*Neural Networks Task 1*

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# Team Information

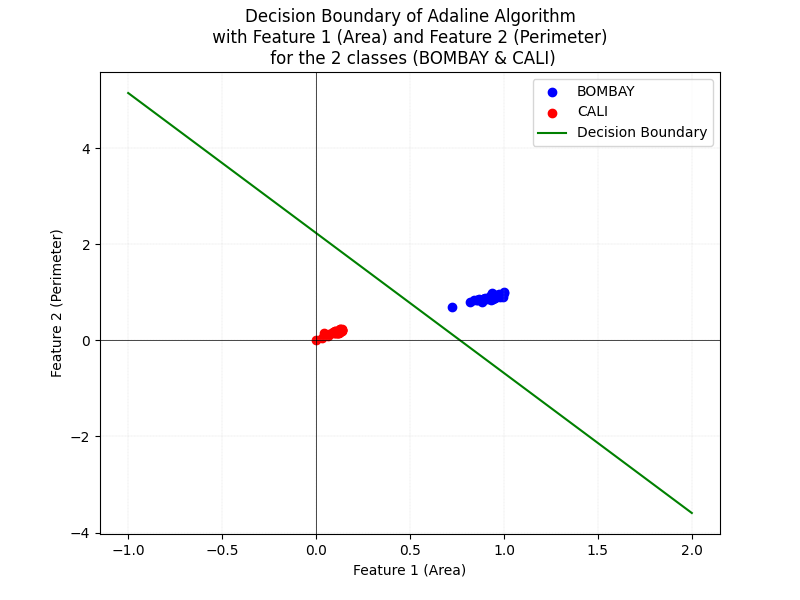
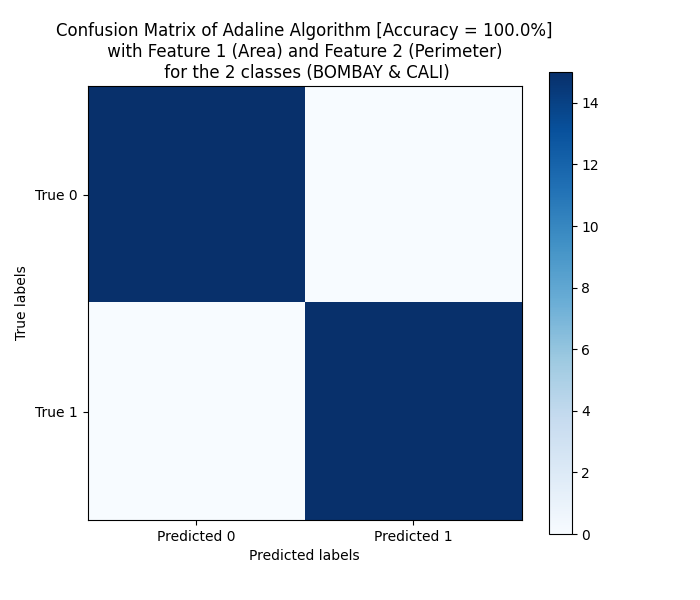
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# **Combination Analysis**

