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Implementasi dengan python

```
[1] # DOWNLOAD DATASET
!wget --no-check-certificate \
    https://dicodingacademy.blob.core.windows.net/picodiploma/ml_pemula_academy/rockpaperscissors.zip

--2021-03-19 04:01:04-- https://dicodingacademy.blob.core.windows.net/picodiploma/ml_pemula_academy/rockpaperscissors.zip
Resolving dicodingacademy.blob.core.windows.net (dicodingacademy.blob.core.windows.net)... 52.239.197.36
Connecting to dicodingacademy.blob.core.windows.net (dicodingacademy.blob.core.windows.net)|52.239.197.36|:443...
```

```
2] # UNZIP FILE YANG TELAH DIDOWNLOAD
import zipfile,os
local_zip = 'rockpaperscissors.zip'
zip_ref = zipfile.ZipFile(local_zip, 'r')
# EXTRACT
zip_ref.extractall('file_extracted')
zip_ref.close()

3] from sklearn.model_selection import train_test_split
```

```
[4] base_dir = 'file_extracted/rockpaperscissors/rps-cv-images'

[5] # MELIHAT ISI DIRECTORY
os.listdir(base_dir)
```

```
[6] # AUGMENTASI GAMBAR SECARA ARTIFISIAL MEMBUAT GAMBAR PELATIHAN MELALUI BERBAGAI CARA
# PEMROSESAN ATAU KOMBINASI DARI BEBERAPA PEMROSESAN, SEPERTI ROTASI ACAK,
# PERGESERAN, GESER, BALIK, DLL.

# IMAGEDATAGENERATOR MENGHASILKAN KUMPULAN DATA GAMBAR DENGAN AUGMENTASI.

from tensorflow.keras.preprocessing.image import ImageDataGenerator

train_datagen = ImageDataGenerator(
    rescale=1./255,
    rotation_range=20,
    horizontal_flip=True,
    shear_range = 0.2,
    zoom_range = 0.2,
    validation_split = 0.4,
    fill_mode = 'wrap')
```

```
[7] train_generator = train_datagen.flow_from_directory(
    base_dir,
    target_size=(100, 150),
    shuffle=True,
    subset='training')

validation_generator = train_datagen.flow_from_directory(
    base_dir,
    target_size=(100, 150),
```

```
[8] import tensorflow as tf
model = tf.keras.models.Sequential([
    tf.keras.layers.Conv2D(16, (3,3), activation='relu', input_shape=(100, 150, 3)),
    tf.keras.layers.MaxPooling2D(2, 2),
    tf.keras.layers.Conv2D(32, (3,3), activation='relu'),
    tf.keras.layers.MaxPooling2D(2,2),
    tf.keras.layers.Conv2D(64, (3,3), activation='relu'),
    tf.keras.layers.MaxPooling2D(2,2),
    tf.keras.layers.Conv2D(128, (3,3), activation='relu'),
    tf.keras.layers.MaxPooling2D(2,2),
    tf.keras.layers.Flatten(),
    tf.keras.layers.Dense(512, activation='relu'),
    tf.keras.layers.Dense(3, activation='softmax')
])
```

```
[9] model.compile(loss='categorical_crossentropy',
    optimizer=tf.optimizers.Adam(),
    metrics=['accuracy'])
```

```
[10] model.fit(
    train_generator,
    steps_per_epoch=16,
    epochs=15,
    validation_data=validation_generator,
    validation_steps=4,
    verbose=2)
```

```

# UPLOAD GAMBAR UNTUK DETEKSI GAMBAR
import numpy as np
from google.colab import files
from keras.preprocessing import image
import matplotlib.pyplot as plt
import matplotlib.image as mpimg
%matplotlib inline

uploaded = files.upload()

for fn in uploaded.keys():

    path = fn
    img = image.load_img(path, target_size=(100,150))
    imgplot = plt.imshow(img)
    x = image.img_to_array(img)
    x = np.expand_dims(x, axis=0)

    images = np.vstack([x])
    classes = model.predict(images, batch_size=10)

    print(fn)
    if classes[0][0]==1:
        print('rock')
    elif classes[0][1]==1:
        print('paper')
    else:
        print('scissors')

```

