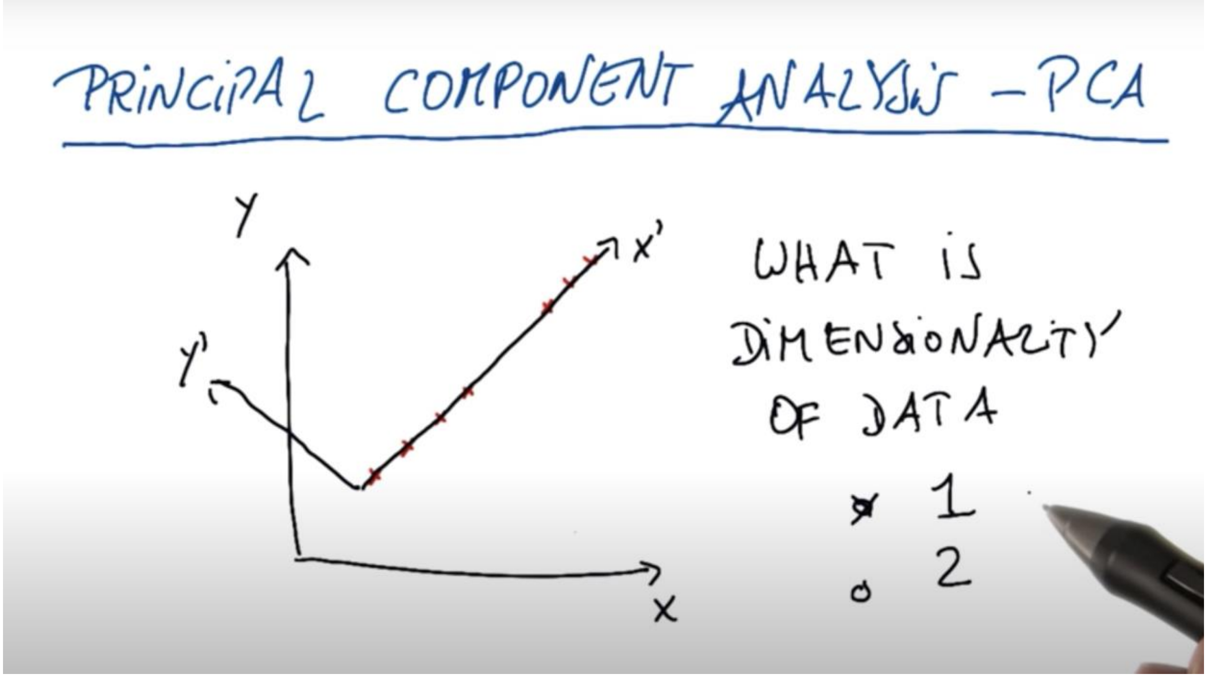
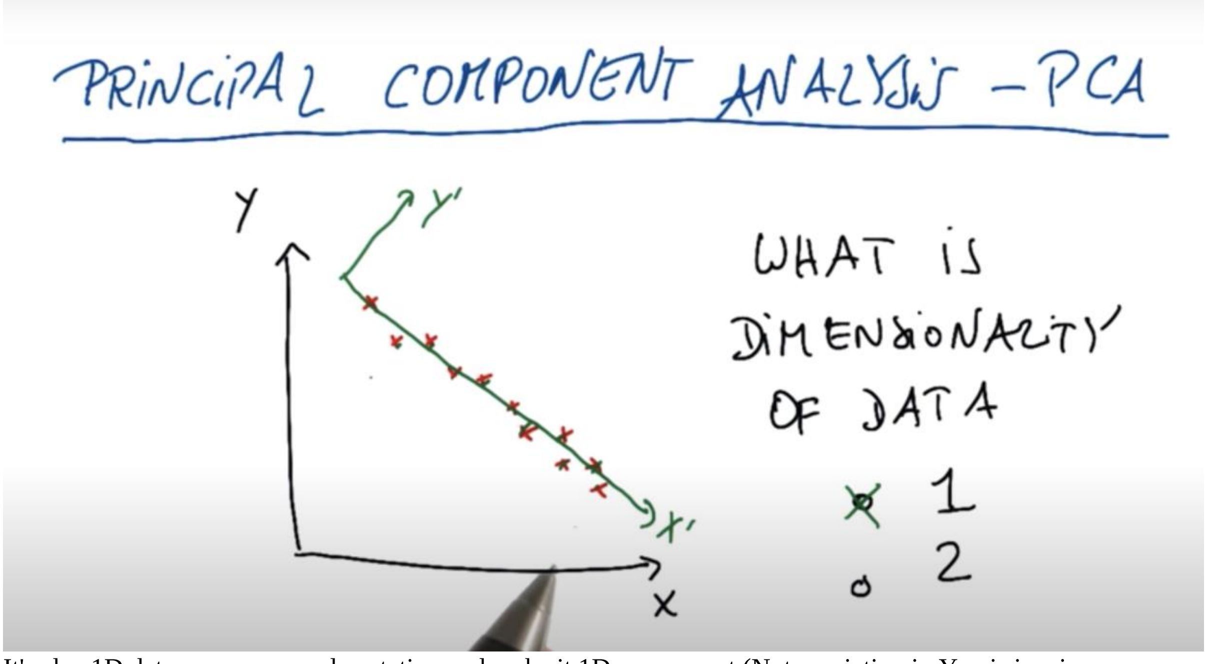
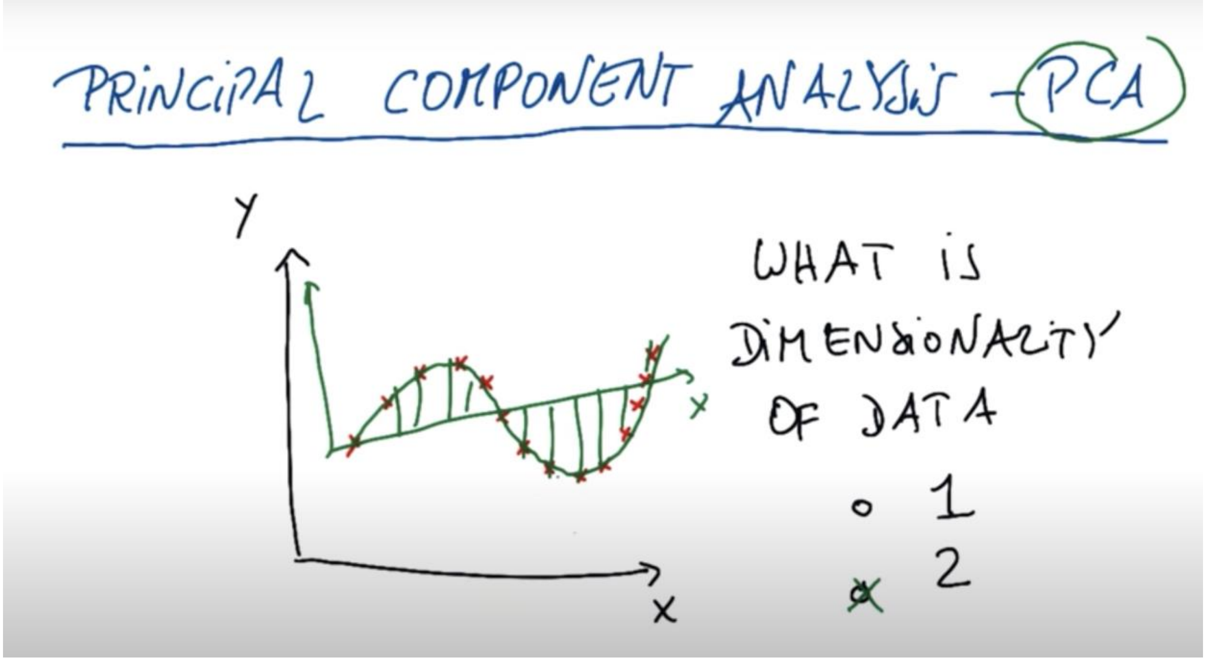


