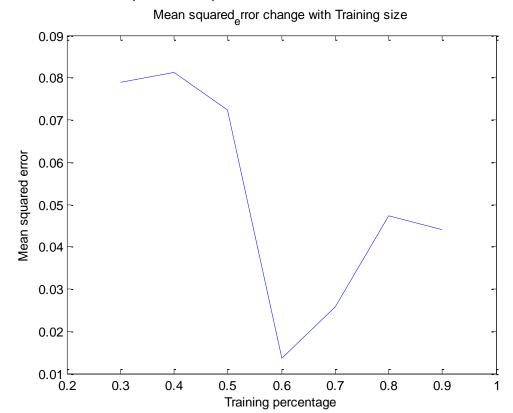


Table shows the experiment did to test the effect of different parameters of the models

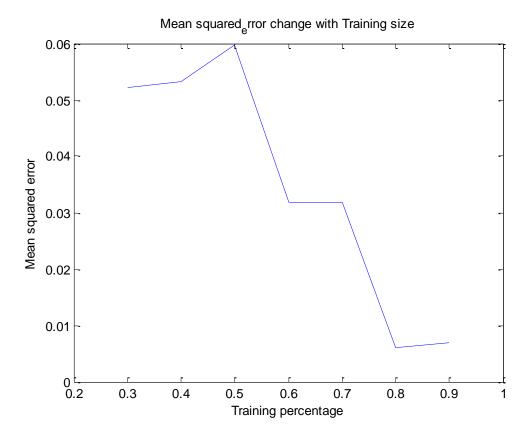
| No Performance | Number of | Training algorithm | Epoch |
|----------------|-----------|--------------------|-------|
|----------------|-----------|--------------------|-------|

|    |            | hidden layer |                     |    |
|----|------------|--------------|---------------------|----|
| 1  | 0.041803   | 5            | Levenberg-Marqudt   | 12 |
| 2  | 2.1172e-13 | 5            | Bayesian            | 82 |
|    |            |              | Regularization      |    |
| 3  | 0.0261     | 5            | Scaled Conjugate    | 55 |
|    |            |              | Gradient            |    |
| 4  | 0.016083   | 7            | Levenberg-Marquardt | 11 |
| 5  | 0.015002   | 9            | Levenberg-Marquardt | 11 |
| 6  | 0.056549   | 11           | Levenberg-Marquardt | 11 |
| 7  | 0.0072967  | 13           | Levenberg-Marquardt | 14 |
| 8  | 2.1286e-13 | 3            | Levenberg-Marquardt | 22 |
| 9  | 0.058206   | 1            | Levenberg-Marquardt | 59 |
| 10 | 0.12803    | 15           | Levenberg-Marquardt | 11 |

## Neural Network accuracy for Iris example



Neural Network accuracy for Wine example



| Index of the | Performance | Number of    | Training algorithm  | Epoch |
|--------------|-------------|--------------|---------------------|-------|
| experiment   |             | hidden layer |                     |       |
| 1            | 0.0087442   | 5            | Levenberg-Marqudt   | 13    |
| 2            | 0.032355    | 5            | Bayesian            | 785   |
|              |             |              | Regularization      |       |
| 3            | 0.031231    | 5            | Scaled Conjugate    | 29    |
|              |             |              | Gradient            |       |
| 4            | 0.0091011   | 7            | Levenberg-Marquardt | 18    |
| 5            | 0.044506    | 9            | Levenberg-Marquardt | 10    |
| 6            | 0.027032    | 11           | Levenberg-Marquardt | 9     |
| 7            | 0.0096924   | 13           | Levenberg-Marquardt | 12    |
| 8            | 0.0063721   | 3            | Levenberg-Marquardt | 11    |
| 9            | 0.033093    | 1            | Levenberg-Marquardt | 13    |
| 10           | 0.049926    | 15           | Levenberg-Marquardt | 16    |

#### Support Vector Machine, accuracy for the cross validation test (winedata)

|    |        | ,                    |        |        |        |   |   |   |  |  |  |  |
|----|--------|----------------------|--------|--------|--------|---|---|---|--|--|--|--|
| CV |        | Accuracy( 1 is 100%) |        |        |        |   |   |   |  |  |  |  |
| 3  | 0.8333 | 0.9831               | 1      |        |        |   |   |   |  |  |  |  |
| 4  | 0.9111 | 0.9778               | 0.9773 | 1      |        |   |   |   |  |  |  |  |
| 5  | 0.8649 | 1                    | 0.9444 | 1      | 1      |   |   |   |  |  |  |  |
| 6  | 0.8666 | 0.9333               | 0.9667 | 0.9667 | 1      | 1 |   |   |  |  |  |  |
| 7  | 0.9259 | 0.8077               | 0.9600 | 0.9600 | 1      | 1 | 1 |   |  |  |  |  |
| 8  | 0.9130 | 0.9130               | 1      | 0.9545 | 0.9545 | 1 | 1 | 1 |  |  |  |  |

| 9  | 0.9048 | 0.9048 | 1 | 0.9500 | 0.9474 | 1      | 1 | 1 | 1 |   |
|----|--------|--------|---|--------|--------|--------|---|---|---|---|
| 10 | 0.8947 | 0.8889 | 1 | 1      | 0.9444 | 0.9444 | 1 | 1 | 1 | 1 |

