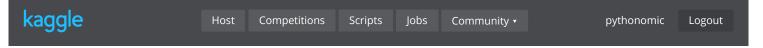
0

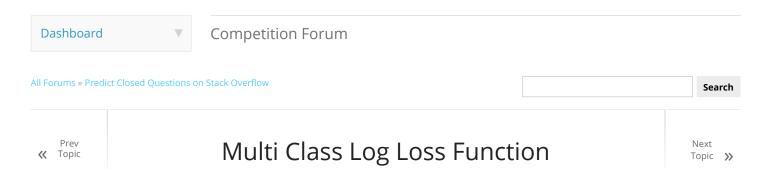




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## **Predict Closed Questions on Stack Overflow**

Tue 21 Aug 2012 – Sat 3 Nov 2012 (2 years ago)



Start Watching

Is the following Python code an accurate representation of how submissions are evaluated? I've played with this to help me evaluate my modelling, but wanted to make sure I understood how the evaluator worked. I believe I'll need to add a PostId to the prediction data when I submit, but have not included that for simplicity's sake in this example code.

```
from __future__ import division
import csv
import os
import scipy as sp
def llfun(act, pred):
    epsilon = 1e-15
    pred = sp.maximum(epsilon, pred)
    pred = sp.minimum(1-epsilon, pred)
    11 = sum(act*sp.log(pred) + sp.subtract(1,act)*sp.log(sp.subtract(1,pred)))
    ll = ll * -1.0/len(act)
    return 11
def main():
    pred = [
        [0.05, 0.05, 0.05, 0.8, 0.05],
        [0.73,0.05,0.01,0.20,0.02],
        [0.02, 0.03, 0.01, 0.75, 0.19],
        [0.01,0.02,0.83,0.12,0.02]
    act = [
           [0,0,0,1,0],
           [1,0,0,0,0],
           [0,0,0,1,0],
           [0,0,1,0,0]
           ]
```

```
scores = []
for index in range(0, len(pred)):
    result = llfun(act[index], pred[index])
    scores.append(result)

print(sum(scores) / len(scores)) # 0.0985725708595

if __name__ == '__main__':
    main()
#1 | Posted 3 years ago
```

Matthew Lesko



```
11 = sum(act*sp.log(pred) + sp.subtract(1,act)*sp.log(sp.subtract(1,pred)))
```

That's not right. Since the prediction is a normalized multinomial distribution, you just take log(pred[label]), and ignore the other predictions not covered by the label (their impact on the score is via the normalization). If your prediction is not actually normalized, you need to normalize it (after clamping to 1e-15).

#2 | Posted 3 years ago



## **Andy Sloane**

5

Here's the function I use:

import numpy as np

```
y_true : array, shape = [n_samples]
y_pred : array, shape = [n_samples, n_classes]

Returns
-----
loss : float
"""
predictions = np.clip(y_pred, eps, 1 - eps)

# normalize row sums to 1
predictions /= predictions.sum(axis=1)[:, np.newaxis]

actual = np.zeros(y_pred.shape)
rows = actual.shape[0]
actual[np.arange(rows), y_true.astype(int)] = 1
vsota = np.sum(actual * np.log(predictions))
return -1.0 / rows * vsota
```

#3 | Posted 3 years ago



ephes



## ephes wrote:

```
Here's the function I use:
 import numpy as np
 def multiclass_log_loss(y_true, y_pred, eps=1e-15):
     """Multi class version of Logarithmic Loss metric.
     https://www.kaggle.com/wiki/MultiClassLogLoss
     idea from this post:
     http://www.kaggle.com/c/emc-data-science/forums/t/2149/is-anyone-noticing-difference-
 betwen-validation-and-leaderboard-error/12209#post12209
     Parameters
     -----
    y_true : array, shape = [n_samples]
    y_pred : array, shape = [n_samples, n_classes]
     Returns
     _ _ _ _ _ _
     loss : float
     predictions = np.clip(y_pred, eps, 1 - eps)
     # normalize row sums to 1
     predictions /= predictions.sum(axis=1)[:, np.newaxis]
     actual = np.zeros(y_pred.shape)
     rows = actual.shape[0]
     actual[np.arange(rows), y_true.astype(int)] = 1
     vsota = np.sum(actual * np.log(predictions))
     return -1.0 / rows * vsota
```

What type of objects are the inputs?

```
y_true : array, shape = [n_samples]
y_pred : array, shape = [n_samples, n_classes]
```

I'm using a simple list of list and isn't working properly =(

thanks for any help

#4 | Posted 3 years ago



Alessandro Sena

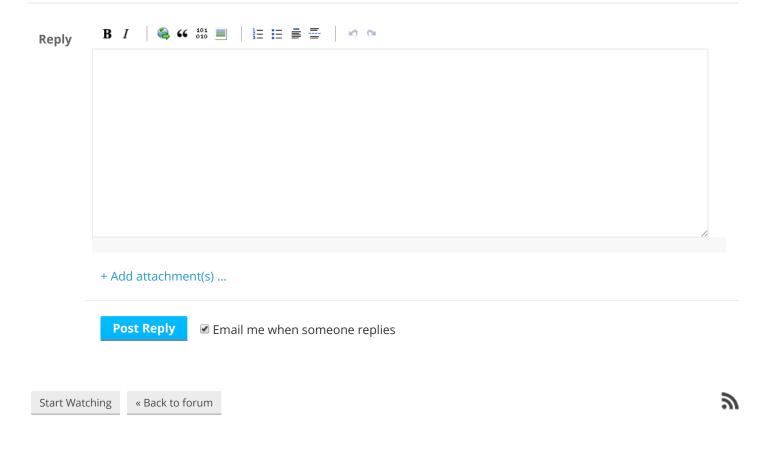


The function assumes that two numpy ndarrays are supplied.

The first is a 1-d array, where each element is the goldstandard class ID of the instance.

The second is a 2-d array, where each element is the predicted distribution over the classes.

Here are some example uses: >>> import numpy as np >>> multiclass\_log\_loss(np.array([0,1,2]),np.array([[1,0,0],[0,1,0],[0,0,1]])) 2.1094237467877998e-15 >>> multiclass\_log\_loss(np.array([0,1,2]),np.array([[1,1,1],[0,1,0],[0,0,1]])) 0.36620409622270467 Marco Lui



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