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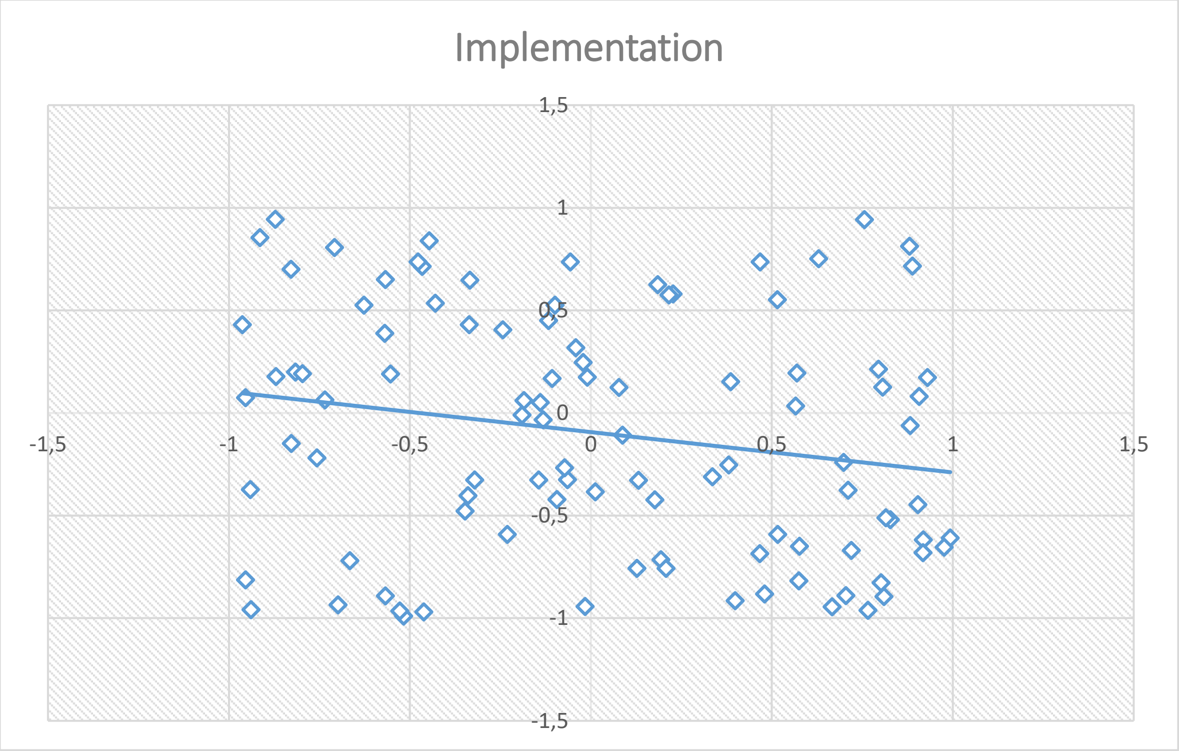
Report

Part 1



Formula:

