the resulting data frame output.

```
1 data <- read.csv("global_earthquakes_10yrs_M4.5_2025-12-10.csv")
2
3
4
5
6
7
8
9
10
```

Output of `head(data, 10)`:

		time	latitude	longitude	depth	mag	magType	nst	gap	dmin	rms	net
1	2015-12-30	23:20:56.840000+00:00	0.0229	123.8194	143.05	4.6	mb	NA	51	1.488	0.83	us
2	2015-12-30	21:29:23.040000+00:00	-30.6777	-71.7346	25.62	4.5	mb	NA	180	0.085	0.94	us
3	2015-12-30	19:50:48.210000+00:00	-40.5641	173.4219	142.40	4.6	mb	NA	65	0.653	0.70	us
4	2015-12-30	18:26:34.610000+00:00	-24.4715	-175.8716	24.21	4.9	mb	NA	77	5.097	0.99	us
5	2015-12-30	14:46:47.730000+00:00	-5.9568	154.9611	184.56	4.5	mb	NA	94	3.292	0.76	us
6	2015-12-30	12:57:36.210000+00:00	33.8836	137.3211	338.23	4.5	mb	NA	57	1.066	0.75	us
7	2015-12-30	12:50:12.930000+00:00	-18.0505	-178.7085	607.86	4.5	mb	NA	192	3.098	0.67	us
8	2015-12-30	11:53:51.690000+00:00	40.9013	142.7915	51.54	4.5	mb	NA	134	1.146	0.60	us
9	2015-12-30	11:08:36+00:00	-21.9779	-174.4701	46.15	5.0	mb	NA	50	7.880	0.85	us
10	2015-12-30	10:46:44+00:00	19.3214	121.1273	28.55	4.5	mb	NA	51	3.479	0.95	us

Environment pane shows the following objects:

- data: 80829 obs. of 22 variables
- data_full: 4573 obs. of 15 variables
- data1: 4573 obs. of 3 variables
- data2: 100000 obs. of 20 variables
- data3: 29999 obs. of 15 variables
- employee_s...: 50 obs. of 9 variables
- global_ear...: 80829 obs. of 22 variables
- market_data: 737392 obs. of 10 variables

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RStudio

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Source on Save Run Source

```
1  
2 data <- read.csv("global_earthquakes_10yrs_M4.5_2025-12-10.csv")  
3
```

8:44 (Top Level) R Script

R 4.5.2 ~/

```
6 us10004aep 2016-03-18T01:13:08.040Z 79 km SSE of Toba, Japan earthquake  
7 us10004bu0 2016-03-18T01:13:08.040Z 209 km E of Levuka, Fiji earthquake  
8 us10004aeg 2016-03-18T01:13:08.040Z 117 km ENE of Hachinohe, Japan earthquake  
9 us10004ae8 2016-11-10T22:06:32.298Z Tonga earthquake  
10 us10004ae4 2016-03-18T01:13:08.040Z 78 km N of Namuac, Philippines earthquake  
horizontalError depthError magError magNst status locationSource magSource  
1 6.4 6.7 0.083 43 reviewed us us  
2 3.9 5.4 0.192 8 reviewed us us  
3 7.3 6.3 0.097 34 reviewed us us  
4 13.7 4.7 0.074 57 reviewed us us  
5 11.6 8.2 0.101 29 reviewed us us  
6 7.4 5.8 0.053 103 reviewed us us  
7 14.2 12.7 0.140 15 reviewed us us  
8 7.5 7.7 0.136 20 reviewed us us  
9 8.5 5.4 0.043 177 reviewed us us  
10 7.7 4.7 0.085 43 reviewed us us  
>  
> # Paired t-test using two columns from the CSV  
> t.test(data$depth, data$mag, paired = TRUE)
```

Paired t-test

data: data\$depth and data\$mag
t = 143.57, df = 80828, p-value < 2.2e-16
alternative hypothesis: true mean difference is not equal to 0
95 percent confidence interval:
56.51354 58.07787
sample estimates:
mean difference
57.29571
>

Environment History

R Global Enviro

data	8
data_full1	4
data1	4
data2	1
data3	2
employee_s...	5
global_ear...	8
market_data	7

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- ☐ amsterdam_v
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