sklearn.metrics.log_loss

sklearn.metrics.**log_loss**(*y_true*, *y_pred*, *eps=1e-15*, *normalize=True*, *sample_weight=None*) [source]

Log loss, aka logistic loss or cross-entropy loss.

This is the loss function used in (multinomial) logistic regression and extensions of it such as neural networks, defined as the negative log-likelihood of the true labels given a probabilistic classifier's predictions. For a single sample with true label yt in {0,1} and estimated probability yp that yt = 1, the log loss is

> -log P(yt|yp) = -(yt log(yp) + (1 - yt) log(1 - yp))

Parameters:

y_true : array-like or label indicator matrix

> Ground truth (correct) labels for n_samples samples.

y_pred : array-like of float, shape = (n_samples, n_classes)

> Predicted probabilities, as returned by a classifier's predict_proba method.

eps : float

> Log loss is undefined for p=0 or p=1, so probabilities are clipped to max(eps, min(1 - eps, p)).

normalize : bool, optional (default=True)

> If true, return the mean loss per sample. Otherwise, return the sum of the per-sample losses.

sample_weight : array-like of shape = [n_samples], optional

> Sample weights.

Returns:

loss : float

Notes

The logarithm used is the natural logarithm (base-e).

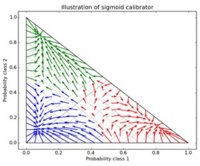
References

C.M. Bishop (2006). Pattern Recognition and Machine Learning. Springer, p. 209.

Examples

```
>>> log_loss(["spam", "ham", "ham", "spam"],
...          [[.1, .9], [.9, .1], [.8, .2], [.35, .65]])
0.21616...
```

Examples using sklearn.metrics.log_loss



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