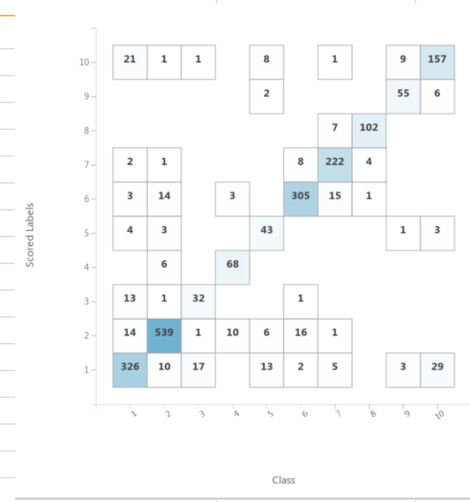
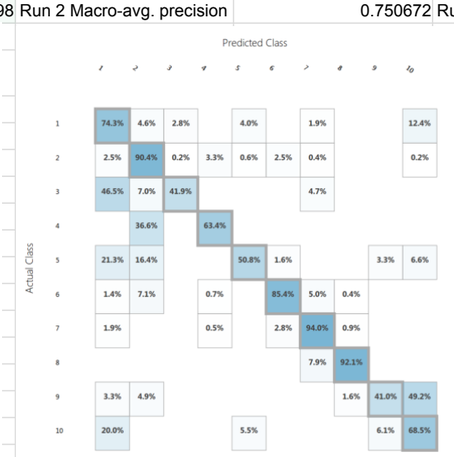
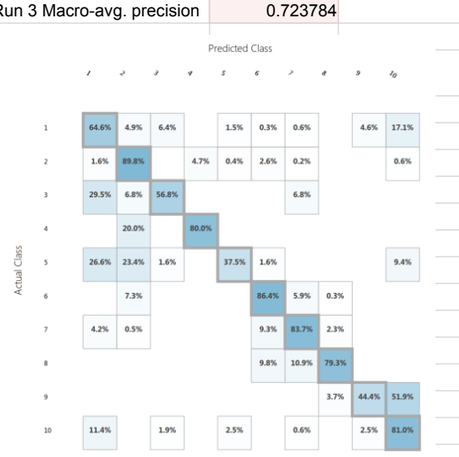
| Name of run, name of algorithm | Parameters of algorithm | Value | Test/Training Split | Precision/Class | Value | Confusion Matrix |
|---|---|---|---|---|---|---|
| NN Best Result from B) with 10x | Hidden Nodes | 125 | 10-fold X-validation | Precision for Class "1" | 0.808169 |  |
| Multi Class Neural Network | Learning Rate | 0.054096 | | Precision for Class "2" | 0.918656 | |
| | Learning Iterations | 363 | | Precision for Class "3" | 0.742143 | |
| | Initial learning weights diameter | 0.1 | | Precision for Class "4" | 0.919689 | |
| | Momentum | 0.5 | | Precision for Class "5" | 0.807857 | |
| Excercise: 4)b) "Scaling" | Normalization | Min-Max | | Precision for Class "6" | 0.897916 | |
| | Shuffle examples | FALSE | | Precision for Class "7" | 0.932791 | |
| Best found combination of scaling methods: | Random Number Seed | 42 | | Precision for Class "8" | 0.932102 | |
| Normalization techniques used: | | | | Precision for Class "9" | 0.851742 | |
| MinMax: *LB, AC, UC, ASTV, MSTV, ALTV, MLTV, DL, DP, Width, Min, Max, Mode, Nmax, Nzeroes, Mean, Tendency, Median* | | | | Precision for Class "10" | 0.794738 | |
| LogNormal: *Variance, DS_DR* | | | | meanPrecision | **0.86058** | |
| TanH: *FM* | | | | stdPrecision | 0.065236 | |

| Training/Test split: 5% / 95% | Hidden Nodes | 125 | 5% / 95% | Run 1 Micro-avg. precision | 0.665505 | Run 2 Micro-avg. precision | 0.603783 | Run 3 Micro-avg. precision | 0.671976 |
|---|---|---|---|---|---|---|---|---|---|
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.649982 | Run 2 Macro-avg. precision | 0.648341 | Run 3 Macro-avg. precision | 0.643175 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| Normalization used as above | | | | | | | | | |

