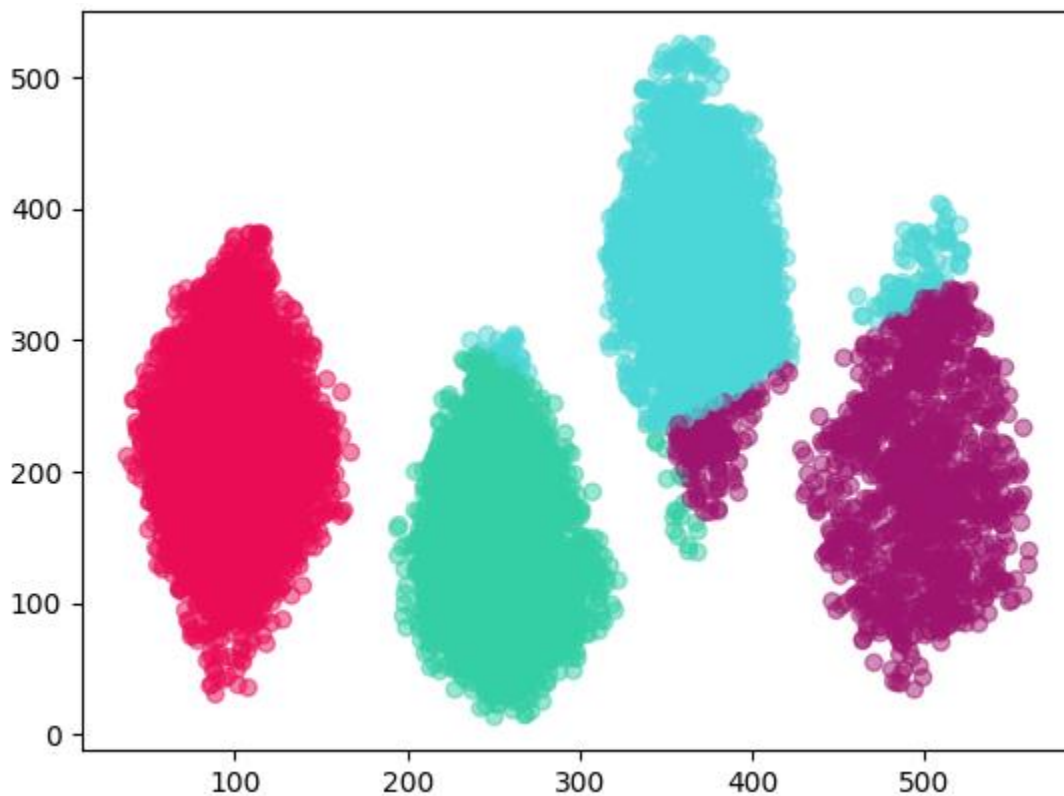# Conclusions

I choose such files to test K-means algorithm:

