Package: EuclideanSD (via r-universe)

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Type Package

Title An Euclidean View of Center and Spread

Version 0.1.0

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Description Illustrates the concepts developed in Sarkar and Rashid
(2019, ISSN:0025-5742)
<http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=
8&ved=2ahUKEwiH4deL3q3xAhWX73MBHR_wDaYQFnoECAUQAw&url=https%3A%2F%2Fwww.
indianmathsociety.org.in%2Fmathstudent-part-2-2019.pdf&usg=
AOvVaw3SY--3T6UAWUnH5-Nj6bSc>.
This package helps a user guess four things (mean, MD, scaled
MSD, and RMSD) before they get the SD. 1) The package displays
the Empirical Cumulative Distribution Function (ECDF) of the
given data. The user must choose the value of the mean by
equating the areas of two colored (blue and green) regions. The
package gives feedback to improve the choice until it is
correct. Alternatively, the reader may continue with a
different guess for the center (not necessarily the mean). 2)
The user chooses the values of the Mean Deviation (MD) based on
the ECDF of the deviations by equating the areas of two newly
colored (blue and green) regions, with feedback from the
package until the user guesses correctly. 3) The user chooses
the Scaled Mean Squared Deviation (MSD) based on the ECDF of
the scaled square deviations by equating the areas of two newly
colored (blue and green) regions, with feedback from the
package until the user guesses correctly. 4) The user chooses
the Root Mean Squared Deviation (RMSD) by ensuring that its
intersection with the ECDF of the deviations is at the same
height as the intersection between the scaled MSD and the ECDF
of the scaled squared deviations. Additionally, the
intersection of two blue lines (the green dot) should fall on
the vertical line at the maximum deviation. 5) Finally, if the
mean is chosen correctly, only then the user can view the
population SD (the same as the RMSD) and the sample SD
(sqrt(n/(n-1))*RMSD) by clicking the respective buttons. If the

mean is chosen incorrectly, the user is asked to correct it.

License GPL-3

Encoding UTF-8

RoxygenNote 7.1.1

Imports shiny

NeedsCompilation no

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Repository CRAN

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EuclideanSD   *An Euclidean View of Center and Spread*

Description

This package helps a user guess four things before they get the SD.

1) The package displays the Empirical Cumulative Distribution Function (ECDF) of the given data. The user must choose the value of the mean by equating the areas of two colored (blue and green) regions. The package gives feedback to improve the choice until it is correct. Alternatively, the reader may continue with a different guess for the center (not necessarily the mean).

2) The user chooses the values of the Mean Deviation (MD) based on the ECDF of the deviations by equating the areas of two newly colored (blue and green) regions, with feedback from the package until the user guesses correctly.

3) The user chooses the Scaled Mean Squared Deviation (MSD) based on the ECDF of the scaled square deviations by equating the areas of two newly colored (blue and green) regions, with feedback from the package until the user guesses correctly.

4) The user chooses the Root Mean Squared Deviation (RMSD) by ensuring that its intersection with the ECDF of the deviations is at the same height as the intersection between the scaled MSD and the ECDF of the scaled squared deviations. Additionally, the intersection of two blue lines (the green dot) should fall on the vertical line at the maximum deviation.

5) Finally, if the mean is chosen correctly, only then the user can view the population SD (the same as the RMSD) and the sample SD (sqrt(n/(n-1))*RMSD) by clicking the respective buttons. If the mean is chosen incorrectly, the user is asked to correct it.

Usage

```
EuclideanSD(x)
```

Arguments

x   It is a data vector that the user feeds. It can be randomly generated.

Value

A new browser window opens with an interactive graph built by R shiny on which the user selects the desired summary statistics with feedback from the package until the selections are correct.

Examples

```
data<- c(1,2,3,4,5)
EuclideanSD(data)



data <- rnorm(90,30,10)
EuclideanSD(data)
```

---

nums   *nums: the namespace variable.*

Description

the namespace variable that stores data provided by user.

Usage

```
nums
```

Format

An object of class NULL of length 0.

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