Activities

1. Create a function that calculates the entropy of a set with proportions of two different categories. The formula is $\text{Entropy}(p, q) = \log_2(p)p + \log_2(q)q$.

2. Create a function that calculates the combined entropy of two sets A and B. The formula is
$$\text{entropy}(A, B) = \frac{|A|}{|A| + |B|} \text{entropy}(A) + \frac{|B|}{|A| + |B|} \text{entropy}(B).$$

3. Create a function that takes a list of numerical values and returns the index of the maximum element. With other words, it should behave as `lista.index(max(lista))` but you should program it yourself.

4. Create a function that takes a list of numerical values as argument. It removes double points, orders them (you can use `sorted( )`), and then returns a list of midpoints. For example, if the list is `[2,6,2,4,8,2,4]`, it should return `[3, 5, 7]`.

5. Assure yourself that the function get_data( ) returns a list of tuples with the data for Iris Virginica and Iris Versicolor.

6. Write a function that takes a list of iris data and returns the number of tuples for Iris Virginica and Iris Versicolor in the list.

7. Write a function that takes a list of iris data, a coordinate and a value and returns two lists, according to whether the value of that coordinate is below or above the value.

8. Write a function that calculates the maximum entropy gain for a coordinate.