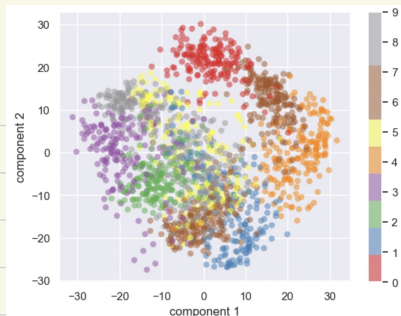


Exercises for PCA

Digits 0-9



i. (i) From the course GitHub page, download and run the jupyter notebook

05.09 - Principal-Component-Analysis. ipynb



(ii) For the digits 0-9 example, edit the code to not only plot PCA basis vectors 1 vs 2, but to also plot PCA basis vectors 1 vs 3. Do some classes now appear closer together? Do other classes now appear further apart?


(iii) For the digits 0-9 example, edit the code to plot PCA basis vectors 19 vs 20. What changes?

(Extra Credit) Make a 3D plot showing PCA basis vectors 1 vs 2 vs 3.

Can you make this plot rotate in 3D?

Do you gain extra insight about the data?

(iv) See the explained variance curve. Why is it concave down  and not concave up ?

On what datasets would it be close to linear ?

