

# **DMCT ASSIGNMENT**

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## Assignment 4 :

Use the zoo dataset to design a neural network based classification system to predict the species of an animal. You should use a K-fold validation strategy to judge the overall accuracy of your system. Does the accuracy of the system change when you vary the number of folds to use.

## Submission :

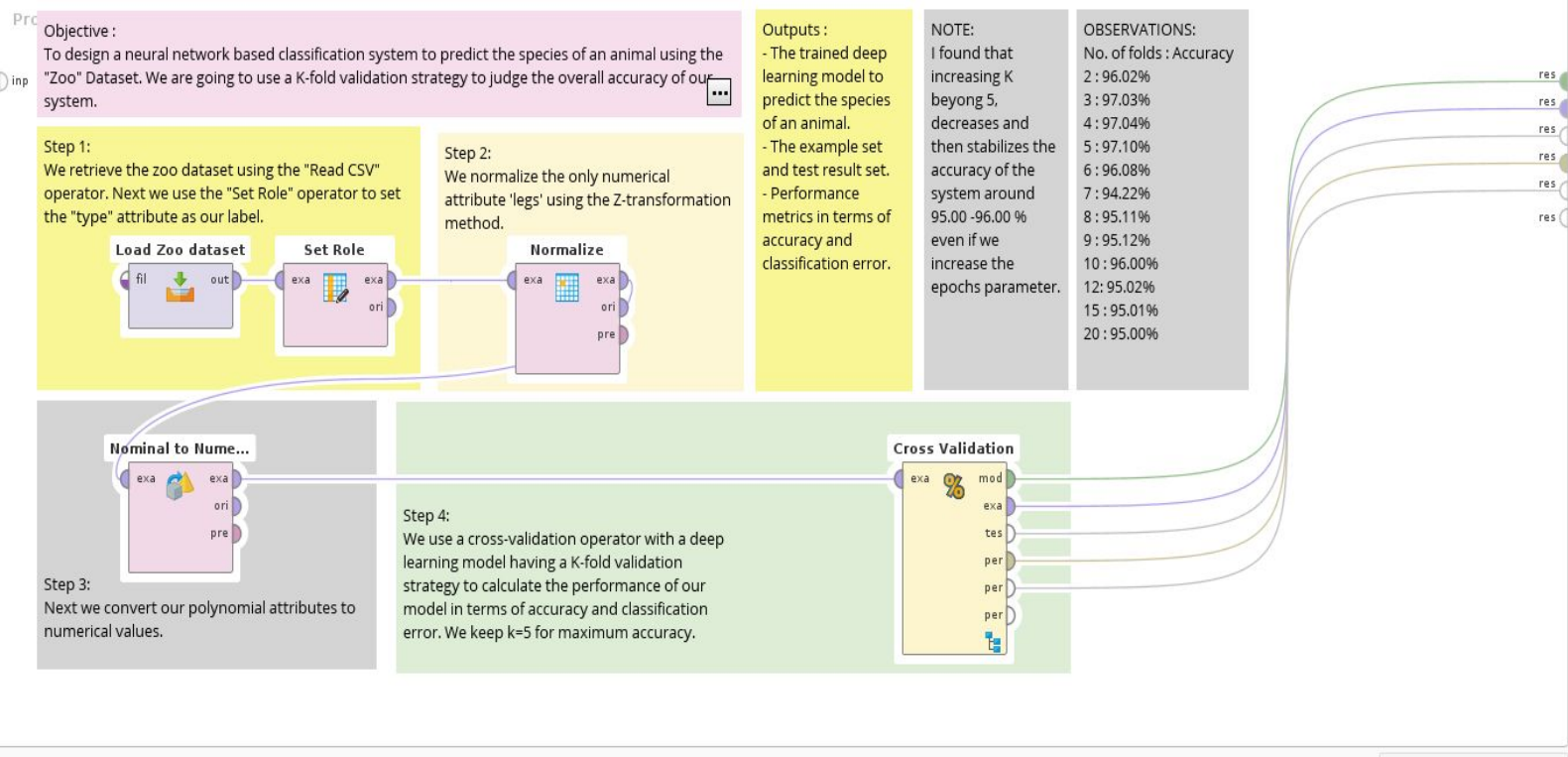
I've been able to make a neural network based classification system to predict the species of an animal with an accuracy score of **97.14%** using a **K=5** fold validation strategy to judge the overall accuracy of my system.