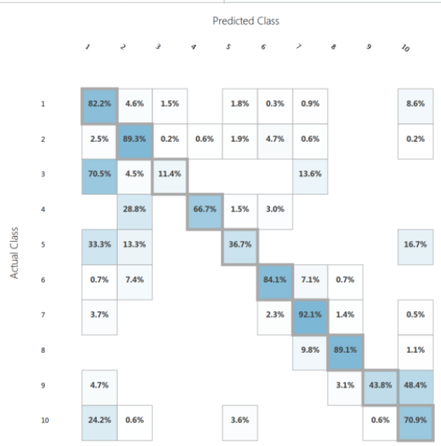



| Training/Test split: 15% / 85% | Hidden Nodes | 125 | 15% / 85% | Run 1 Micro-avg. precision | 0.796997 | Run 2 Micro-avg. precision | 0.799778 | Run 3 Micro-avg. precision | 0.782536 |
|---|---|---|---|---|---|---|---|---|---|
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.767398 | Run 2 Macro-avg. precision | 0.750672 | Run 3 Macro-avg. precision | 0.723784 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| Normalization used as above | | | | | | | | | |

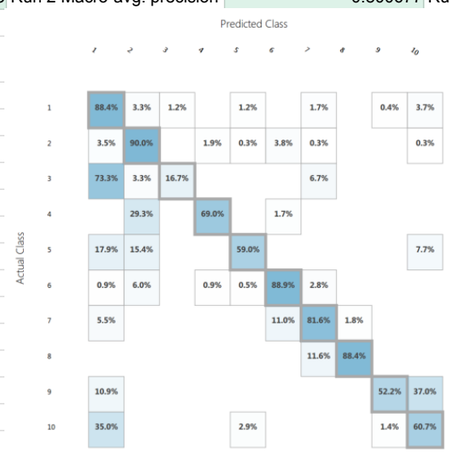



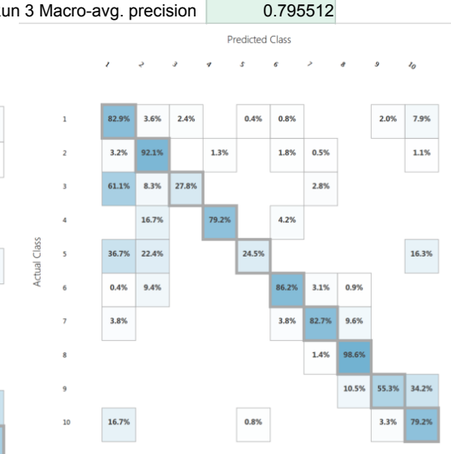
| Training/Test split: 25% / 75% | Hidden Nodes | 125 | 25% / 75% | Run 1 Micro-avg. precision | 0.801387 | Run 2 Micro-avg. precision | 0.781211 | Run 3 Micro-avg. precision | 0.80517 |
|---|---|---|---|---|---|---|---|---|---|
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.758399 | Run 2 Macro-avg. precision | 0.738575 | Run 3 Macro-avg. precision | 0.735617 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| Normalization used as above | | | | | | | | | |



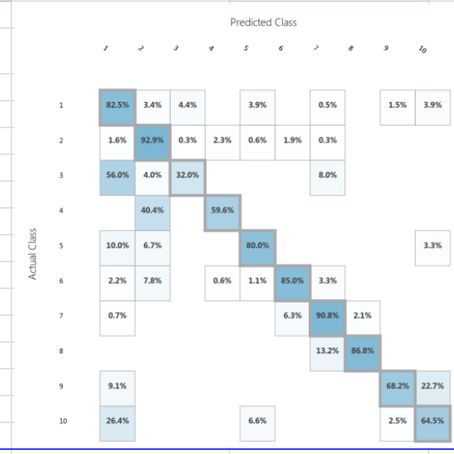


| Training/Test split: 35% / 65% | Hidden Nodes | 125 | 35% / 65% | Run 1 Micro-avg. precision | 0.822545 | Run 2 Micro-avg. precision | 0.808727 | Run 3 Micro-avg. precision | 0.820364 |
|---|---|---|---|---|---|---|---|---|---|
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.803835 | Run 2 Macro-avg. precision | 0.800677 | Run 3 Macro-avg. precision | 0.795512 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| Normalization used as above | | | | | | | | | |