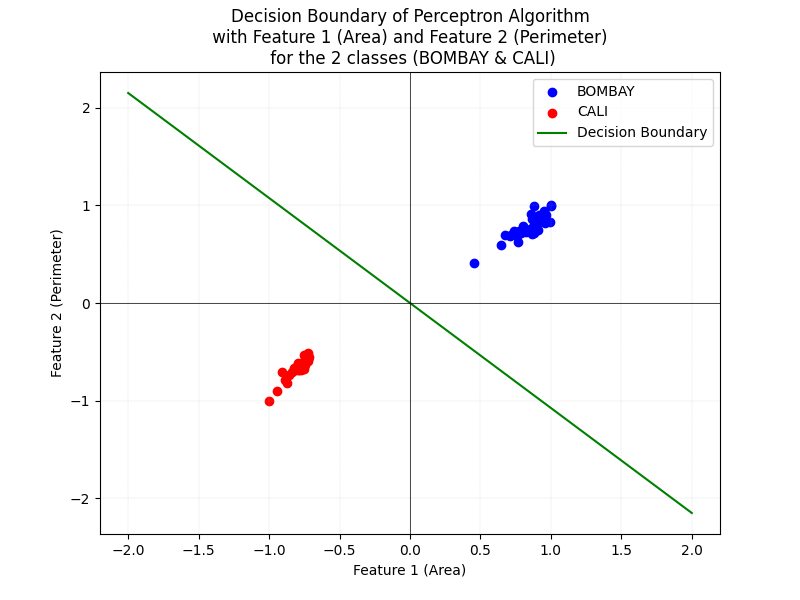
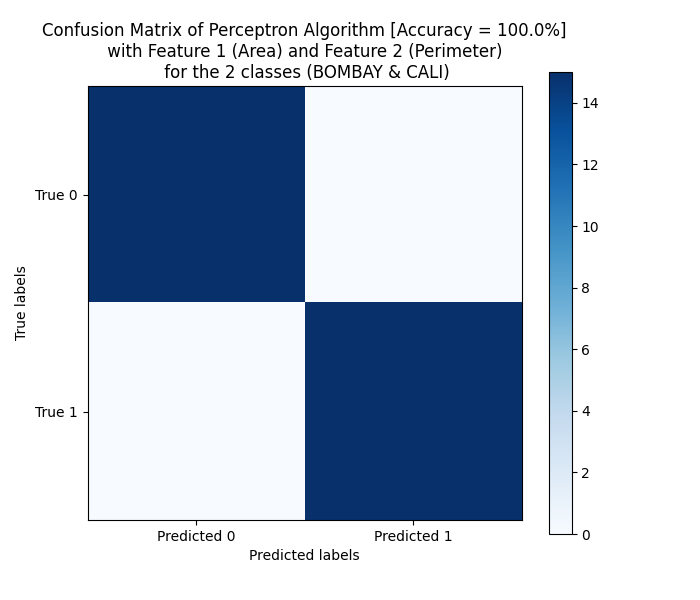
## **Combination #1:** *Adaline Model*

* Features: (Area, Perimeter)
* Classes: (Bombay, Cali)
* Accuracy: 100%



## **Combination #1:** *Perceptron Model*

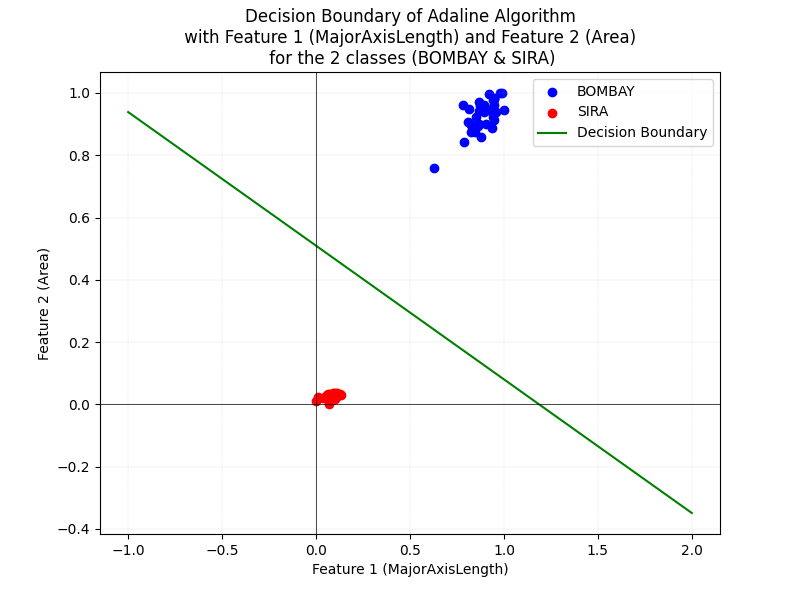
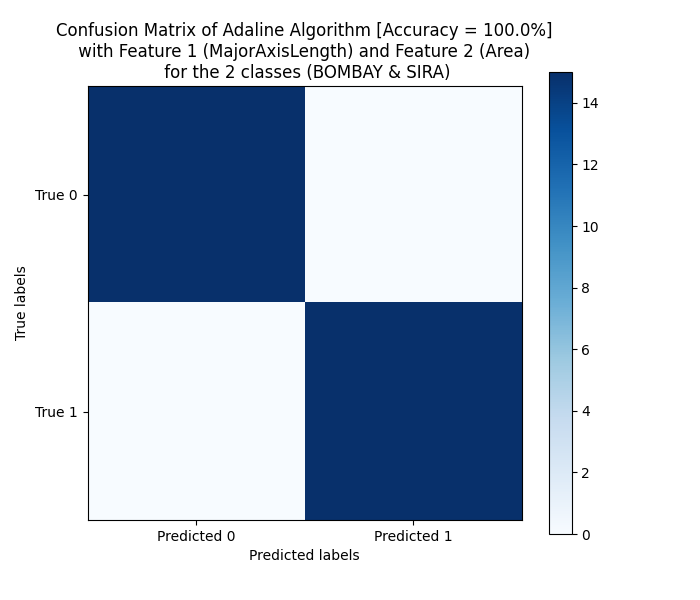
* Features: (Area, Perimeter)
* Classes: (Bombay, Cali)
* Accuracy: 100%



