CIS 365 Uncertainty in AI

Dr. Denton Bobeldyk

Design a Bayesian classifier that classifies the flowers from the iris dataset using a single feature (you can select which of the 4 features you would like to use). Use 60% of the data for training and 40% of the data for testing. Correct or incorrect classification of the test data should be reported for each of the 3 iris classes. Please note you cannot use a built-in library to perform the classification.

Iris Dataset: https://archive.ics.uci.edu/ml/datasets/iris

The formula to calculate the gaussian density is given below:

$$P(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{\frac{-(x-u)^2}{2\sigma^2}}$$

Approved Languages: Python, C, C#, C++, Java

The project will be graded based on completion and demonstration of completion.

Hand-in:

1. Output showing the number of data points classified correctly and incorrectly for each class (there are 3 classes).
2. Source code used to generate the above.

Grading Rubric:

	0	50%	100%
Test set data points classified properly using the Bayesian classifier (20%)	Bayesian classifier not applied correctly to the test data set	Bayesian classifier applied correctly to only some of the test data set.	Bayesian classifier applied correctly to the test data set
Bayesian Classifier Implementation (30%)	Not correctly implemented	A few mistakes in the implementation	Correctly implemented
Functionality Demonstrated (30%)	Not clearly demonstrated	Demonstrated, but not clearly	Clearly demonstrated