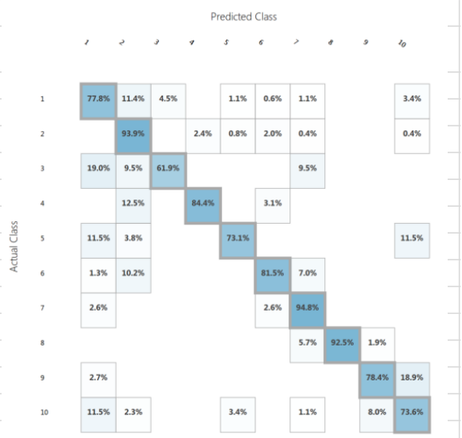

| Training/Test split: 45% / 55% | Hidden Nodes | 125 | 45% / 55% | Run 1 Micro-avg. precision | 0.836629 | Run 2 Micro-avg. precision | 0.822872 | Run 3 Micro-avg. precision | 0.83147 |
|---|---|---|---|---|---|---|---|---|---|
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.806466 | Run 2 Macro-avg. precision | 0.774976 | Run 3 Macro-avg. precision | 0.800611 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| Normalization used as above | | | | | | | | | |

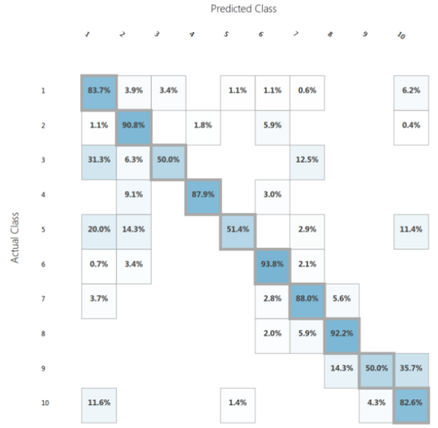


| Training/Test split: 55% / 45% | Hidden Nodes | 125 | 55% / 45% | Run 1 Micro-avg. precision | 0.848739 | Run 2 Micro-avg. precision | 0.834034 | Run 3 Micro-avg. precision | 0.84979 |
|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.820939 | Run 2 Macro-avg. precision | 0.846246 | Run 3 Macro-avg. precision | 0.825259 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| Normalization used as above | | | | | | | | | |

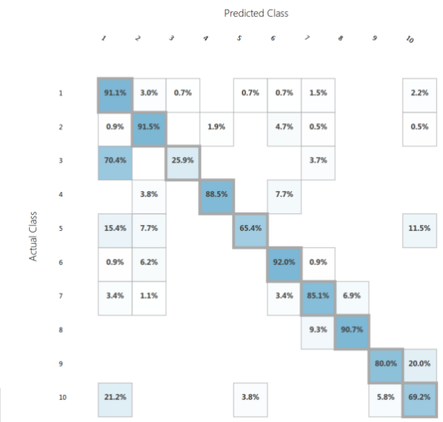




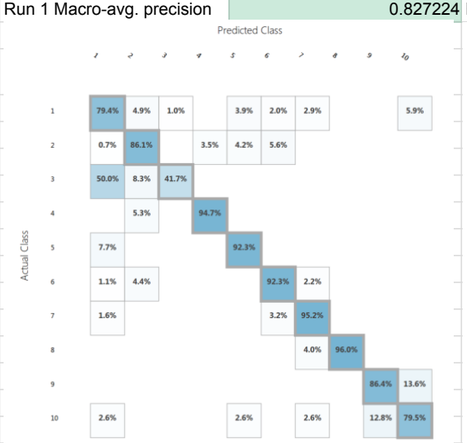



| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Training/Test split: 65% / 35% | Hidden Nodes | 125 | 65% / 35% | Run 1 Micro-avg. precision | 0.854054 | Run 2 Micro-avg. precision | 0.82973 | Run 3 Micro-avg. precision | 0.854054 |
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.800648 | Run 2 Macro-avg. precision | 0.804236 | Run 3 Macro-avg. precision | 0.84923 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| Normalization used as above | | | | | | | | | |

