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C:\Code\Talks\MachineLearningCSharp\src\Python\xor.py
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9 def main():
10
        #Get Training Data
        input = np.array([ [0, 0], [0, 1], [1, 0], [1, 1] ])
11
12
        output = np.array([ 0, 1, 1, 0 ])
13
14
       #Create Model Structure
15
       model = Sequential()
16
17
       model.add(Dense(2))
18
       model.add(Dense(32, activation= "relu"))
       model.add(Dense(64, activation= "relu"))
19
20
       model.add(Dense(1, activation= "sigmoid"))
21
22
       model.compile(optimizer="sgd", loss="binary_crossentropy", metrics=
          ["accuracy"])
23
24
       #Train model with the data
25
        model.fit(input, output, batch size=2, epochs=1 000, verbose=1)
26
27
       #Make Prediction
28
        print("[%i, %i] = %i" % (0,0, Predict(model, 0,0)))
       print("[%i, %i] = %i" % (0,1, Predict(model, 0,1)))
29
       print("[%i, %i] = %i" % (1,0, Predict(model, 1,0)))
30
       print("[%i, %i] = %i" % (1,1, Predict(model, 1,1)))
31
32
33 def Predict(model: Sequential, p: int, q: int) -> int:
       prediction = model.predict(np.array([[p, q]]))
34
35
        predictedValue = prediction[0][0]
       roundedPredictedValue = int(round(predictedValue))
36
37
38
       return roundedPredictedValue
```