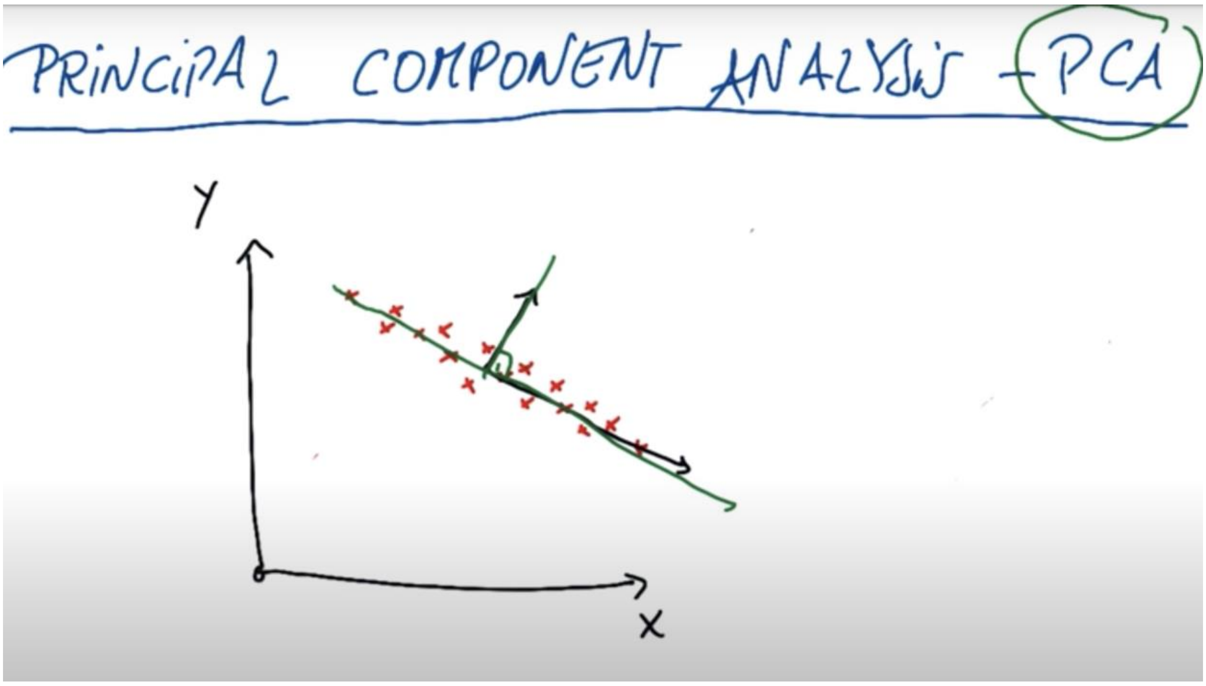
It's a 1 dimensional, if we rotate x & y axis by some degree



