Dimensionality reduction: when running PCA makes no sense

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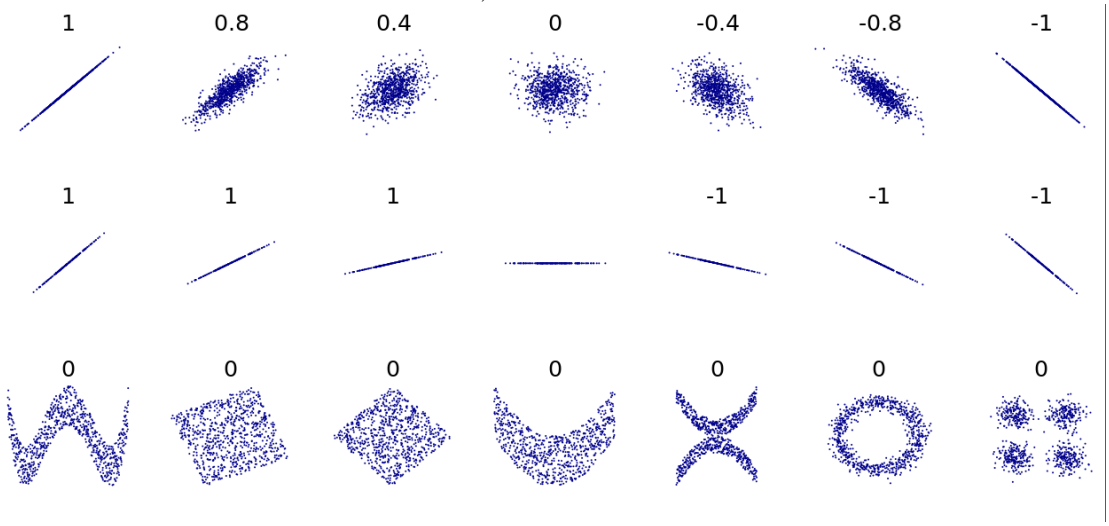
The figure shows 21 scatterplots of 2-dimensional samples[1] (the numbers are the correlation coefficients between the 1st and 2nd dimensions).



Question 1

For which of these data sets do you think it might make sense to reduce the dimension to 1 using PCA? (give a *short* explanation)

Question 2

What about applying PCA with 2 principal components?

[1] Ok, you got me - these are not real data sets! But let's pretend like they are.