CarStyle

October 2, 2024

```python
[1]: import tensorflow as tf
     import os
     import cv2
     import math
     import json
     import numpy as np
     from matplotlib import pyplot as plt
     from keras.applications import EfficientNetV2L
     from keras.models import Model
     from keras.layers import Dense, GlobalAveragePooling2D
     from keras.metrics import Precision, Recall, SparseCategoricalAccuracy
```

```python
[2]: print("Num GPUs Available: ", len(tf.config.list_physical_devices('GPU')))
     gpus = tf.config.experimental.list_physical_devices('GPU')
     if gpus:
         try:
             for gpu in gpus:
                 tf.config.experimental.set_memory_growth(gpu, True)
             logical_gpus = tf.config.experimental.list_logical_devices('GPU')
             print(len(gpus), "Physical GPUs,", len(logical_gpus), "Logical GPUs")
         except RuntimeError as e:
             print(e)
```

```
Num GPUs Available:  1
1 Physical GPUs, 1 Logical GPUs
```

```python
[3]: base_dir = 'Styles'
     train_dir = os.path.join(base_dir, 'train')
     val_dir = os.path.join(base_dir, 'valid')
     test_dir = os.path.join(base_dir, 'test')

     img_size = (224, 224)
     batch_size = 16

     train_data = tf.keras.utils.image_dataset_from_directory(
         train_dir,
         image_size=img_size,
         batch_size=batch_size,
```

```
        label_mode='int',
        interpolation='bilinear'
)

val_data = tf.keras.utils.image_dataset_from_directory(
        val_dir,
        image_size=img_size,
        batch_size=batch_size,
        label_mode='int',
        interpolation='bilinear'
)

test_data = tf.keras.utils.image_dataset_from_directory(
        test_dir,
        image_size=img_size,
        batch_size=batch_size,
        label_mode='int',
        interpolation='bilinear'
)
```

```
Found 5350 files belonging to 7 classes.
Found 1397 files belonging to 7 classes.
Found 802 files belonging to 7 classes.
```

[4]:
```python
class_names = train_data.class_names
print("Class names test:", class_names)

with open('CarStyle map.json', 'w') as f:
    json.dump(class_names, f)

data_iterator = train_data.as_numpy_iterator()
```

```
Class names test: ['Convertible', 'Coupe', 'Hatchback', 'Pick-Up', 'SUV',
'Sedan', 'VAN']
```