- basic1.csv
- basic2.csv
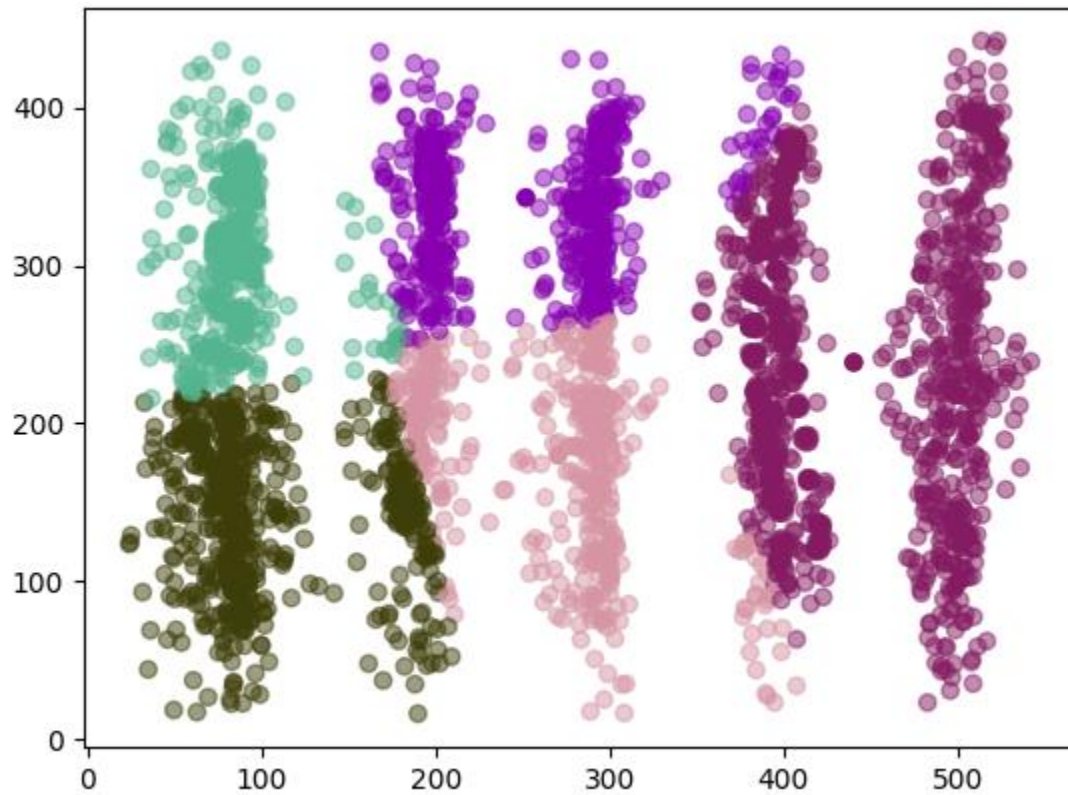- blob.csv
- box.csv
- boxes.csv
- chrome.csv
- wave.csv

All results below were done after 10 iterations of k-means algorithm, I tried running more iterations but the results were maybe slightly better but nothing crazy happened.

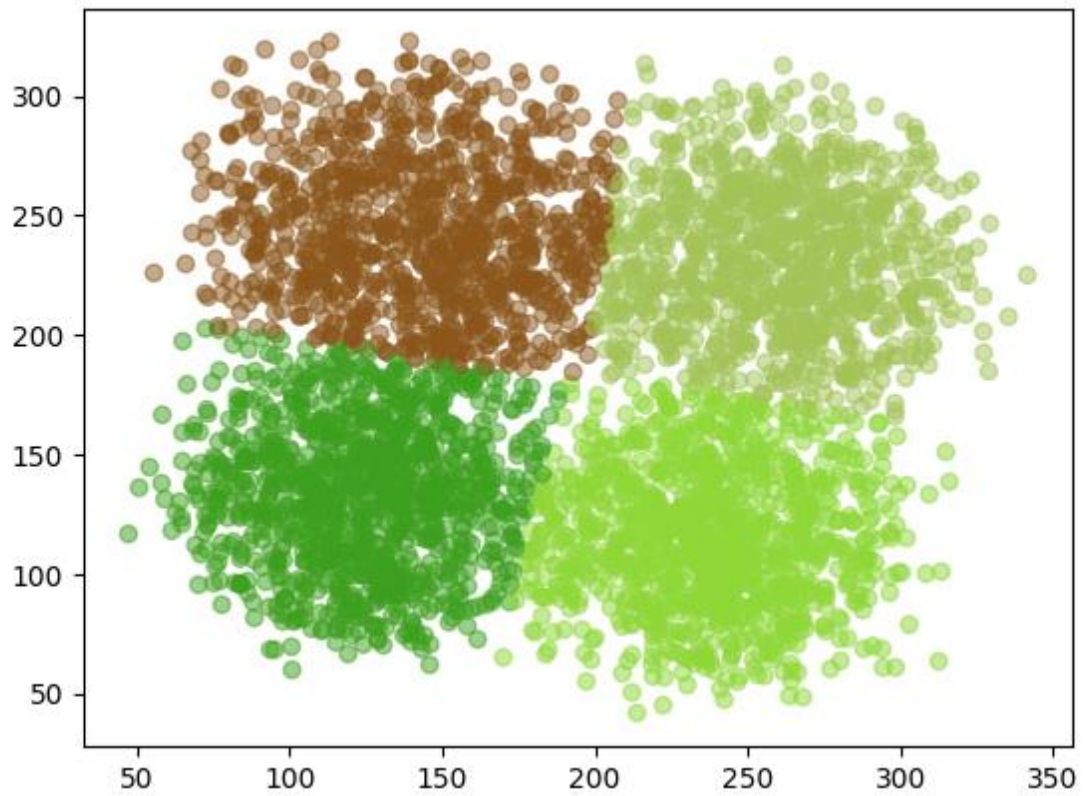Starting from the top, basic1.csv result:

