Практическое задание №8

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Задание:

Необходимо реализовать собственной CallBack, и провести обучение вашей модели из практического занятия №6 с написанным CallBack'ом. То, какой CallBack необходимо реализовать определяется вариантом.

Вариант 1

Сохранение трех наилучших моделей. Название файлов с моделями должны иметь следующий вид <текущая дата>_<префикс, задаваемый пользователем>_<номер модели>

Реализация:

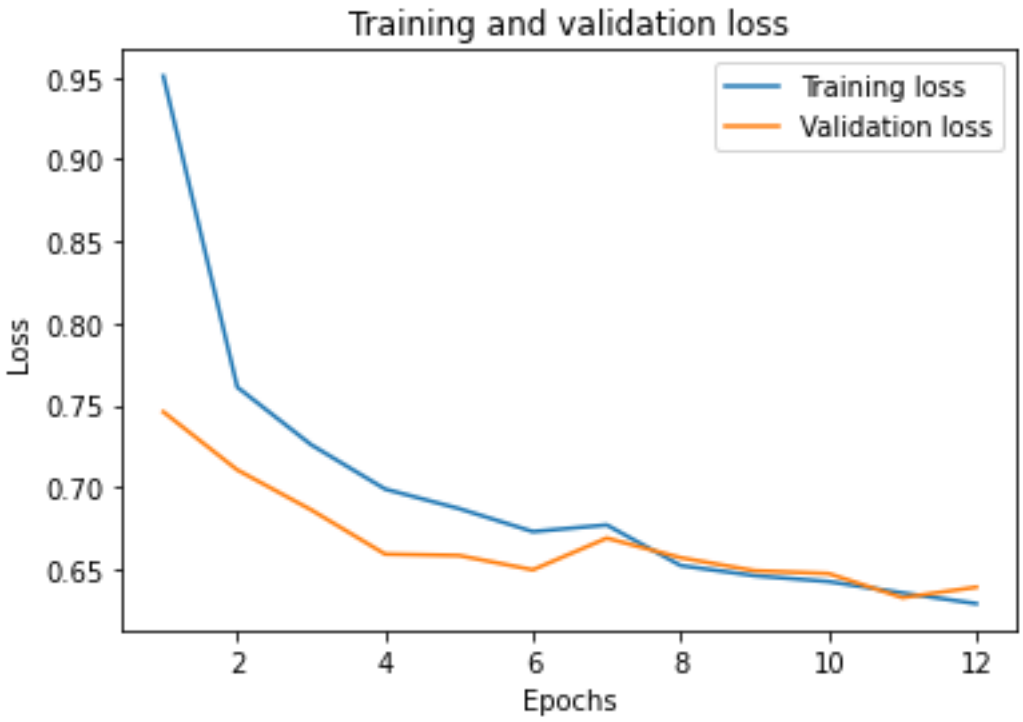
Была взята модель из практической работы №6, представленная в листинге ниже:

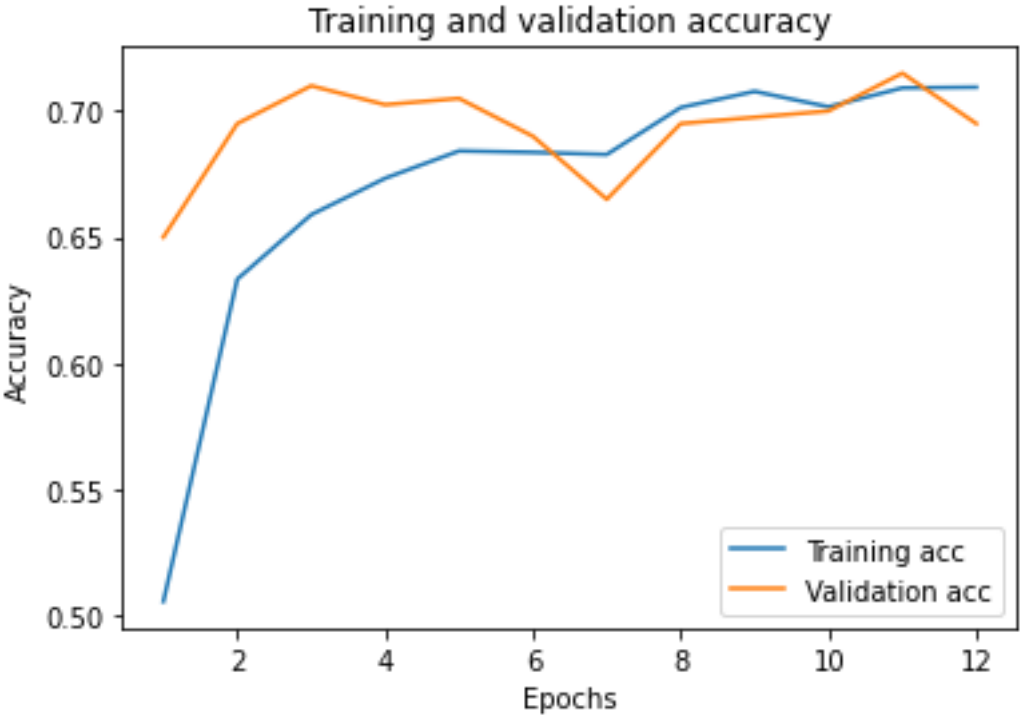
```
model = Sequential()
model.add(Conv2D(16, kernel_size=(7, 7), activation='relu', input_shape=(5
0, 50, 1), padding='same'))
model.add(MaxPooling2D(pool_size=(3, 3)))
model.add(Dropout(0.25))
model.add(Conv2D(32, kernel_size=(7, 7), activation='relu', padding='same'
))
model.add(MaxPooling2D(pool_size=(3, 3)))
model.add(Dropout(0.25))
model.add(Conv2D(64, kernel_size=(7, 7), activation='relu', padding='same'
))
model.add(MaxPooling2D(pool_size=(3, 3)))
model.add(Dropout(0.25))
model.add(Flatten())
model.add(Dense(80, activation='relu'))
model.add(Dropout(0.5))
model.add(Dense(3, activation='softmax'))
```