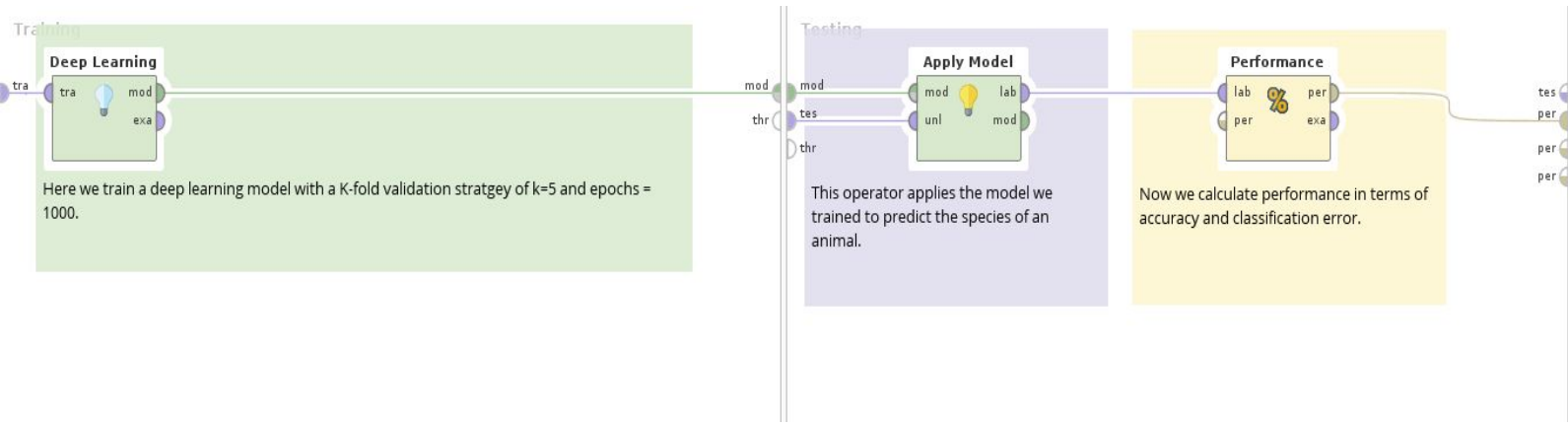
Yes, the accuracy of the system varies when we change the number of folds. It increases till K=5 and then decreases and stabilizes around 95.00-96.00% even if we increase the epochs parameter . The accuracy varies as such with K (No. of folds):

No. of folds (K)	Accuracy (%)
2	96.02
3	97.03
4	97.04
5	97.14
6	96.08
7	94.22
8	95.11
9	95.12
10	96.00
12	95.02
15	95.01

I've used accuracy and classification error as my performance metrics.

### Screenshots of design space and outputs:





Result History | **PerformanceVector (Performance)** | ExampleSet (Cross Validation) | DeepLearning (Deep Learning)

☒ Table View ☐ Plot View

**accuracy: 97.10% +/- 3.83% (mikro: 97.03%)**

	true mammal	true fish	true bird	true invertebr...	true insect	true amphibian	true reptile	class precision
pred. mammal	41	0	0	0	0	0	0	100.00%
pred. fish	0	13	0	0	0	0	1	92.86%
pred. bird	0	0	20	0	0	0	0	100.00%
pred. inverteb...	0	0	0	9	0	0	0	100.00%
pred. insect	0	0	0	1	8	0	0	88.89%
pred. amphibian	0	0	0	0	0	3	0	100.00%
pred. reptile	0	0	0	0	0	1	4	80.00%
class recall	100.00%	100.00%	100.00%	90.00%	100.00%	75.00%	80.00%	

**Performance**

Criterion: accuracy, classification error

**Description**

**Annotations**