5. Predicting the Test Data

Now fill in the code for the function `predict`, which will use your trained neural network in order to label new data.

You will be working in the file `part2-nn/neural_nets.py` in this problem

Implementing Predict

5.0/5.0 points (graded)
Available Functions: You have access to the NumPy python library as `np` , `rectified_linear_unit` and `output_layer_activation`

Note: Functions `rectified_linear_unit_derivative` , and `output_layer_activation_derivative` can only handle scalar input. You will need to use `np.vectorize` to use them

```
 1  class NeuralNetwork(NeuralNetworkBase):
 2
 3      def predict(self, x1, x2):
 4
 5          input_values = np.matrix([[x1],[x2]])
 6          ReLU = np.vectorize(rectified_linear_unit)
 7          linear = np.vectorize(output_layer_activation)
 8
 9          # Compute output for a single input(should be same as the forward propagation in training)
10          hidden_layer_weighted_input = self.input_to_hidden_weights @ input_values + self.biases # (3 by 1 matrix)
11          hidden_layer_activation = ReLU(hidden_layer_weighted_input) # (3 by 1 matrix)
12          output = self.hidden_to_output_weights @ hidden_layer_activation
13          activated_output = linear(output)
14
15          return activated_output.item()
16
```
Press ESC then TAB or click outside of the code editor to exit

  Correct

```
class NeuralNetwork(NeuralNetworkBase):

    def predict(self, x1, x2):

        vec_relu = np.vectorize(rectified_linear_unit)

        input_values = np.matrix([[x1],[x2]]) # 2 by 1

        hidden_layer_weighted_input = self.input_to_hidden_weights*input_values + self.biases #should be 3 by 1
        hidden_layer_activation = vec_relu(hidden_layer_weighted_input) # 3 by 1

        output = self.hidden_to_output_weights * hidden_layer_activation # 1 by 1
        activated_output = output_layer_activation(output) # 1 by 1

        return activated_output.item()
```

Test results

See full output

CORRECT

See full output

Submit	You have used 1 of 20 attempts

ℹ Answers are displayed within the problem

When you're done, run the script and make sure that all of your predictions pass the test cases.