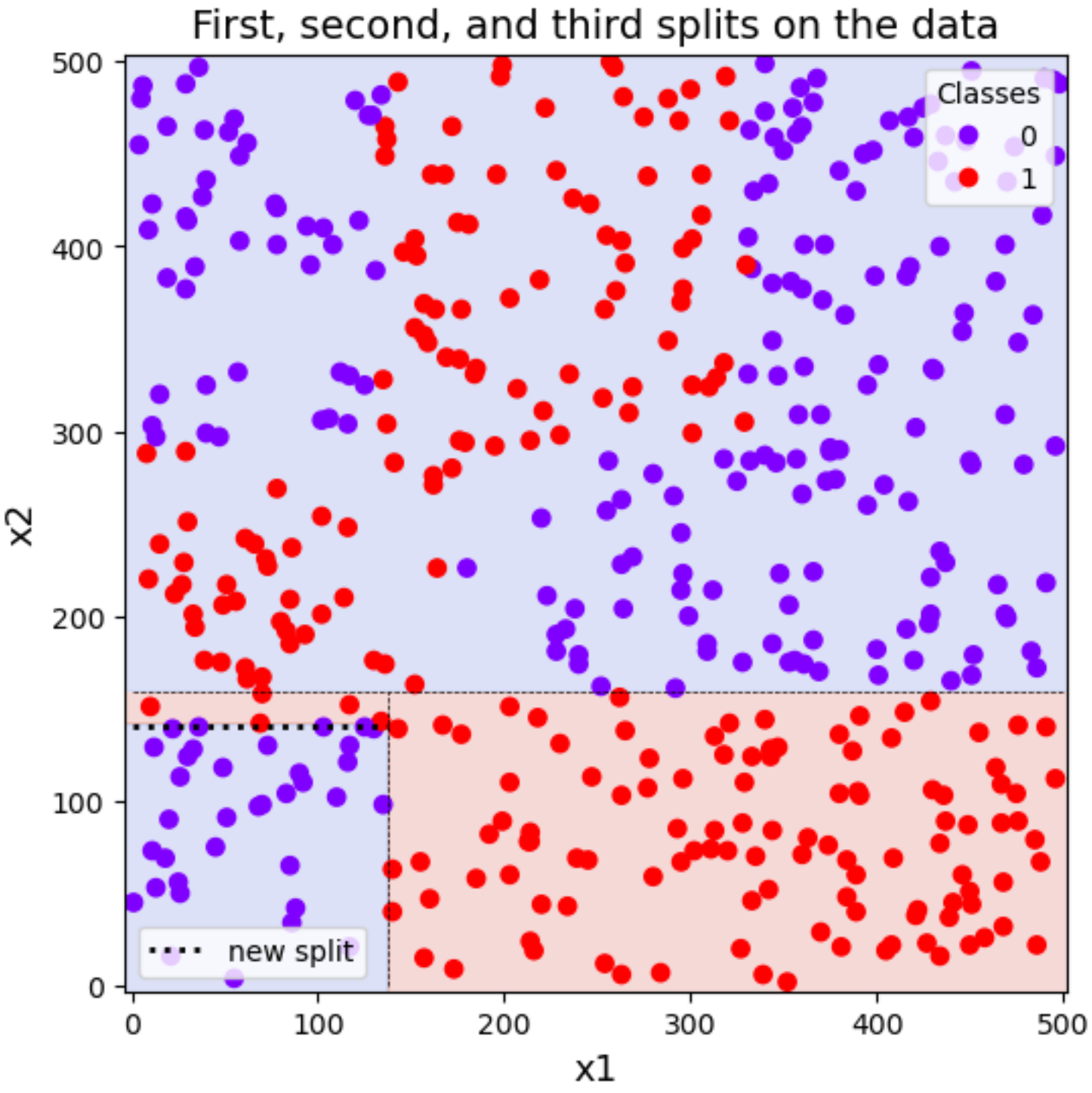
Exercise 2.1: Decision Tree from Scratch

🌳 Decision Tree from Scratch

The goal of this exercise is to better understand the inner workings of a Decision Tree and how the boundaries are computed, such as follows.



Instructions:

- Establish the root node of the tree.
- Make the first split on x2.
- Make the second split on x1.
- Check for "purity" of splits.
- Iteratively split regions that are impure, such that not all class labels are the same (for example, regions on a plot with differently colored/labeled points).

Hints:

Gini impurity index is defined as $1 - (\sum_{i=1}^{J} p_i^2)$ for all J classes, where p_i is the probability of choosing an item from class i.

Also be sure to use the variables that are computed for you using the functions you create!

Note: This exercise is auto-graded and you can try multiple attempts.