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Python version used: 3.10

Answers - Adaboost:

1.
    1. The algorithm chooses its best rules within two iterations, which can be seen in its result, using the combination of the three first rules gives an error of 1% on a train set, and 4.5% on a test set.
    2. The chosen line equation has a direction component, which means the point labeling has a direction, and both directions must be considered when composing all lines permutations.
    3. In most of the runs, the algorithm chose the same rule more than once, so an early stopping mechanism should be considered.
    4. Adaboost seems to overfit the training data. To my opinion it happens since it tries to fix a small subset of points that have the largest error, ignoring the data "world".
2. We can see that the algorithm overfits on the train set, after using the height rules, the algorithm error on the training group is nearly zero, while on a test set, it converges to 5%.