Histogram

Description automatically generated with medium confidenceConsider a dataset as shown.

[70 pts] Task 1: Implementation

* [60 pts] Implement LDA, Perceptron, and Logistic regression using NumPy only.
* [5 pts] Fit the dataset and report the accuracy. Use **sklearn.metrics.accuracy\_score** for the model accuracy calculation. All three models should have an accuracy higher than 80% when the dataset is not trained.
* [5 pts] Make visualization of models and verify if models are acceptable.

[30 pts] Task 2: Linear Transformation

* [25 pts] Perform preprocessing and feature engineering to confirm the conditions of linear models – linearity, independence, and homoscedasticity. Explain the workflow. Use of any libraries and packages is allowed.
* [5 pts] Fit the new train dataset with algorithms implemented in Task 1. Report the accuracy and confirm the improvement. The model with trained data should have higher accuracy than the results obtained from Task 1.