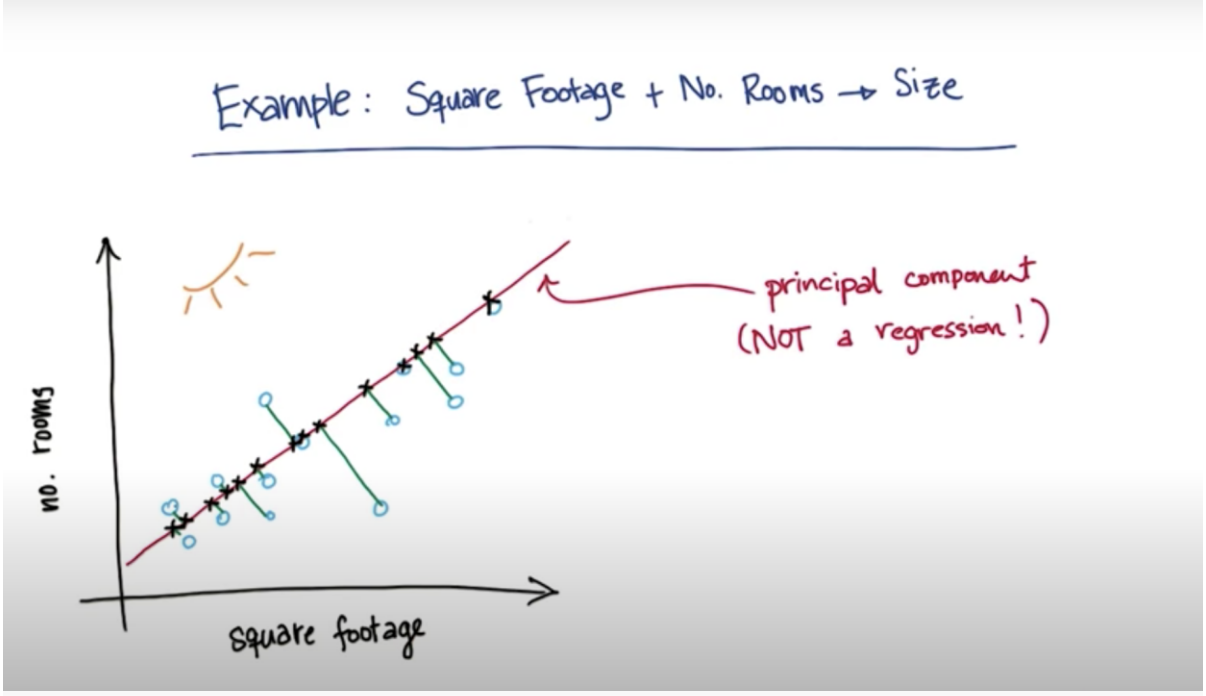
It's also 1D data as we can apply rotation and make it 1D as we want (Note variation in Y axis is minor so ignored)