## 

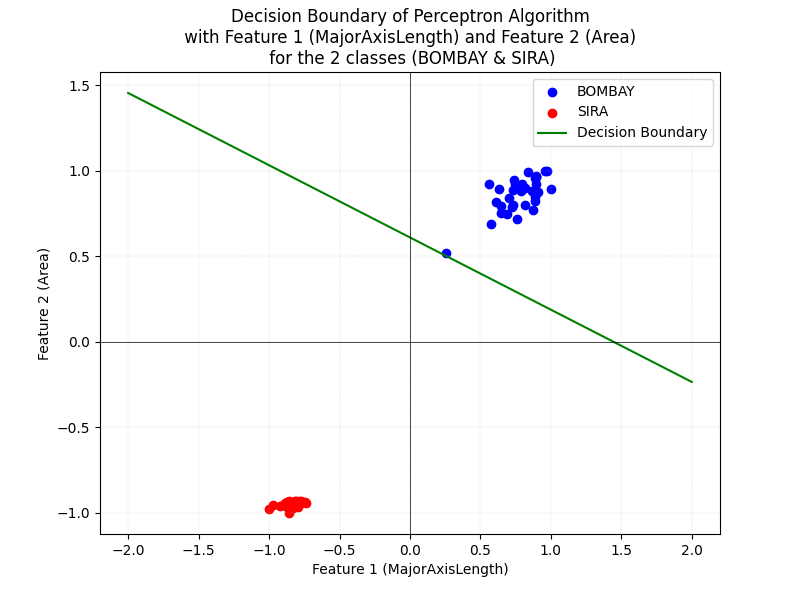
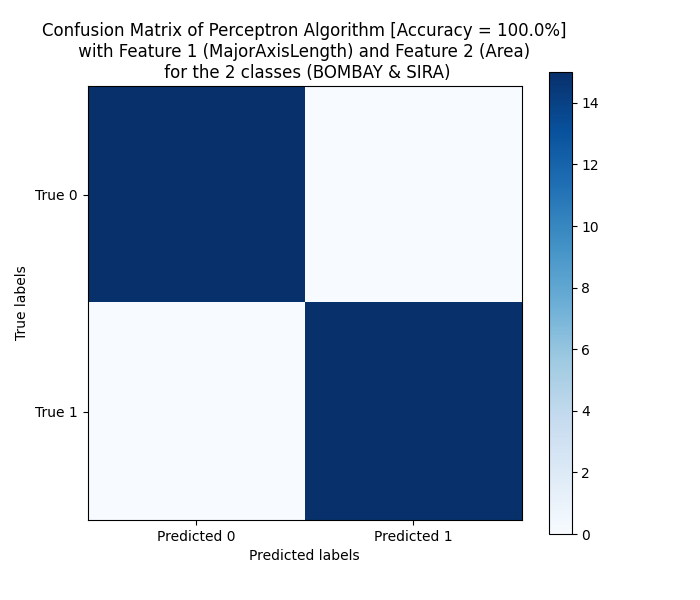
## **Combination #2:** *Adaline Model*

