CIS – 490: Machine Learning

Learning Activity 1

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Naïve Bayes

1. Split data into training and testing in 50:50 ratio

Text

Description automatically generated

1. Construct the model

Graphical user interface, text, application

Description automatically generated

1. Make predictions

Graphical user interface, text, application, chat or text message

Description automatically generated

1. Calculate Accuracy

Graphical user interface, text, application

Description automatically generated

1. Model Evaluation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | Train | Test | All |
| Accuracy | | 0.95 | 0.95 | 0.95 |
| AUC | | 0.996 | 0.997 | 0.995 |
| Macro Sensitivity | | 0.95 | 0.95 | 0.95 |
| Macro Specificity | | 0.97 | 0.97 | 0.97 |
| Sensitivity | Setosa | 1.00 | 1.00 | 1.00 |
| Versicolor | 0.96 | 0.85 | 0.90 |
| Virginica | 0.89 | 1.00 | 0.94 |
| Specificity | Setosa | 1.00 | 1.00 | 1.00 |
| Versicolor | 0.94 | 1.00 | 0.97 |
| Virginica | 0.98 | 0.92 | 0.95 |
| PPV | Setosa | 1.00 | 1.00 | 1.00 |
| Versicolor | 0.88 | 1.00 | 0.94 |
| Virginica | 0.96 | 0.85 | 0.90 |
| NPV | Setosa | 1.00 | 1.00 | 1.00 |
| Versicolor | 0.98 | 0.92 | 0.95 |
| Virginica | 0.94 | 1.00 | 0.97 |

1. ROC Curves

Graphical user interface, text, application

Description automatically generated

Graphical user interface, text, application

Description automatically generated

Chart, line chart

Description automatically generated