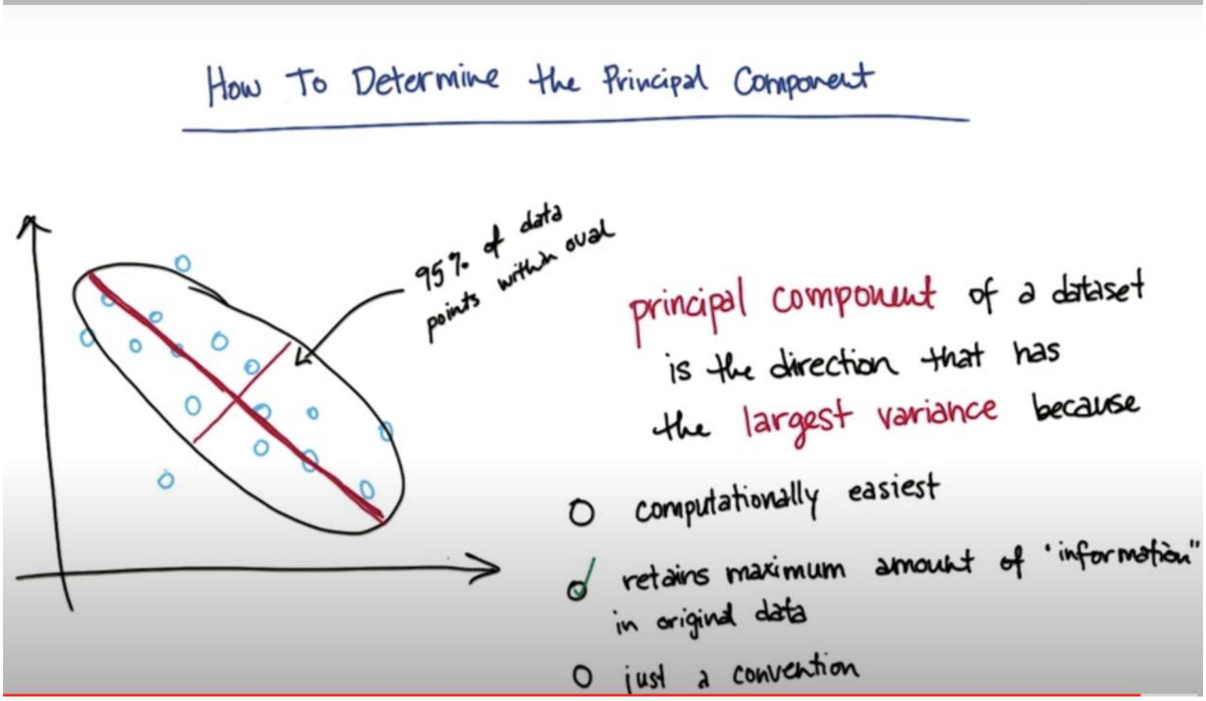


Still significant variation in Y axis after transformations, so 2 Dimension considered