[5]:
```python
batch = data_iterator.next()
num_classes = len(class_names)
```

[6]:
```python
ncols = 4
nrows = math.ceil(num_classes / ncols)
fig, ax = plt.subplots(nrows=nrows, ncols=ncols, figsize=(20, 20))

if nrows == 1:
    ax = ax.flatten()
elif ncols == 1:
    ax = ax.flatten()

plotted = set()
```
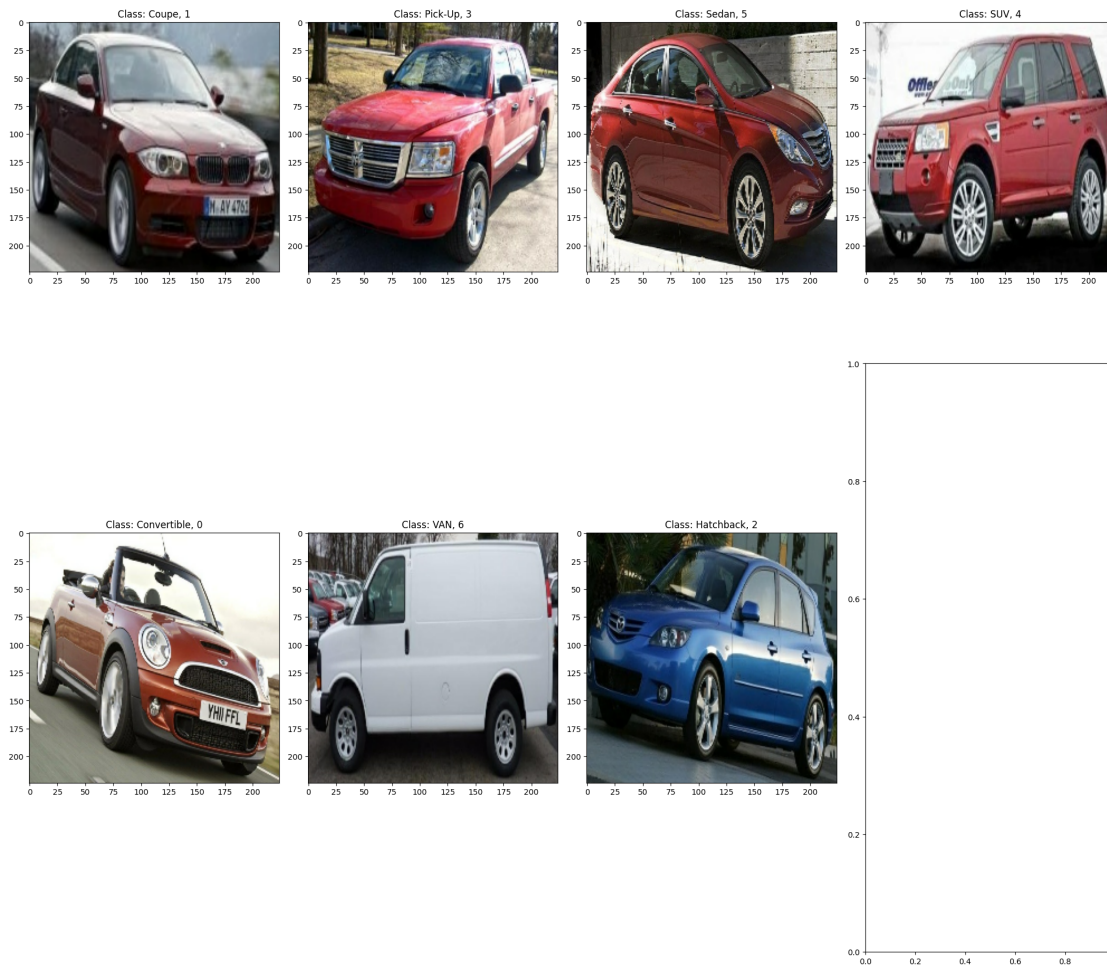
```
count = 0
while count < num_classes:
    batch = next(data_iterator)

    for idx, img in enumerate(batch[0]):
        label = batch[1][idx]
        if label not in plotted:
            ax_idx = count if nrows == 1 or ncols == 1 else (count // ncols,␣
 ↪count % ncols)
            ax[ax_idx].imshow(img.astype(int))
            ax[ax_idx].title.set_text(f"Class: {class_names[label]}, {label}")
            plotted.add(label)
            count += 1

        if count == num_classes:
            break

plt.tight_layout()
plt.show()
```

```
[7]: base_model = EfficientNetV2L(
         weights='imagenet',
         include_top=False,
         input_shape=(224, 224, 3)
     )
     base_model.summary()
```

Model: "efficientnetv2-l"

 Layer (type)   Output Shape   Param #   Connected to
===
==================
 input_1 (InputLayer)   [(None, 224, 224, 3 0   []
)]

 rescaling (Rescaling)   (None, 224, 224, 3) 0
['input_1[0][0]']

 stem_conv (Conv2D)   (None, 112, 112, 32 864
['rescaling[0][0]']
)

 stem_bn (BatchNormalization) (None, 112, 112, 32 128
['stem_conv[0][0]']
)

 stem_activation (Activation) (None, 112, 112, 32 0
['stem_bn[0][0]']
)

 block1a_project_conv (Conv2D) (None, 112, 112, 32 9216
['stem_activation[0][0]']
)

 block1a_project_bn (BatchNorma (None, 112, 112, 32 128
['block1a_project_conv[0][0]']
 lization)   )

 block1a_project_activation (Ac (None, 112, 112, 32 0
['block1a_project_bn[0][0]']
 tivation)   )