Примеры работы программы:

```
Epoch 1/12
180/180 [==============================] - 2s 9ms/step - loss: 0.9507 -
accuracy: 0.5056 - val_loss: 0.7460 - val_accuracy: 0.6500
INFO:tensorflow:Assets written to: 19_5_2021_number_model_1/assets
Epoch 2/12
180/180 [==============================] - 1s 8ms/step - loss: 0.7611 -
accuracy: 0.6333 - val_loss: 0.7106 - val_accuracy: 0.6950
INFO:tensorflow:Assets written to: 19_5_2021_number_model_2/assets
Epoch 3/12
```

```
180/180 [==============================] - 1s 8ms/step - loss: 0.7260 -
accuracy: 0.6589 - val_loss: 0.6863 - val_accuracy: 0.7100
INFO:tensorflow:Assets written to: 19_5_2021_number_model_3/assets
Epoch 4/12
180/180 [==============================] - 1s 8ms/step - loss: 0.6990 -
accuracy: 0.6733 - val_loss: 0.6593 - val_accuracy: 0.7025
INFO:tensorflow:Assets written to: 19_5_2021_number_model_1/assets
Epoch 5/12
180/180 [==============================] - 1s 8ms/step - loss: 0.6871 -
accuracy: 0.6842 - val_loss: 0.6585 - val_accuracy: 0.7050
INFO:tensorflow:Assets written to: 19_5_2021_number_model_2/assets
Epoch 6/12
180/180 [==============================] - 1s 8ms/step - loss: 0.6730 -
accuracy: 0.6836 - val_loss: 0.6497 - val_accuracy: 0.6900
INFO:tensorflow:Assets written to: 19_5_2021_number_model_3/assets
Epoch 7/12
180/180 [==============================] - 2s 8ms/step - loss: 0.6771 -
accuracy: 0.6828 - val_loss: 0.6691 - val_accuracy: 0.6650
Epoch 8/12
180/180 [==============================] - 1s 8ms/step - loss: 0.6523 -
accuracy: 0.7014 - val_loss: 0.6571 - val_accuracy: 0.6950
INFO:tensorflow:Assets written to: 19_5_2021_number_model_1/assets
Epoch 9/12
180/180 [==============================] - 1s 8ms/step - loss: 0.6462 -
accuracy: 0.7078 - val_loss: 0.6492 - val_accuracy: 0.6975
INFO:tensorflow:Assets written to: 19_5_2021_number_model_2/assets
Epoch 10/12
180/180 [==============================] - 1s 8ms/step - loss: 0.6426 -
accuracy: 0.7017 - val_loss: 0.6475 - val_accuracy: 0.7000
INFO:tensorflow:Assets written to: 19_5_2021_number_model_3/assets
Epoch 11/12
180/180 [==============================] - 1s 8ms/step - loss: 0.6357 -
accuracy: 0.7092 - val_loss: 0.6328 - val_accuracy: 0.7150
INFO:tensorflow:Assets written to: 19_5_2021_number_model_1/assets
Epoch 12/12
180/180 [==============================] - 1s 8ms/step - loss: 0.6291 -
accuracy: 0.7094 - val_loss: 0.6391 - val_accuracy: 0.6950
INFO:tensorflow:Assets written to: 19_5_2021_number_model_2/assets
19_5_2021_number_model_1 0.632773220539093
19_5_2021_number_model_2 0.6391449570655823
19_5_2021_number_model_3 0.6474516987800598
32/32 [==============================] - 0s 5ms/step - loss: 0.6596 -
accuracy: 0.6610
```


Training and validation loss
Training loss
Validation loss
Loss
0.95
0.90
0.85
0.80
0.75
0.70
0.65
2
4
6
8
10
12
Epochs


Training and validation accuracy
Training acc
Validation acc
Accuracy
0.70
0.65
0.60
0.55
0.50
2
4
6
8
10
12
Epochs