* Features: (MajorAxisLength, Area)
* Classes: (Bombay, Sira)
* Accuracy: 100%



## **Combination #2:** *Perceptron Model*

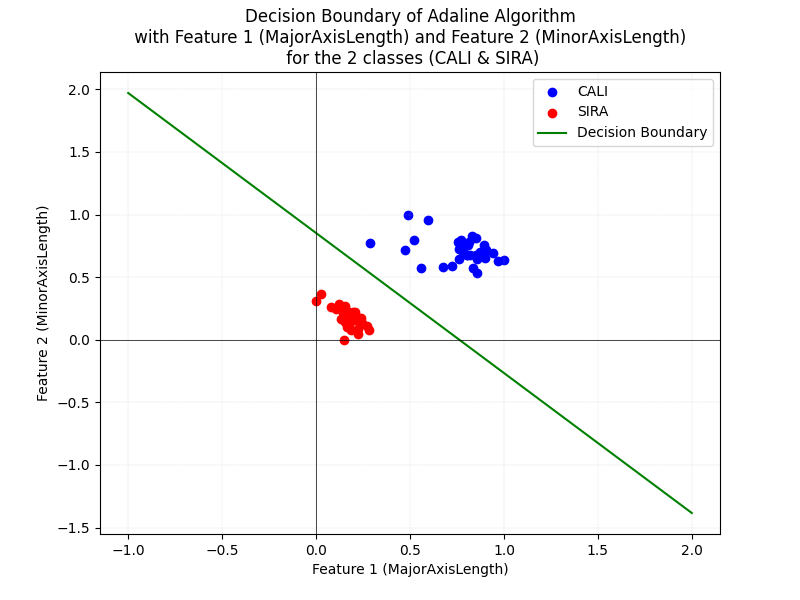
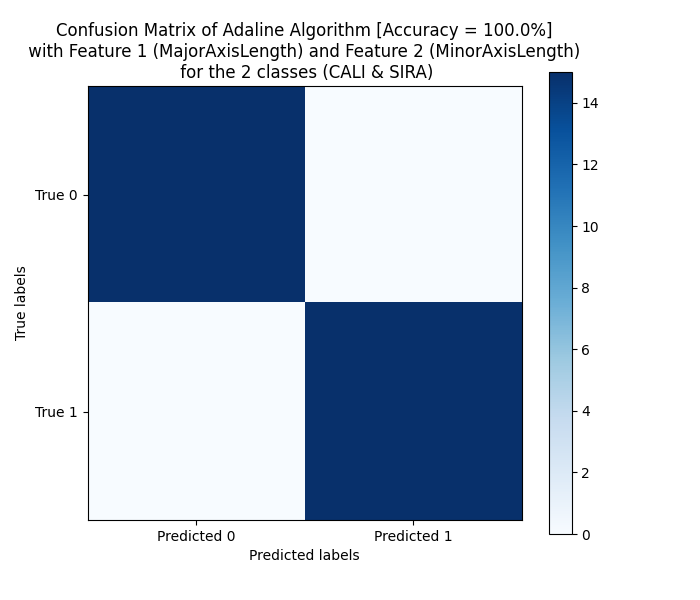
* Features: (MajorAxisLength, Area)
* Classes: (Bombay, Sira)
* Accuracy: 100%