 block1a_add (Add)   (None, 112, 112, 32 0
['block1a_project_activation[0][0
```

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```
                                )                                          ]',
'stem_activation[0][0]']

 block1b_project_conv (Conv2D)  (None, 112, 112, 32   9216
['block1a_add[0][0]']
                                )

 block1b_project_bn (BatchNorma  (None, 112, 112, 32   128
['block1b_project_conv[0][0]']
 lization)                      )

 block1b_project_activation (Ac  (None, 112, 112, 32   0
['block1b_project_bn[0][0]']
 tivation)                      )

 block1b_drop (Dropout)         (None, 112, 112, 32   0
['block1b_project_activation[0][0
                                )                                          ]']

 block1b_add (Add)              (None, 112, 112, 32   0
['block1b_drop[0][0]',
                                )
'block1a_add[0][0]']

 block1c_project_conv (Conv2D)  (None, 112, 112, 32   9216
['block1b_add[0][0]']
                                )

 block1c_project_bn (BatchNorma  (None, 112, 112, 32   128
['block1c_project_conv[0][0]']
 lization)                      )

 block1c_project_activation (Ac  (None, 112, 112, 32   0
['block1c_project_bn[0][0]']
 tivation)                      )

 block1c_drop (Dropout)         (None, 112, 112, 32   0
['block1c_project_activation[0][0
                                )                                          ]']

 block1c_add (Add)              (None, 112, 112, 32   0
['block1c_drop[0][0]',
                                )
'block1b_add[0][0]']

 block1d_project_conv (Conv2D)  (None, 112, 112, 32   9216
['block1c_add[0][0]']
                                )
```

```
block1d_project_bn (BatchNorma   (None, 112, 112, 32   128
['block1d_project_conv[0][0]']
 lization)                       )

 block1d_project_activation (Ac  (None, 112, 112, 32   0
['block1d_project_bn[0][0]']
 tivation)                       )

 block1d_drop (Dropout)          (None, 112, 112, 32   0
['block1d_project_activation[0][0
                                 )                                          ]']

 block1d_add (Add)               (None, 112, 112, 32   0
['block1d_drop[0][0]',
                                 )
'block1c_add[0][0]']

 block2a_expand_conv (Conv2D)    (None, 56, 56, 128)   36864
['block1d_add[0][0]']

 block2a_expand_bn (BatchNormal  (None, 56, 56, 128)   512
['block2a_expand_conv[0][0]']
 ization)

 block2a_expand_activation (Act  (None, 56, 56, 128)   0
['block2a_expand_bn[0][0]']
 ivation)

 block2a_project_conv (Conv2D)   (None, 56, 56, 64)    8192
['block2a_expand_activation[0][0
                                                                           ']

 block2a_project_bn (BatchNorma  (None, 56, 56, 64)    256
['block2a_project_conv[0][0]']
 lization)

 block2b_expand_conv (Conv2D)    (None, 56, 56, 256)   147456
['block2a_project_bn[0][0]']

 block2b_expand_bn (BatchNormal  (None, 56, 56, 256)   1024
['block2b_expand_conv[0][0]']
 ization)

 block2b_expand_activation (Act  (None, 56, 56, 256)   0
['block2b_expand_bn[0][0]']
 ivation)
```

```
block2b_project_conv (Conv2D)  (None, 56, 56, 64)    16384
['block2b_expand_activation[0][0]
                                                                ']


block2b_project_bn (BatchNorma  (None, 56, 56, 64)   256
['block2b_project_conv[0][0]']
lization)

block2b_drop (Dropout)         (None, 56, 56, 64)    0
['block2b_project_bn[0][0]']

block2b_add (Add)              (None, 56, 56, 64)    0
['block2b_drop[0][0]',
'block2a_project_bn[0][0]']

block2c_expand_conv (Conv2D)   (None, 56, 56, 256)   147456
['block2b_add[0][0]']

block2c_expand_bn (BatchNormal  (None, 56, 56, 256)  1024
['block2c_expand_conv[0][0]']
ization)

block2c_expand_activation (Act  (None, 56, 56, 256)  0
['block2c_expand_bn[0][0]']
ivation)

block2c_project_conv (Conv2D)  (None, 56, 56, 64)    16384
['block2c_expand_activation[0][0]
                                                                ']


block2c_project_bn (BatchNorma  (None, 56, 56, 64)   256
['block2c_project_conv[0][0]']
lization)

block2c_drop (Dropout)         (None, 56, 56, 64)    0
['block2c_project_bn[0][0]']

block2c_add (Add)              (None, 56, 56, 64)    0
['block2c_drop[0][0]',
'block2b_add[0][0]']

block2d_expand_conv (Conv2D)   (None, 56, 56, 256)   147456
['block2c_add[0][0]']

block2d_expand_bn (BatchNormal  (None, 56, 56, 256)  1024