### Support Vector Machine, accuracy for the cross validation test (irisdata)

| CV |        |        |        | Acc    | uracy( 1 is | 100%)  |        |   |   |   |
|----|--------|--------|--------|--------|-------------|--------|--------|---|---|---|
| 3  | 1      | 0.96   | 1      |        |             |        |        |   |   |   |
| 4  | 0.9744 | 0.9474 | 0.9722 | 1      |             |        |        |   |   |   |
| 5  | 0.9667 | 1      | 0.9667 | 0.9667 | 1           |        |        |   |   |   |
| 6  | 0.9630 | 1      | 0.9167 | 0.9583 | 1           | 1      |        |   |   |   |
| 7  | 0.9565 | 1      | 0.9524 | 1      | 0.9048      | 1      | 1      |   |   |   |
| 8  | 0.9524 | 1      | 1      | 0.8889 | 1           | 0.9444 | 1      | 1 |   |   |
| 9  | 1      | 1      | 1      | 0.8889 | 1           | 0.9333 | 1      | 1 | 1 |   |
| 10 | 1      | 1      | 1      | 1      | 0.8666      | 1      | 0.9333 | 1 | 1 | 1 |

# Decision tree (irisdata)

| CV |        |        |        | Acc    | uracy( 1 is | 100%)  |        |   |   |   |
|----|--------|--------|--------|--------|-------------|--------|--------|---|---|---|
| 3  | 1      | 0.96   | 1      |        |             |        |        |   |   |   |
| 4  | 0.9744 | 0.9474 | 0.9722 | 1      |             |        |        |   |   |   |
| 5  | 0.9667 | 1      | 0.9667 | 0.9667 | 1           |        |        |   |   |   |
| 6  | 0.9630 | 1      | 0.9167 | 0.9583 | 1           | 1      |        |   |   |   |
| 7  | 0.9565 | 1      | 0.9524 | 1      | 0.9048      | 1      | 1      |   |   |   |
| 8  | 0.9524 | 1      | 1      | 0.8889 | 1           | 0.9444 | 1      | 1 |   |   |
| 9  | 1      | 1      | 1      | 0.8889 | 1           | 0.9333 | 1      | 1 | 1 |   |
| 10 | 1      | 1      | 1      | 1      | 0.8666      | 1      | 0.9333 | 1 | 1 | 1 |

### Decision tree(winedata)

| CV |        |        |        | Ac     | curacy(1 | is 100%) |        |        |        |   |
|----|--------|--------|--------|--------|----------|----------|--------|--------|--------|---|
| 3  | 0.7833 | 0.8305 | 0.9310 |        |          |          |        |        |        |   |
| 4  | 0.8222 | 0.8667 | 0.9091 | 0.8837 |          |          |        |        |        |   |
| 5  | 0.7838 | 0.9167 | 0.9167 | 0.9118 | 0.8529   |          |        |        |        |   |
| 6  | 0.9333 | 0.9    | 0.8    | 0.9    | 0.9310   | 0.8214   |        |        |        |   |
| 7  | 0.9259 | 0.8077 | 0.8    | 0.92   | 0.92     | 0.92     | 0.7917 |        |        |   |
| 8  | 0.9130 | 0.7826 | 0.9091 | 0.7729 | 0.8636   | 0.9545   | 0.9545 | 0.8095 |        |   |
| 9  | 0.9048 | 0.7619 | 0.9524 | 0.7    | 0.9474   | 0.8947   | 0.9474 | 0.9474 | 1      |   |
| 10 | 0.8947 | 0.8333 | 0.7778 | 0.8333 | 0.9444   | 0.8333   | 0.9444 | 0.9444 | 0.9375 | 1 |

