Assignment: Code the Perceptron Training Function
[Homework Starter Code](#) (Go to *file* -> *duplicate* to make a copy)

Perceptron Training Function:

1. **Provide Perceptron with inputs for which there is a known answer**

The desired result is given in the training data. It is a label that goes with the data to identify what the correct output should be for the input data.

2. **Have the Perceptron make a guess of how that input is labeled**

The guess of the perceptron is the returned result of the feedForward function.

3. **Calculate the error (was the perceptron's guess right or wrong?)**

The error is the difference between the guess and the desired result.

4. **Adjust all the weights according to the error**

Weights are adjusted by taking a weight value and adding the *error* times the *corresponding input* times the *learning rate*.

5. Back to step 1 and repeat

## Need more guidance?
Here is some scaffolded code:

```
// finish training function
 train(inputs, desired){
   // store result of feed forward here
  // let guess =

   // error is difference between desired result and guess
  // let error =

   // adjust all weights by adding learning rate times error times inputs
   // weight1 + learningRate*error*input1
   // -> do same for all weights
  }
```

Testing Your Code

Click the play button. If working correctly, P5 should generate output that looks like this:
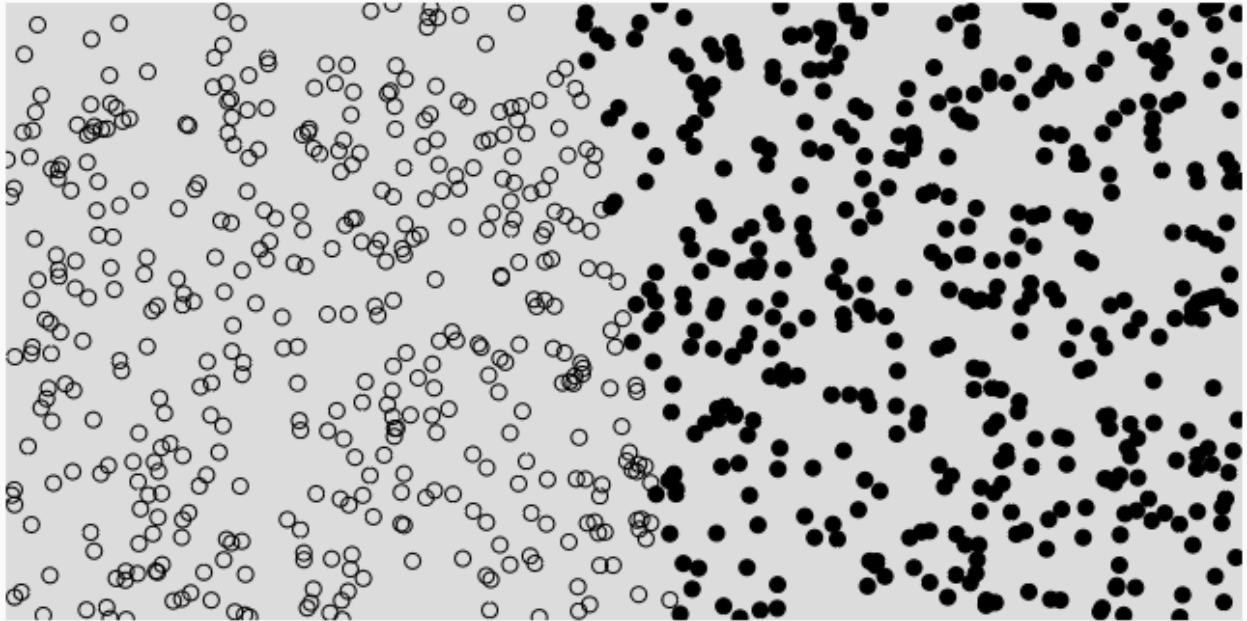
Extension: Change Activation function to Sigmoid function. Observe how the perception performance changes.

<u>Sigmoid function</u>

$$\frac{1}{1 + e^{-x}}$$

Resources:
[Euler's number in JS](#)
[Exponents in JS](#)