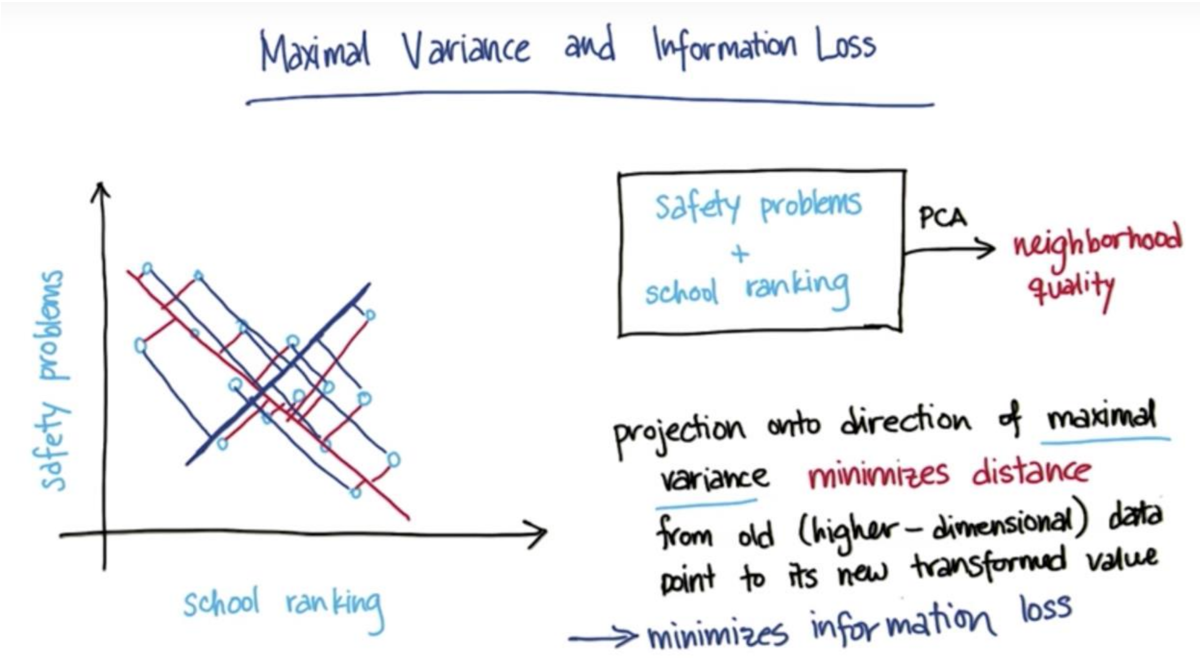


PCA -> Projection Idea (visualise)