## 

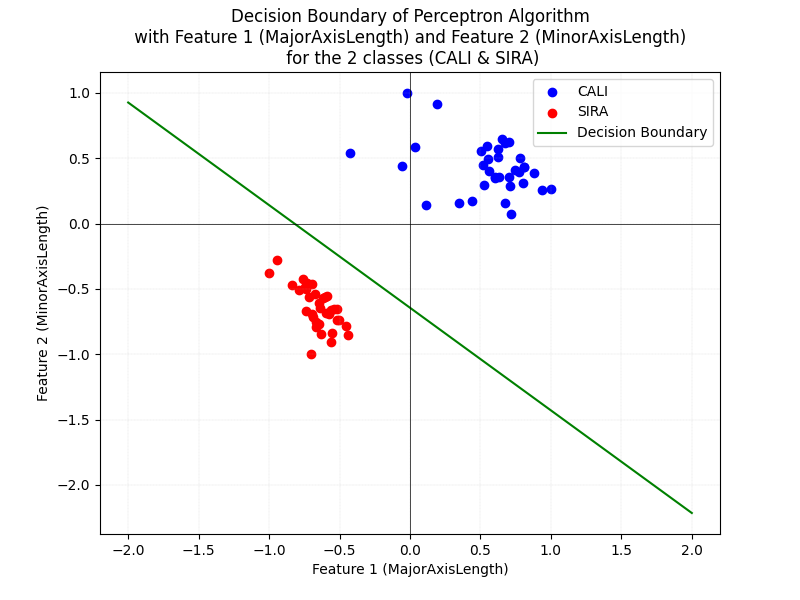
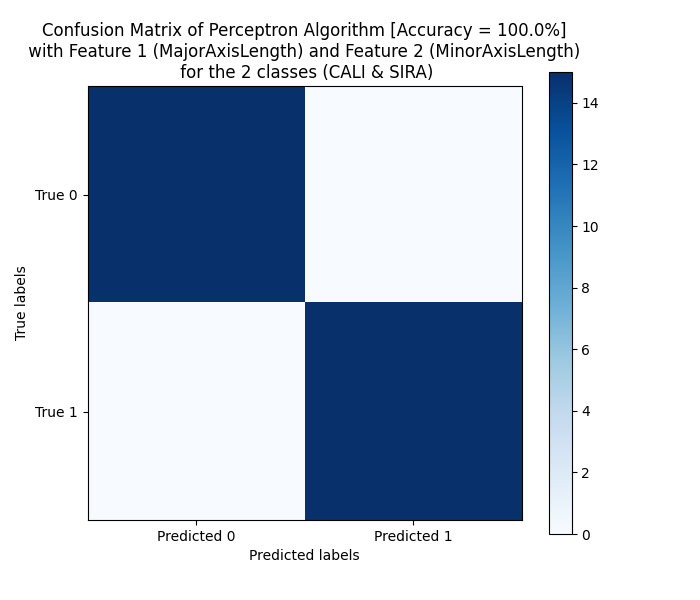
## **Combination #3:** *Adaline Model*

* Features: (MajorAxisLength, MinorAxisLength)
* Classes: (Cali, Sira)
* Accuracy: 100%