### k-nearest-neighbors(irisdata)

| CV |        | Accuracy( 1 is 100%) |        |        |        |        |   |  |  |  |  |
|----|--------|----------------------|--------|--------|--------|--------|---|--|--|--|--|
| 3  | 0.9608 | 0.9412               | 1      |        |        |        |   |  |  |  |  |
| 4  | 0.9487 | 1                    | 0.9444 | 0.9722 |        |        |   |  |  |  |  |
| 5  | 0.9333 | 1                    | 0.9333 | 0.9667 | 1      |        |   |  |  |  |  |
| 6  | 0.9259 | 1                    | 1      | 0.9167 | 1      | 1      |   |  |  |  |  |
| 7  | 0.9167 | 1                    | 1      | 0.9048 | 0.9524 | 0.9524 | 1 |  |  |  |  |

| 8  | 0.9048 | 1      | 1 | 1 | 0.9444 | 0.9444 | 0.9444 | 1 |   |   |
|----|--------|--------|---|---|--------|--------|--------|---|---|---|
| 9  | 0.9444 | 0.9444 | 1 | 1 | 0.9444 | 0.9333 | 1      | 1 | 1 |   |
| 10 | 0.9333 | 0.9333 | 1 | 1 | 1      | 0.9333 | 0.9333 | 1 | 1 | 1 |

### k-nearest-neighbors (winedata)

| CV |        |        |        | Acc    | uracy( 1 is | 100%)  |        |   |   |   |
|----|--------|--------|--------|--------|-------------|--------|--------|---|---|---|
| 3  | 0.9608 | 0.9400 | 1      |        |             |        |        |   |   |   |
| 4  | 0.9487 | 1      | 0.9444 | 0.9722 |             |        |        |   |   |   |
| 5  | 0.9333 | 1      | 0.9333 | 0.9667 | 1           |        |        |   |   |   |
| 6  | 0.9259 | 1      | 1      | 0.9167 | 1           | 1      |        |   |   |   |
| 7  | 0.9130 | 1      | 1      | 0.9048 | 0.9524      | 0.9524 | 1      |   |   |   |
| 8  | 0.9048 | 1      | 1      | 1      | 0.9444      | 0.9444 | 0.9444 | 1 |   |   |
| 9  | 0.9444 | 0.9444 | 1      | 1      | 0.9412      | 0.9333 | 1      | 1 | 1 | 1 |
| 10 | 0.9333 | 0.9333 | 1      | 1      | 1           | 0.9333 | 0.9333 | 1 | 1 | 1 |

### Boosting (irisdata)

| CV |        |        |        | Acc    | curacy( 1 is | s 100%) |        |        |   |   |
|----|--------|--------|--------|--------|--------------|---------|--------|--------|---|---|
| 3  | 0.9804 | 0.92   | 0.9583 |        |              |         |        |        |   |   |
| 4  | 0.9744 | 0.9211 | 0.9444 | 0.9722 |              |         |        |        |   |   |
| 5  | 0.9667 | 0.9667 | 0.9    | 0.9333 | 1            |         |        |        |   |   |
| 6  | 0.9630 | 1      | 0.8750 | 0.9167 | 0.9167       | 1       |        |        |   |   |
| 7  | 0.9565 | 1      | 0.9048 | 0.9524 | 0.9048       | 0.9524  | 1      |        |   |   |
| 8  | 0.9524 | 0.9500 | 0.9444 | 0.8333 | 0.9444       | 0.9444  | 0.9444 | 1      |   |   |
| 9  | 1      | 0.9444 | 1      | 0.8333 | 0.9412       | 0.9333  | 0.9333 | 1      | 1 |   |
| 10 | 1      | 0.9333 | 1      | 0.9333 | 0.8667       | 0.9333  | 0.9333 | 0.9333 | 1 | 1 |

#### Boosting (winedata)

| CV | Accuracy( 1 is 100%) |        |        |        |        |      |   |        |        |   |
|----|----------------------|--------|--------|--------|--------|------|---|--------|--------|---|
| 3  | 0.9167               | 0.9153 | 0.9483 |        |        |      |   |        |        |   |
| 4  | 0.8667               | 0.9556 | 0.9773 | 0.9167 |        |      |   |        |        |   |
| 5  | 0.9189               | 0.9722 | 1      | 0.9706 | 1      |      |   |        |        |   |
| 6  | 0.9333               | 0.9667 | 0.9333 | 1      | 0.9655 | 1    |   |        |        |   |
| 7  | 1                    | 0.9615 | 0.92   | 1      | 1      | 0.92 | 1 |        |        |   |
| 8  | 1                    | 0.9130 | 0.9545 | 1      | 1      | 1    | 1 | 1      |        |   |
| 9  | 1                    | 0.9048 | 1      | 0.95   | 1      | 1    | 1 | 0.9474 | 1      | 1 |
| 10 | 1                    | 0.9444 | 1      | 0.8889 | 1      | 1    | 1 | 1      | 0.9375 | 1 |