- I would count this as a success, we have clear separation with slight issues for last two groups.
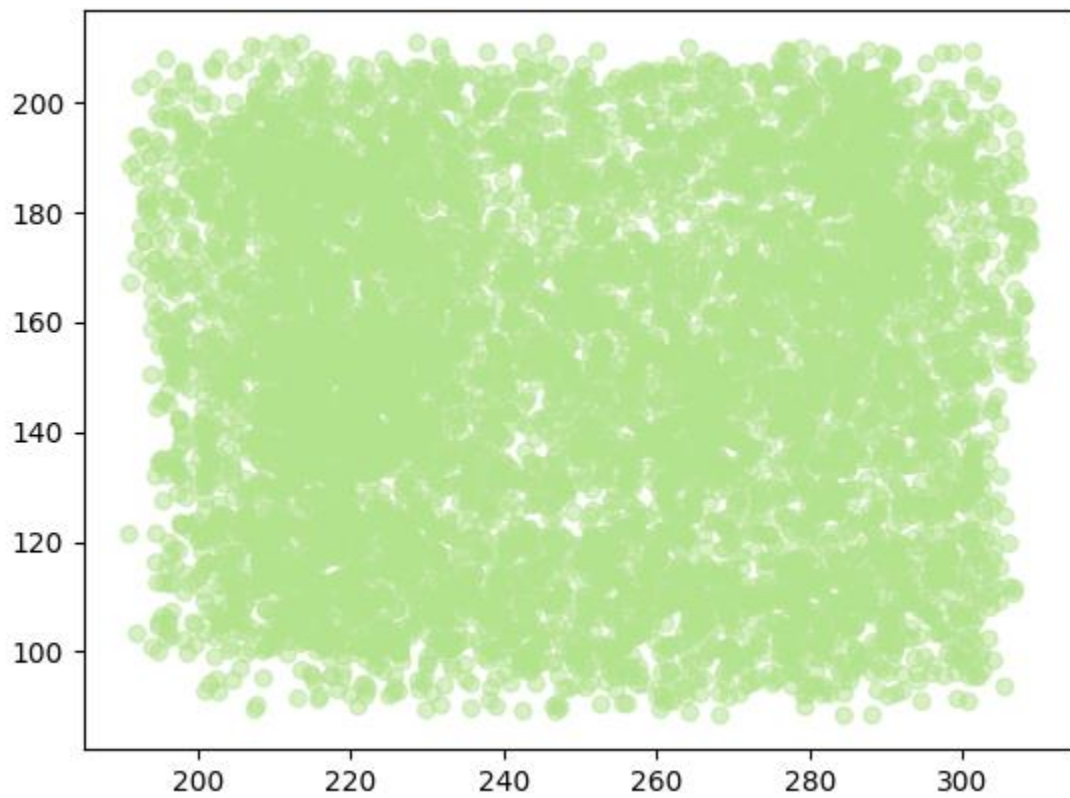
basic2.csv result:

- Algorithm couldn't handle vertical separation very well I would guess and it is not a good result at all.
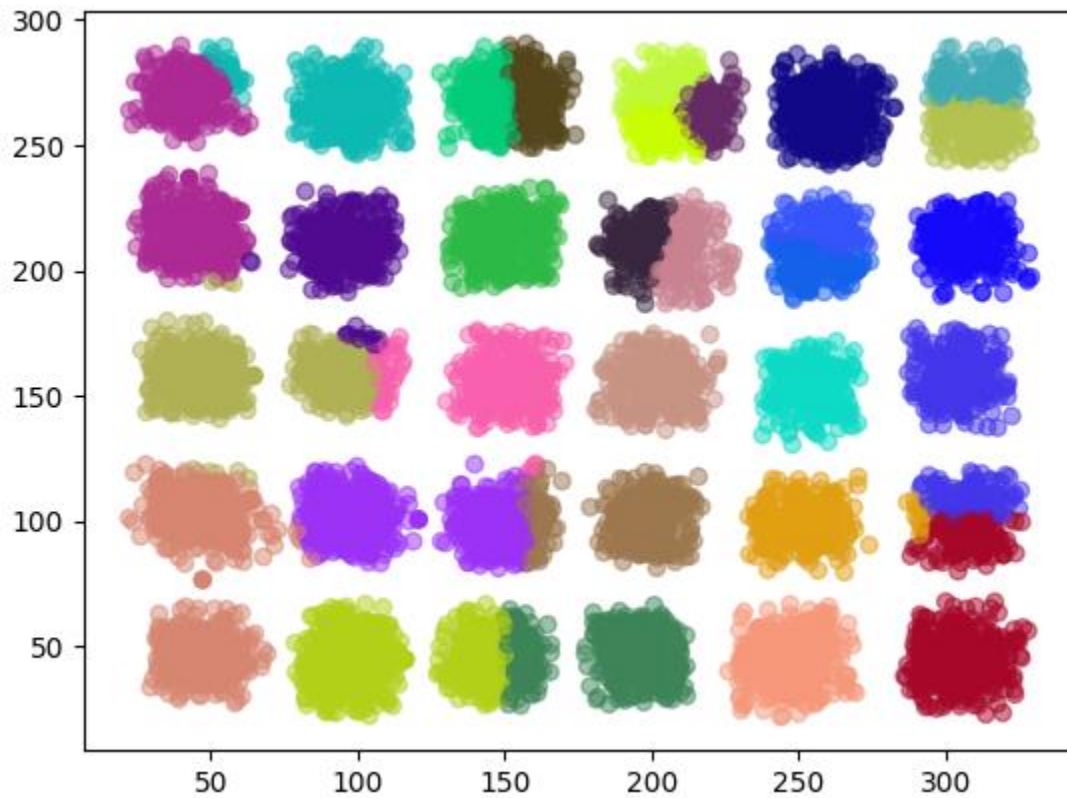
blob.csv result:

- This one is almost perfect result if not perfect.
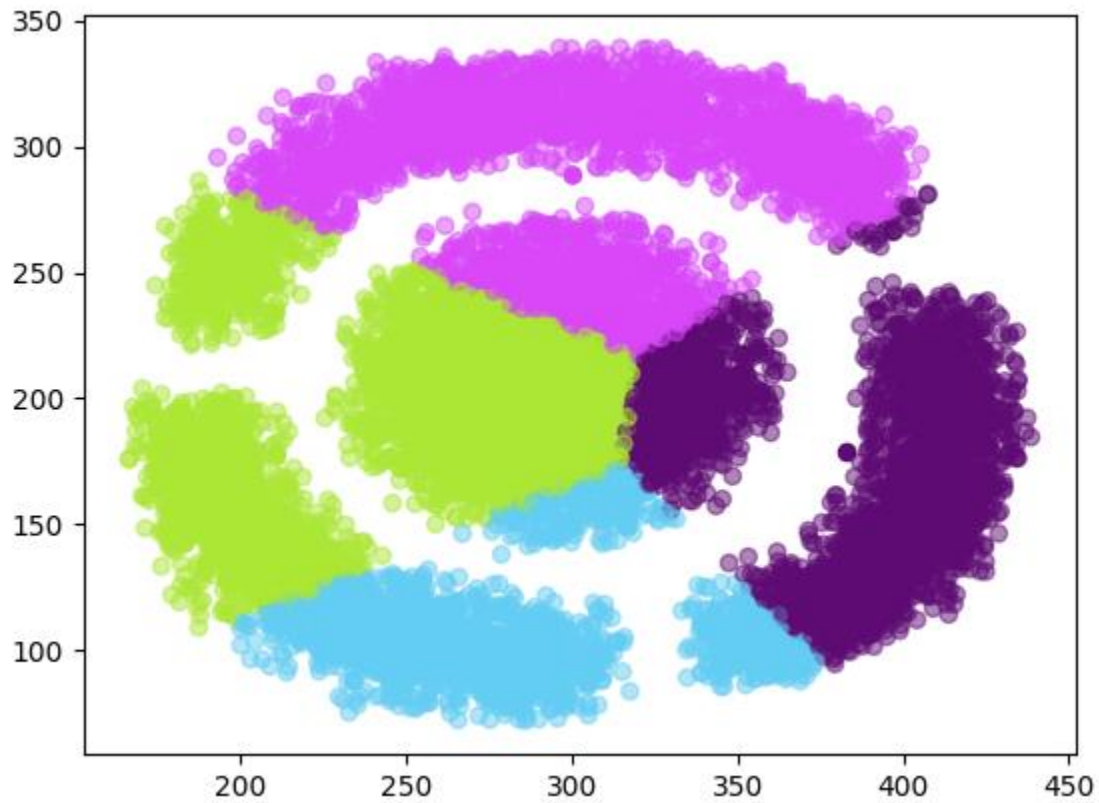
box.csv result:

- I shouldn't have chosen this particular example I suppose, but it is also perfect since it is only one color.

boxes.csv result:

- In this example k-means did pretty well, there are about 6/7 wrongly overlapping clusters but because there are so many and the rest is solid I would count it as a success.
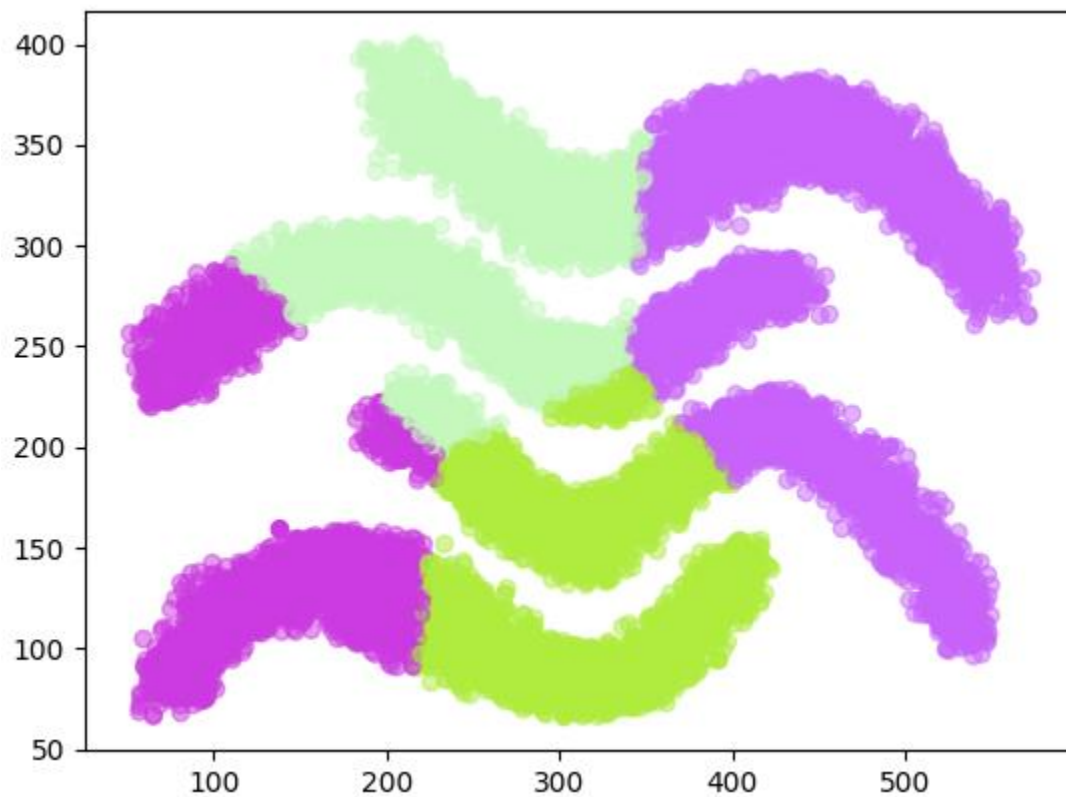
chrome.csv result:

- Lastly chrome.csv was a failure, algorithm couldn't separate correctly center from this outer ring cut in three, instead it divided whole shape equally which is not the correct solution

wave.csv result:

- Again, complete failure everything is out of place.

Summary:

Overall, K-means did a decent job I suppose, especially on more "blob-like" examples. It seems that this algorithm have a difficulty with clusters that are not easily separated by straight lines (Euclidean) such as wave.csv or chrome.csv.