## **Combination #3:** *Perceptron Model*

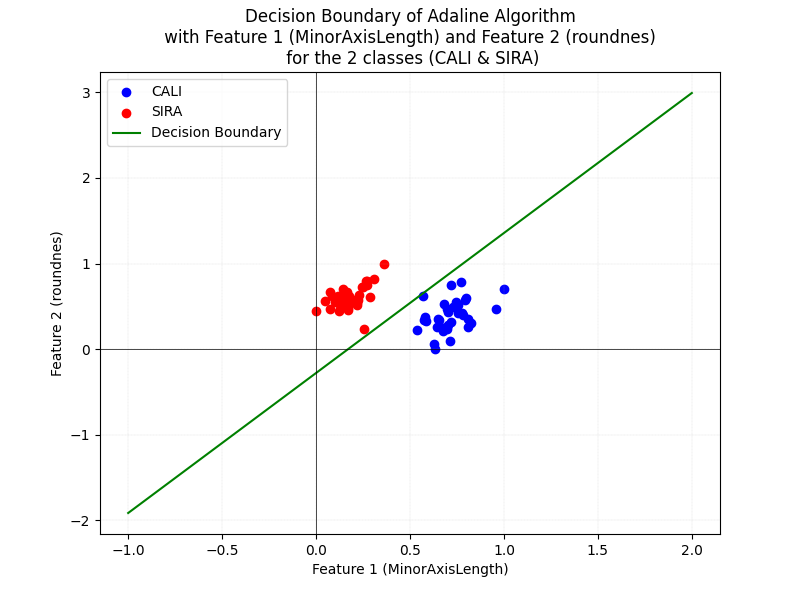
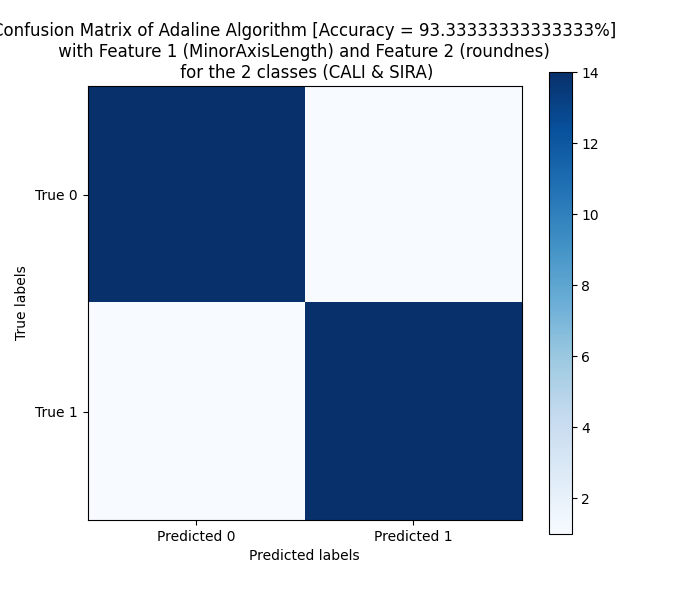
* Features: (MajorAxisLength, MinorAxisLength)
* Classes: (Cali, Sira)
* Accuracy: 100%



## 

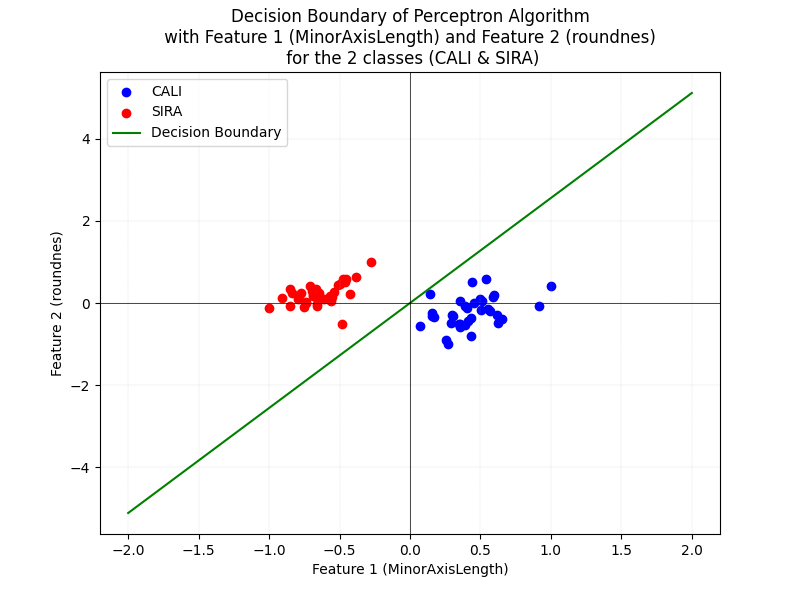
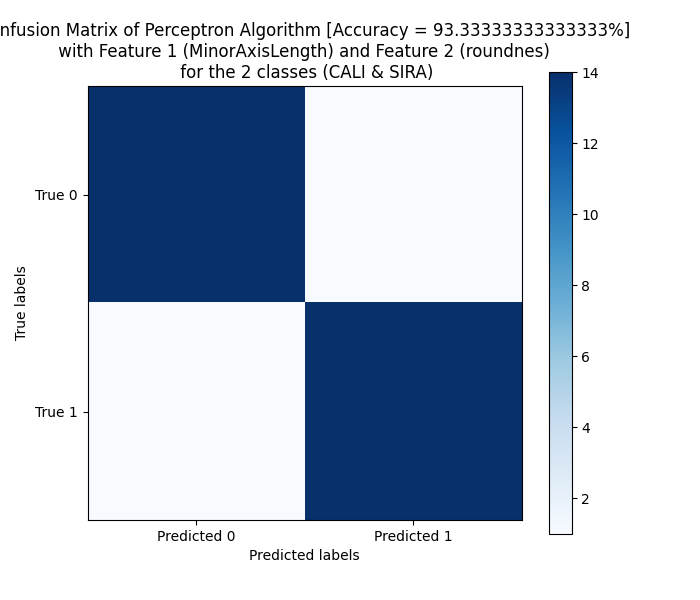
## **Combination #4:** *Adaline Model*

