

CSCI 57300
Full Bayes and Naive Bayes Algorithms

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- Full Bayes

Indicate class:

Iris-setosa -> 1

Iris-versicolor -> 2

Iris-virginica -> 3

Fold 1: Training data: 1st~100th

Test data: 101st~150th

Confusion matrix:

		Actual		
		1	2	3
predicted	1	[16.	0.	0.]
	2	[0.	17.	0.]
	3	[0.	1.	16.]

Classification Report:

Class: accuracy | precision | recall | f1-score

1 : [1.0, 1.0, 1.0, 1.0]

2 : [1.0, 1.0, 0.9444444444444444, 0.9714285714285714]

3 : [0.9411764705882353, 0.9411764705882353, 1.0, 0.9696969696969697]

Avg: [0.98, 0.9803921568627452, 0.9814814814814815, 0.9803751803751805]

Fold 2: Training data: 1st~50th and 101st~150th

Test data: 51st~100th

Confusion matrix:

		Actual		
		1	2	3
predicted	1	[16.	0.	0.]
	2	[0.	16.	1.]
	3	[0.	2.	15.]

Classification Report:

Class: accuracy | precision | recall | f1-score

1 : [1.0, 1.0, 1.0, 1.0]

2 : [0.9411764705882353, 0.9411764705882353, 0.8888888888888888, 0.9142857142857143]

3 : [0.8823529411764706, 0.8823529411764706, 0.9375, 0.9090909090909091]

Avg: [0.94, 0.9411764705882352, 0.9421296296296297, 0.9411255411255411]

Fold 3: Training data: 51st~150th
Test data: 1st~50th

Confusion matrix:

		Actual		
		1	2	3
predicted	1	[18.	0.	0.]
	2	[0.	14.	0.]
	3	[0.	0.	18.]

Classification Report:

Class: accuracy | precision | recall | f1-score
1 : [1.0, 1.0, 1.0, 1.0]
2 : [1.0, 1.0, 1.0, 1.0]
3 : [1.0, 1.0, 1.0, 1.0]
Avg: [1.0, 1.0, 1.0, 1.0]

Averaged value of evaluation over 3 folds:

Class: accuracy | precision | recall | f1-score
Avg: [0.973333, 0.973856, 0.974537, 0.973836]

Averaged value of evaluation in each class:

Class: accuracy | precision | recall | f1-score
Avg_c1: [1.0, 1.0, 1.0, 1.0]
Avg_c2: [0.98039215686, 0.98039215686, 0.94444444444, 0.9619047619]
Avg_c3: [0.94117647058, 0.94117647058, 0.97916666666, 0.95959595959]

- Naive Bayes

Fold 1: Training data: 1st~100th
Test data: 101st~150th

Confusion matrix:

		Actual		
		1	2	3
predicted	1	[16.	0.	0.]
	2	[0.	16.	1.]
	3	[0.	2.	15.]

Classification Report:

Class: accuracy | precision | recall | f1-score

```
1 : [1.0, 1.0, 1.0, 1.0]
2 : [0.9411764705882353, 0.9411764705882353, 0.8888888888888888, 0.9142857142857143]
3 : [0.8823529411764706, 0.8823529411764706, 0.9375, 0.9090909090909091]
Avg: [0.94, 0.9411764705882352, 0.9421296296296297, 0.9411255411255411]
```

Fold 2: Training data: 1st~50th and 101st~150th
Test data: 51st~100th

Confusion matrix:

		Actual		
		1	2	3
predicted	1	[16.	0.	0.]
	2	[0.	17.	2.]
	3	[0.	1.	14.]

Classification Report:

Class: accuracy | precision | recall | f1-score

```
1 : [1.0, 1.0, 1.0, 1.0]
2 : [0.8947368421052632, 0.8947368421052632, 0.9444444444444444, 0.918918918918919]
3 : [0.9333333333333333, 0.9333333333333333, 0.875, 0.9032258064516129]
Avg: [0.94, 0.9426900584795321, 0.9398148148148149, 0.9407149084568439]
```

Fold 3: Training data: 51st~150th
Test data: 1st~50th

Confusion matrix:

		Actual		
		1	2	3
predicted	1	[18.	0.	0.]
	2	[0.	14.	0.]
	3	[0.	0.	18.]

Classification Report:

Class: accuracy | precision | recall | f1-score

```
1 : [1.0, 1.0, 1.0, 1.0]
2 : [1.0, 1.0, 1.0, 1.0]
3 : [1.0, 1.0, 1.0, 1.0]
Avg: [1.0, 1.0, 1.0, 1.0]
```

Averaged value of evaluation over 3 folds:

Class: accuracy | precision | recall | f1-score

Avg: [0.96, 0.96128884302, 0.96064814814, 0.96061348319]

Averaged value of evaluation in each class:

Class: accuracy | precision | recall | f1-score

Avg_c1: [1.0, 1.0, 1.0, 1.0]

Avg_c2: [0.94530443756, 0.94530443756, 0.94444444444, 0.9444015444]

Avg_c3: [0.9385620915, 0.9385620915, 0.9375, 0.93743890518]