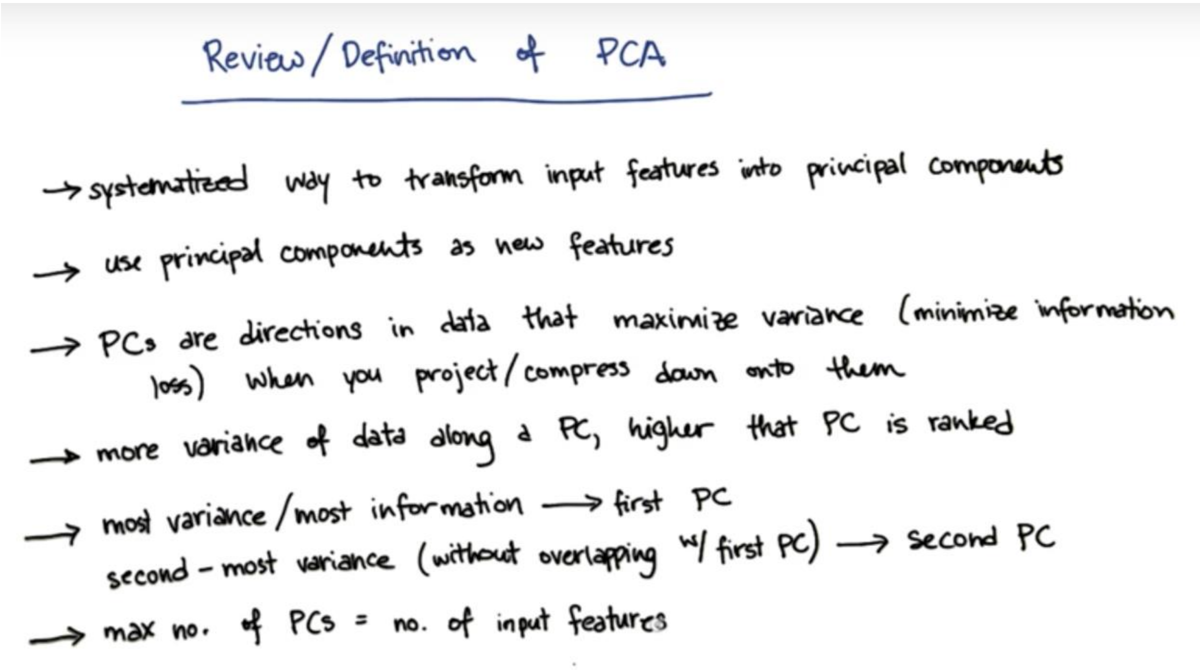


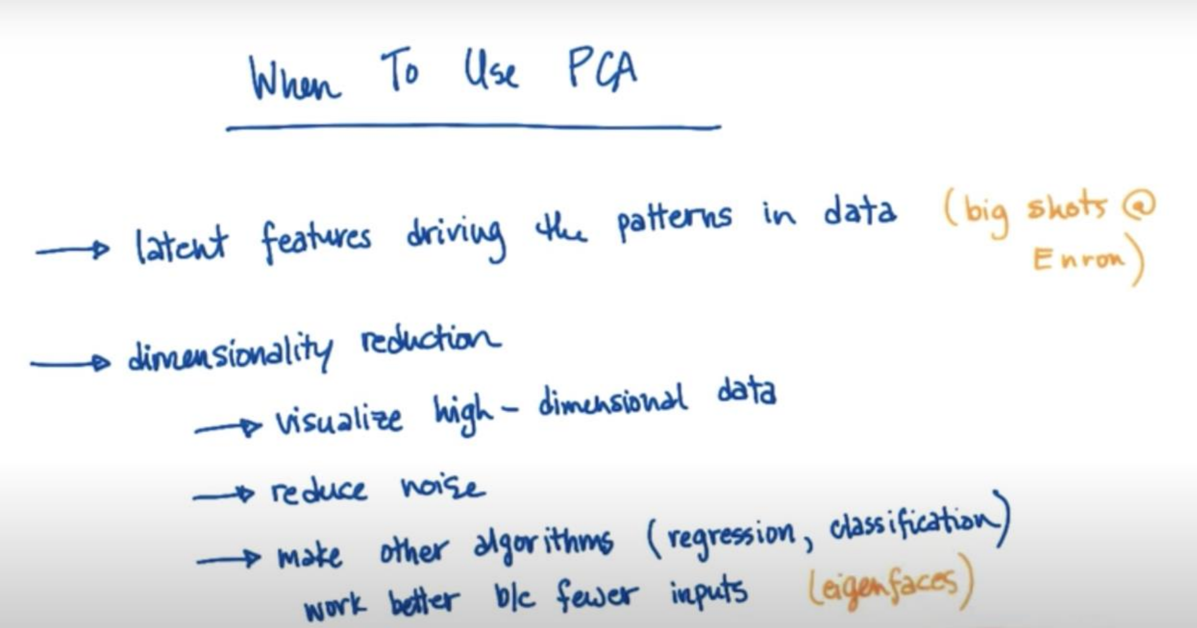

Mathematical Intution (Information Loss minimal)