* Features: (MinorAxisLength, roundnes)
* Classes: (Cali, Sira)
* Accuracy: 93.3%



## **Combination #4:** *Perceptron Model*

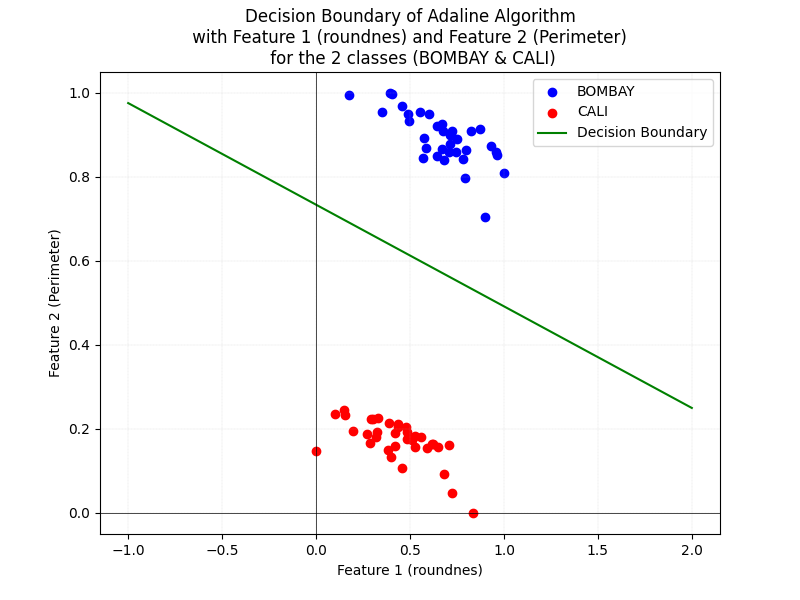
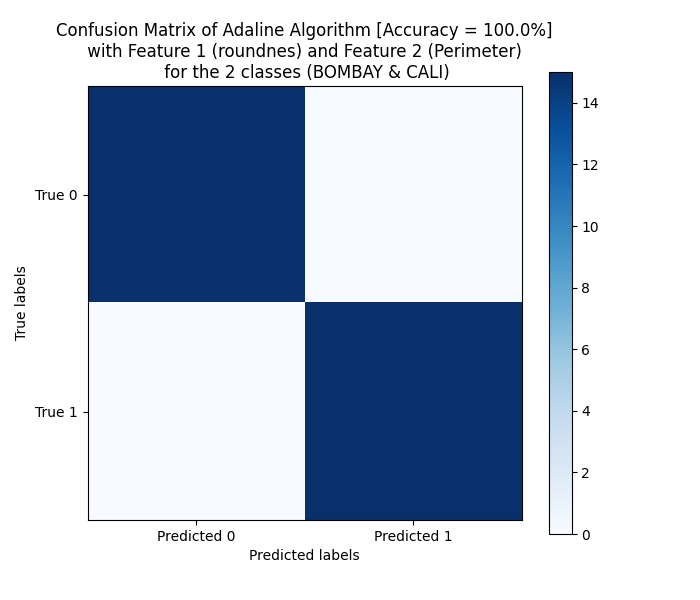
* Features: (MinorAxisLength, roundnes)
* Classes: (Cali, Sira)
* Accuracy: 93.3%