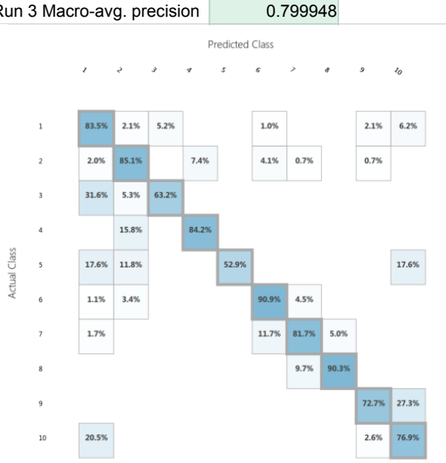





| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Training/Test split: 75% / 25% | Hidden Nodes | 125 | 75% / 25% | Run 1 Micro-avg. precision | 0.863894 | Run 2 Micro-avg. precision | 0.826087 | Run 3 Micro-avg. precision | 0.829868 |
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.827224 | Run 2 Macro-avg. precision | 0.783249 | Run 3 Macro-avg. precision | 0.799948 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| Normalization used as above | | | | | | | | | |

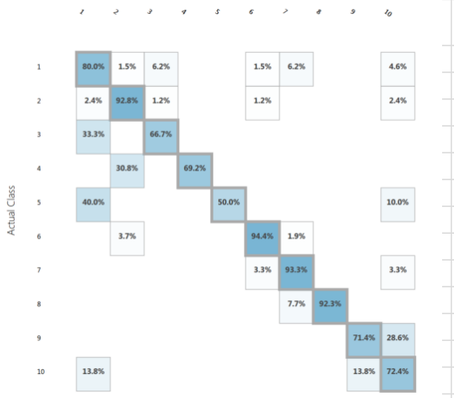







| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Training/Test split: 85% / 15% | Hidden Nodes | 125 | 85% / 15% | Run 1 Micro-avg. precision | 0.84858 | Run 2 Micro-avg. precision | 0.845426 | Run 3 Micro-avg. precision | 0.84858 |
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.831212 | Run 2 Macro-avg. precision | 0.850117 | Run 3 Macro-avg. precision | 0.784354 |
| | Learning Iterations | 363 | | | | | | | |

| | | | |
|---|---|---|---|
| | Initial learning weights diameter | 0.1 | |
| | Momentum | 0.5 | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | |
| | Shuffle examples | FALSE | |
| | Random Number Seed | 42 | |
| | | | |
| Normalization used as above | | | |






| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Training/Test split: 95% / 5%** | Hidden Nodes | 125 | 95% / 5% | Run 1 Micro-avg. precision | 0.849057 | Run 2 Micro-avg. precision | 0.90566 | Run 3 Micro-avg. precision | 0.839623 |
| Multi Class Neural Network | Learning Rate | 0.054096 | | Run 1 Macro-avg. precision | 0.812289 | Run 2 Macro-avg. precision | 0.862742 | Run 3 Macro-avg. precision | 0.843624 |
| | Learning Iterations | 363 | | | | | | | |
| | Initial learning weights diameter | 0.1 | | | | | | | |
| | Momentum | 0.5 | | | | | | | |
| Excercise: 4)C) "Training / Test set splits" | Normalization | Min-Max | | | | | | | |
| | Shuffle examples | FALSE | | | | | | | |
| | Random Number Seed | 42 | | | | | | | |
| | | | | | | | | | |
| Normalization used as above | | | | | | | | | |