Node 0 weight 0.5

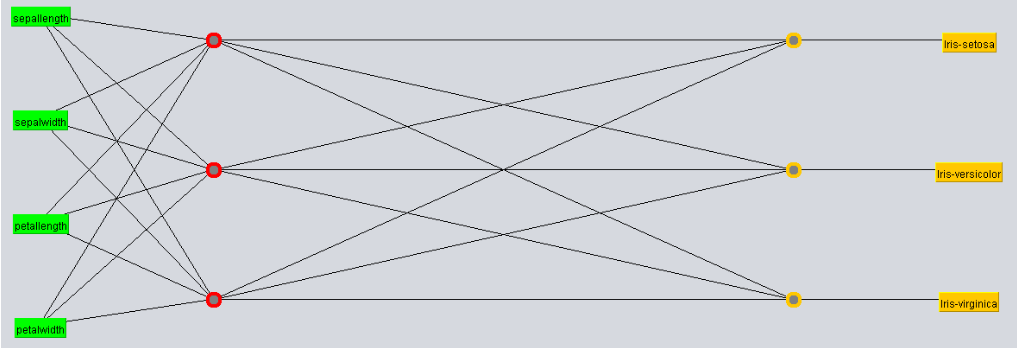
Node 1 weight 0.526581

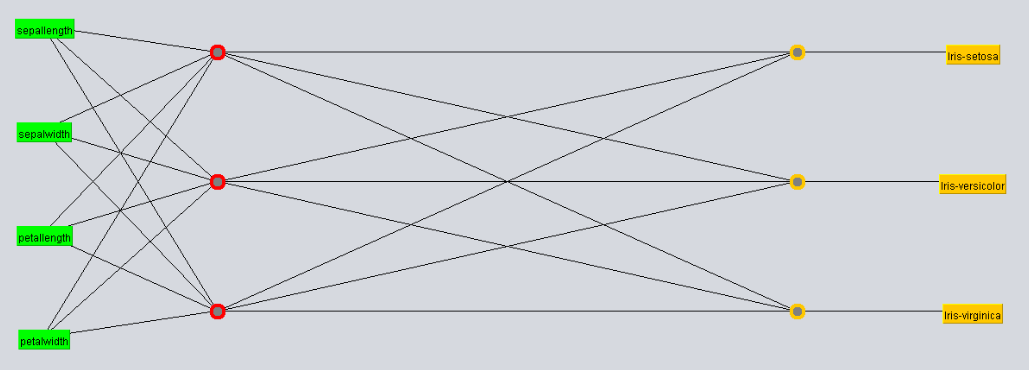
Node 2 weight -0.5807

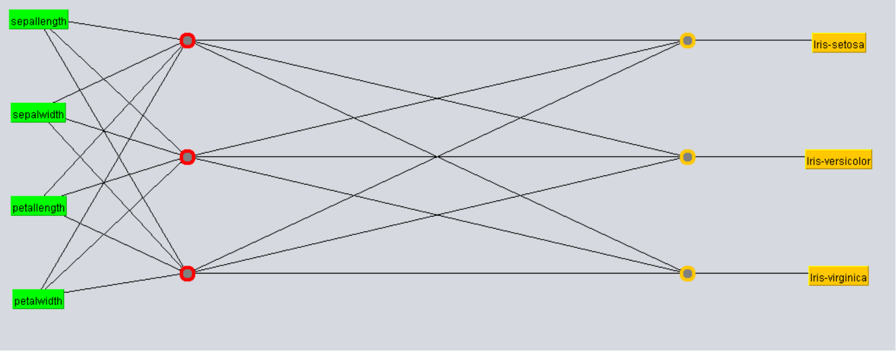
Node1[weight] * InputValue(X) + Node2[weight] * InputValue(Y) + Node0[weight]

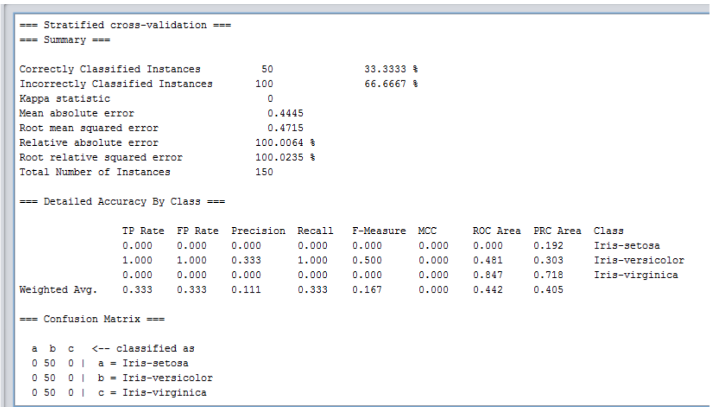
Part 2

Iris Dataset









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=== Stratified cross-validation ===
=== Summary ===

Correctly Classified Instances          50               33.3333 %
Incorrectly Classified Instances       100               66.6667 %
Kappa statistic                          0
Mean absolute error                      0.4445
Root mean squared error                  0.4715
Relative absolute error                100.0064 %
Root relative squared error            100.0235 %
Total Number of Instances              150

=== Detailed Accuracy By Class ===

                 TP Rate  FP Rate  Precision  Recall   F-Measure  MCC      ROC Area  PRC Area  Class
                 0.000    0.000    0.000      0.000    0.000      0.000    0.000     0.192     Iris-setosa
                 1.000    1.000    0.333      1.000    0.500      0.000    0.481     0.303     Iris-versicolor
                 0.000    0.000    0.000      0.000    0.000      0.000    0.847     0.718     Iris-virginica
Weighted Avg.    0.333    0.333    0.111      0.333    0.167      0.000    0.442     0.405

=== Confusion Matrix ===

  a  b  c   <-- classified as
  0 50  0 |  a = Iris-setosa
  0 50  0 |  b = Iris-versicolor
  0 50  0 |  c = Iris-virginica
```

- **Explanations as to what are ANNs good for.** As ANNs are nonlinear models that easy to use and understand, when used with a back propagation learning algorithm, they are used to solve various classification and forecasting problems. This said, their major advantage is solving problems like image and sound recognition, text and time series analysis and others.
- **Where would you use them?** We'd use them for classification, as it's great in recognizing patters and sequences. Another area where they can be used, is robotics. This are especially useful in prosthesis. Also, function approximation and regression analysis.
- **Are they worth the effort implementing or not?** Is anything worth the effort? No, but really, it is totally dependent on the problem. You won't want to implement and ANN where another simpler algorithm can be used. Like any other problem in programming, you have to weigh the pros and the cons against each other.
- **What kinds of problems do they not solve?** World hunger and cancer. Oh, that wasn't what you meant, was it? Well, ANN are accurate, yes, but they are often tedious to train since they require time and effort. They also lack explanatory power, which means you'll be likely to stay in the dark when they reach a certain conclusion.