

VGG16 and VGG19 x (16) WhatsApp x GianSz/mlappproject_P1 x train.ipynb - Colaboratory x +

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train.ipynb ☆

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✓ [2] from PIL import Image # to load images
from IPython.display import display # to display images
import matplotlib.pyplot as plt
import numpy as np
import os

✓ [3] import tensorflow as tf
from tensorflow import keras
from tensorflow.keras.preprocessing import image_dataset_from_directory

✓ [4] from google.colab import drive
drive.mount('/content/drive')

Mounted at /content/drive

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✓ [5] cd '/content/drive/MyDrive/P1_TranslateLearning_taller2'
/content/drive/MyDrive/P1_TranslateLearning_taller2


<> ✓ [6] data_path = '/content/drive/MyDrive/P1_TranslateLearning_taller2/Data/cats_vs_dogs_small'

✓ [7] set_name = 'train'
class_name = "dog"

✓ [7] set_name = 'train'
class_name = "dog"
file_name = 'dog.1.jpg'
file_path = os.path.join(data_path, set_name, class_name, file_name)
print(file_path)

/content/drive/MyDrive/P1_TranslateLearning_taller2/Data/cats_vs_dogs_small/train/dog/dog.1.jpg

✓ [8] img = Image.open(file_path)
display(img)
img_array = np.array(img)
print(img_array.shape)



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train.ipynb

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```
[9] training_path = os.path.join(data_path, 'train')
    training_set = image_dataset_from_directory(training_path,
                                                shuffle=True,
                                                batch_size=32,
                                                image_size=(150, 150),
                                                validation_split = 0.2,
                                                subset = 'training',
                                                seed = 1234,
                                                )

    validation_set = image_dataset_from_directory(training_path,
                                                shuffle=True,
                                                batch_size=32,
                                                image_size=(150, 150),
                                                validation_split = 0.2,
                                                subset = 'validation',
                                                seed = 1234,
                                                )

    Found 1066 files belonging to 2 classes.
    Using 853 files for training.
    Found 1066 files belonging to 2 classes.
    Using 213 files for validation.
```

```
class_names = training_set.class_names
plt.figure(figsize=(10, 10))
for images, labels in training_set.take(1):
```

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train.ipynb

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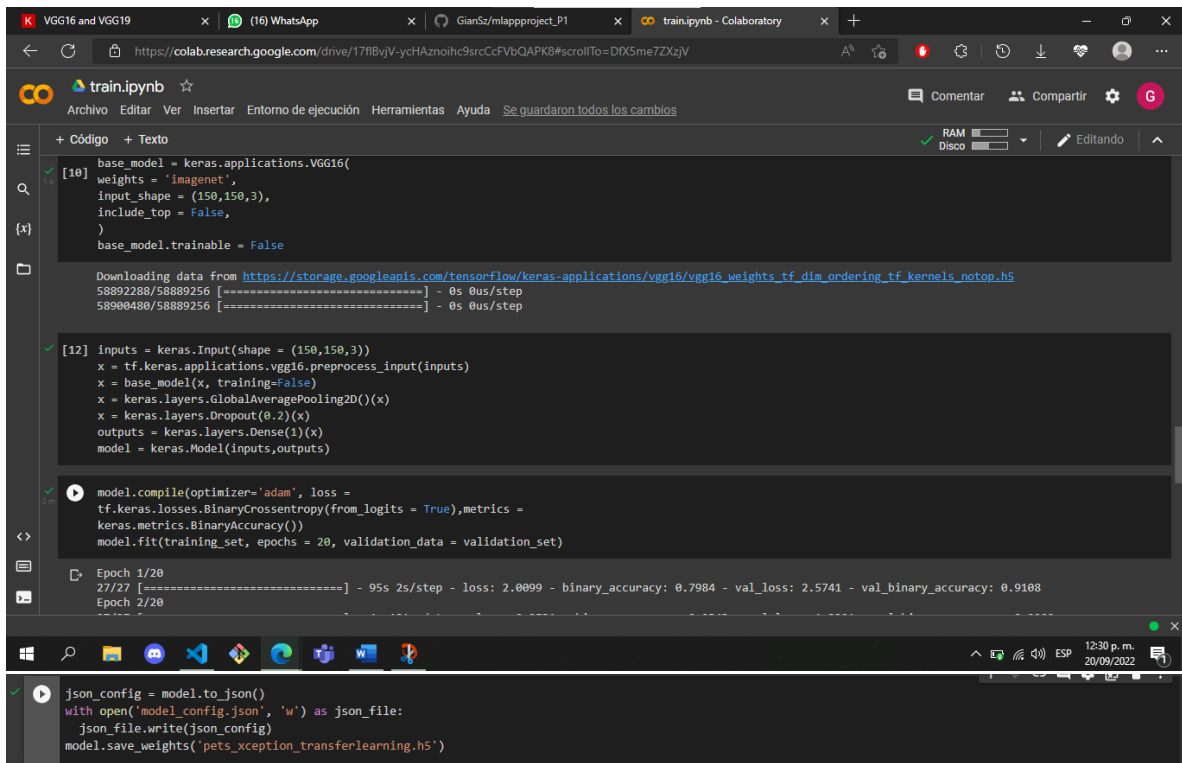
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```
[ ] for images, labels in training_set.take(1):
    for i in range(9):
        ax = plt.subplot(3, 3, i + 1)
        plt.imshow(images[i].numpy().astype("uint8"))
        plt.title(class_names[labels[i]])
        plt.axis("off")
```



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```
base_model = keras.applications.VGG16(
weights = 'imagenet',
input_shape = (150,150,3),
include_top = False,
)
base_model.trainable = False

Downloading data from https://storage.googleapis.com/tensorflow/keras-applications/vgg16/vgg16_weights_tf_dim_ordering_tf_kernels_notop.h5
58892288/58889256 [=====] - 0s 0us/step
58900480/58889256 [=====] - 0s 0us/step

[12] inputs = keras.Input(shape = (150,150,3))
x = tf.keras.applications.vgg16.preprocess_input(inputs)
x = base_model(x, training=False)
x = keras.layers.GlobalAveragePooling2D()(x)
x = keras.layers.Dropout(0.2)(x)
outputs = keras.layers.Dense(1)(x)
model = keras.Model(inputs,outputs)

model.compile(optimizer='adam', loss =
tf.keras.losses.BinaryCrossentropy(from_logits = True),metrics =
keras.metrics.BinaryAccuracy())
model.fit(training_set, epochs = 20, validation_data = validation_set)

Epoch 1/20
27/27 [=====] - 95s 2s/step - loss: 2.0099 - binary_accuracy: 0.7984 - val_loss: 2.5741 - val_binary_accuracy: 0.9108
Epoch 2/20
```

```
json_config = model.to_json()
with open('model_config.json', 'w') as json_file:
    json_file.write(json_config)
model.save_weights('pets_xception_transferlearning.h5')
```