## 

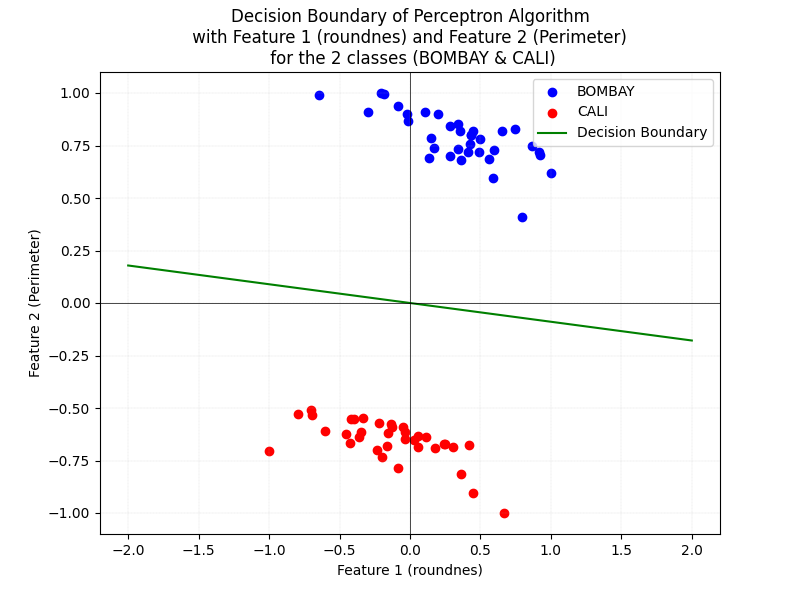
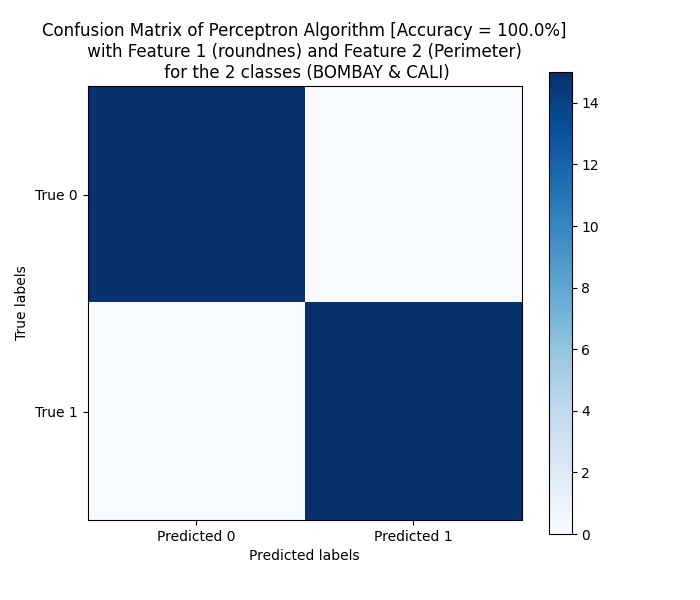
## **Combination #5:** *Adaline Model*

* Features: (roundnes, Perimeter)
* Classes: (Bombay, Cali)
* Accuracy: 100%



## **Combination #5:** *Perceptron Model*

* Features: (roundnes, Perimeter)
* Classes: (Bombay, Cali)
* Accuracy: 100%



# **Conclusion**

In conclusion, we deduce that the best features for the given algorithms - which are Adaline and Perceptron - and which gave the highest accuracy are all of them except the only combination of features that didn’t get **100%** accuracy are *MinorAxisLength* and *Roundness* which only got **93%** accuracy.

All of the features used in this sample combination gave a **decision boundary** that divides (discriminates) between the two classes mentioned in the same combination. Still, they differ in how evenly spaced the classes are (regarding **SVM** and how it maximizes the margins).