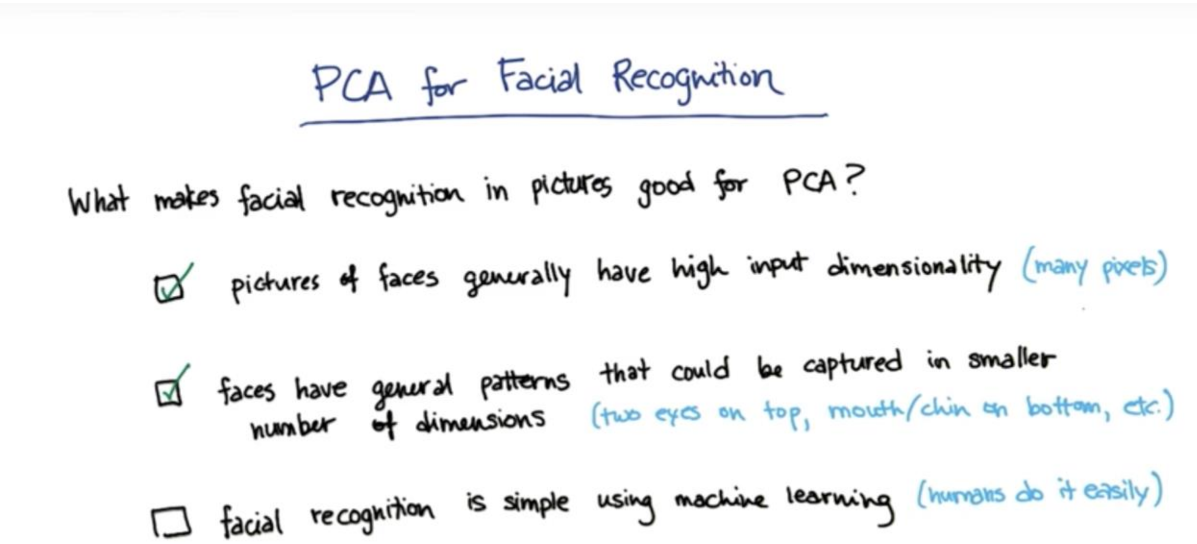

GIST




When to use PCA ?

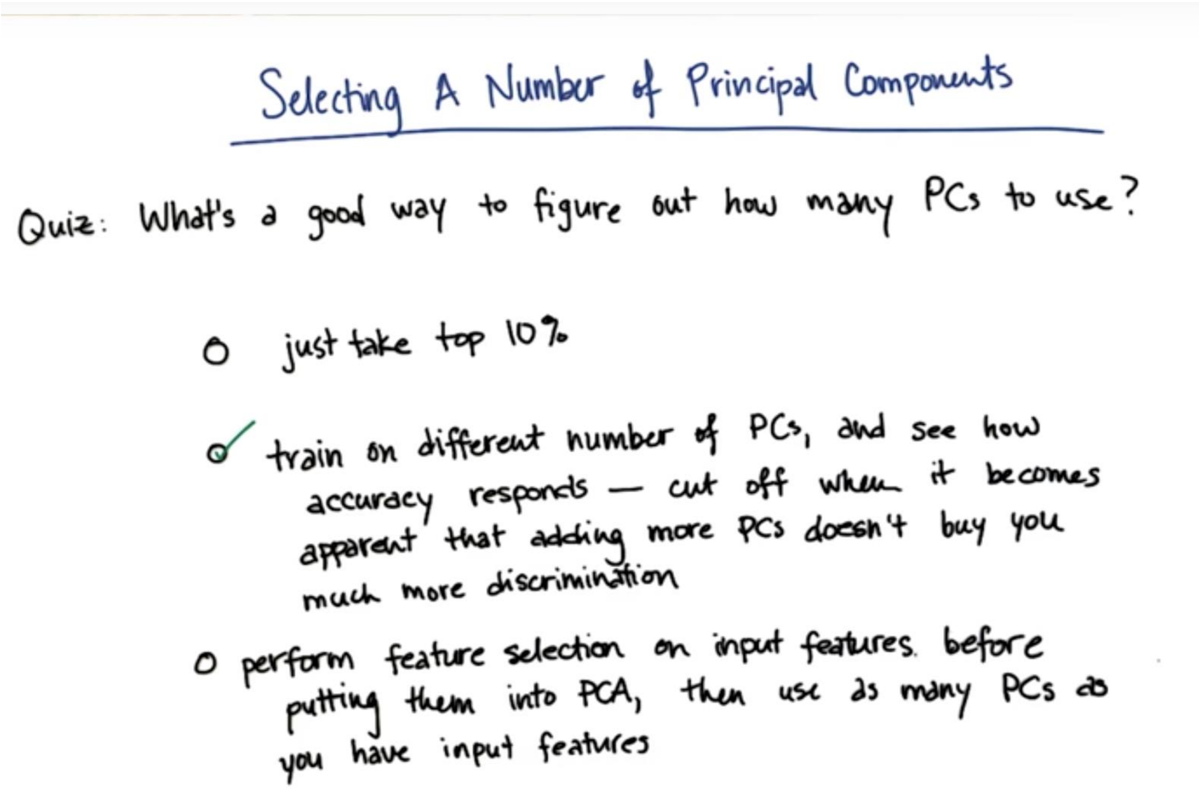



Application Example




IMP -> In a multiclass classification problem (more than 2 labels to apply), accuracy is a less-intuitive metric than in the 2-class case. Instead, a popular metric is the F1 score.

* Selecting number of Principal Components




REMEMBER :-

For PCA you will call fit() on training data, because you want to find pattern from training data