

Week 4

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Assignment: Exercise 4 - Multi-class classifier

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PK

loss as 'nan'

▼

Praveen Kumar

Assignment: Exercise 4 - Multi-class classifier · a year ago

In the output of 'model.fit_generator', I am getting loss as **nan**. Please let me know if you have any idea.

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QD

quinn dougherty · a year ago

adding `+ 1` to my last layer fixed this

tf.keras.layers.Dense(len(np.unique(training_labels)) + 1, activation="softmax")

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L

Likitha · a year ago

but why are we supposed to increase labels by 1?? any reasons behind it??

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AK

Arihant Kamdarxdk · a year ago

this is because len starts from 0 and thus it will return n-1 for n labels thus we add one. this is the logic i think :)

↑ 2 Upvotes

CS

Chris Sanchez · 10 months ago

@Arihant the reasoning you stated is incorrect. The len() method returns the length of an iterable (in this case a list of unique values). You are thinking about indexing, which indeed does start with zero. So to Likitha's point, I do not understand why adding +1 to the value of unique labels is helpful.

↑ 0 Upvotes

SM

Sammy Mishal · 10 months ago

I think it's because the data is missing label (9)

↑ 9 Upvotes

DS

DEEPANKER SINGH · 7 months ago

Elaborating what @Sammy Mishal pointed out to:

Available labels are {0, 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24}. There is no class corresponding to the numerical label 9.

But in case of both, 'sparse_categorical_crossentropy' (using) and 'tf.keras.utils.to_categorical', the total number of classes are inferred to be the 25 (0 to 24), even if the class corresponding to the numerical label 9 is missing in the dataset. Therefore, we need at least 25 units in the Dense 'softmax' layer for the given dataset. Or, you can also down-shift the labels 10, 11, ... , 24 to 9, 10, ... , 23 and then `len(np.unique(training_labels))` units in the 'softmax' layers will work just fine.

5 Upvotes

SD

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AM

Alex Fernandes Mansano · a year ago

if you look close at your training data, you will see that the labels are {0, 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24}. Skipping label 9.

So, while loading your data, add the following line of code to correct it

label = label -1 if label >8 else label

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MP

Mitun Kanti Paul · 7 months ago

classes are 26

1 Upvote

JK

Joseph Kristiano · 3 months ago

Thanks, Alex!. Your solution works for me.

```
1 label = int(row[0])
2 if label >= 9:
3     label -= 1
4 labels.append(label)
```

0 Upvotes

SD

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HM

Henrique Peixoto Machado · a year ago

I'm stuck in the same place :(

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TJ

Tooba Jalalidil · a year ago

I had the same issue. Although the output of `get_data` was correct (array shape), it seems we didn't read the file properly. Replace the `get_data` codes with the one which is presented in this post 'Possible Solutions (ONLY If you are stuck)'. It solved my problem.

0 Upvotes



Pierre-Yves Dumas · 10 months ago

Replace the label 24 with the label 9 which otherwise is not used when you import from the csv.

0 Upvotes

Damola Oriola · 4 months ago



DO

To add to this, sparse_categorical under the hood preprocesses the integer values into one-hot vectors. It treats base 10 as the number specified in the last layer(softmax layer). So it thinks we should expect 24 classes(one-hot of 24 size) which is (0-23), when we set 24 in the softmax layer.

Coursera



When your model encounters 24 during training with the last layer(softmax) set at 24 neurons, it is outside the range it was designed to handle, hence that particular training example causes a nan loss in the evaluation.

Using any value greater than 24 will solve the problem, because the maximum encountered is 24, and the one-hot of 25 for instance was already specified to handle values from 0 up to 24.

2 Upvotes

SD

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