How to calculate Standard Deviation of Rows in R

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Standard Deviation of Rows in R can be calculated using the rowSds() function within the 'matrixStats' package. This function takes a matrix as its argument and returns the standard deviation of each row as a vector. The standard deviation is calculated using the formula: SD = sqrt((sum((x-mean)^2))/n-1), where x is each value in the row, mean is the mean of the row, and n is the number of values in the row.

You can use the following basic syntax to calculate the standard deviation of rows in R:

row_stdev <- apply(df, 1, sd, na.rm=TRUE)

The following example shows how to use this syntax in R.

Example: Calculate Standard Deviation of Rows in R

Suppose we have the following data frame in R:

#create data frame
df <- data.frame(game1=c(12, 15, 15, 18, 29, 30, 31),
game2=c(15, 17, 17, 16, 29, 8, 14),
game3=c(8, 22, 27, 35, 29, 22, 17))

#view data frame
df

game1 game2 game3
1 12 15 8
2 15 17 22
3 15 17 27
4 18 16 35
5 29 29 29
6 30 8 22
7 31 14 17

We can use the following syntax to calculate the standard deviation of the values in each row:

#calculate standard deviation of each row
row_stdev <- apply(df, 1, sd, na.rm=TRUE)

#view standard deviation of each row
row_stdev

3.511885 3.605551 6.429101 10.440307 0.000000 11.135529 9.073772

From the output we can see:

The standard deviation of values in the first row is **3.511885**.
The standard deviation of values in the second row is **3.605551**.
The standard deviation of values in the third row is **6.429101**.

And so on.

If we'd like, we can also use the function to add a new column to the data frame that shows the standard deviation of values in each row:

#add column that displays standard deviation of each row
df <- transform(df, row_stdev=apply(df, 1, sd, na.rm=TRUE))

#view updated data frame
df

game1 game2 game3 row_stdev
1 12 15 8 3.511885
2 15 17 22 3.605551
3 15 17 27 6.429101
4 18 16 35 10.440307
5 29 29 29 0.000000
6 30 8 22 11.135529
7 31 14 17 9.073772

The new column called **row_stdev** displays the standard deviation of values in each row.

Note: The standard deviation of values in row 5 is equal to zero because each of the values is the same, thus there is no "deviation" at all in the values.