['block2d_expand_conv[0][0]']
ization)
```

```
 block2d_expand_activation (Act   (None, 56, 56, 256)   0
['block2d_expand_bn[0][0]']
 ivation)

 block2d_project_conv (Conv2D)   (None, 56, 56, 64)   16384
['block2d_expand_activation[0][0]

                                                                    ']

 block2d_project_bn (BatchNorma   (None, 56, 56, 64)   256
['block2d_project_conv[0][0]']
 lization)

 block2d_drop (Dropout)          (None, 56, 56, 64)   0
['block2d_project_bn[0][0]']

 block2d_add (Add)               (None, 56, 56, 64)   0
['block2d_drop[0][0]',
'block2c_add[0][0]']

 block2e_expand_conv (Conv2D)    (None, 56, 56, 256)   147456
['block2d_add[0][0]']

 block2e_expand_bn (BatchNormal   (None, 56, 56, 256)   1024
['block2e_expand_conv[0][0]']
 ization)

 block2e_expand_activation (Act   (None, 56, 56, 256)   0
['block2e_expand_bn[0][0]']
 ivation)

 block2e_project_conv (Conv2D)   (None, 56, 56, 64)   16384
['block2e_expand_activation[0][0]

                                                                    ']

 block2e_project_bn (BatchNorma   (None, 56, 56, 64)   256
['block2e_project_conv[0][0]']
 lization)

 block2e_drop (Dropout)          (None, 56, 56, 64)   0
['block2e_project_bn[0][0]']

 block2e_add (Add)               (None, 56, 56, 64)   0
['block2e_drop[0][0]',
'block2d_add[0][0]']

 block2f_expand_conv (Conv2D)    (None, 56, 56, 256)   147456
['block2e_add[0][0]']
```

```
block2f_expand_bn (BatchNormal   (None, 56, 56, 256)   1024
['block2f_expand_conv[0][0]']
 ization)

 block2f_expand_activation (Act   (None, 56, 56, 256)   0
['block2f_expand_bn[0][0]']
 ivation)

 block2f_project_conv (Conv2D)   (None, 56, 56, 64)   16384
['block2f_expand_activation[0][0]

                                                                ']

 block2f_project_bn (BatchNorma   (None, 56, 56, 64)   256
['block2f_project_conv[0][0]']
 lization)

 block2f_drop (Dropout)          (None, 56, 56, 64)   0
['block2f_project_bn[0][0]']

 block2f_add (Add)               (None, 56, 56, 64)   0
['block2f_drop[0][0]',
'block2e_add[0][0]']

 block2g_expand_conv (Conv2D)    (None, 56, 56, 256)   147456
['block2f_add[0][0]']

 block2g_expand_bn (BatchNormal   (None, 56, 56, 256)   1024
['block2g_expand_conv[0][0]']
 ization)

 block2g_expand_activation (Act   (None, 56, 56, 256)   0
['block2g_expand_bn[0][0]']
 ivation)

 block2g_project_conv (Conv2D)   (None, 56, 56, 64)   16384
['block2g_expand_activation[0][0]

                                                                ']

 block2g_project_bn (BatchNorma   (None, 56, 56, 64)   256
['block2g_project_conv[0][0]']
 lization)

 block2g_drop (Dropout)          (None, 56, 56, 64)   0
['block2g_project_bn[0][0]']

 block2g_add (Add)               (None, 56, 56, 64)   0
['block2g_drop[0][0]',
'block2f_add[0][0]']
```

```
block3a_expand_conv (Conv2D)    (None, 28, 28, 256)  147456
['block2g_add[0][0]']

block3a_expand_bn (BatchNormal  (None, 28, 28, 256)  1024
['block3a_expand_conv[0][0]']
 ization)

block3a_expand_activation (Act  (None, 28, 28, 256)  0
['block3a_expand_bn[0][0]']
 ivation)

block3a_project_conv (Conv2D)  (None, 28, 28, 96)   24576
['block3a_expand_activation[0][0]
                                                          ']

block3a_project_bn (BatchNorma  (None, 28, 28, 96)   384
['block3a_project_conv[0][0]']
 lization)

block3b_expand_conv (Conv2D)    (None, 28, 28, 384)  331776
['block3a_project_bn[0][0]']

block3b_expand_bn (BatchNormal  (None, 28, 28, 384)  1536
['block3b_expand_conv[0][0]']
 ization)

block3b_expand_activation (Act  (None, 28, 28, 384)  0
['block3b_expand_bn[0][0]']
 ivation)

block3b_project_conv (Conv2D)  (None, 28, 28, 96)   36864
['block3b_expand_activation[0][0]
                                                          ']

block3b_project_bn (BatchNorma  (None, 28, 28, 96)   384
['block3b_project_conv[0][0]']
 lization)

block3b_drop (Dropout)         (None, 28, 28, 96)   0
['block3b_project_bn[0][0]']

block3b_add (Add)              (None, 28, 28, 96)   0
['block3b_drop[0][0]',
 'block3a_project_bn[0][0]']

block3c_expand_conv (Conv2D)    (None, 28, 28, 384)  331776
['block3b_add[0][0]']
```

```
block3c_expand_bn (BatchNormal   (None, 28, 28, 384)   1536
['block3c_expand_conv[0][0]']
 ization)

 block3c_expand_activation (Act   (None, 28, 28, 384)   0
['block3c_expand_bn[0][0]']
 ivation)

 block3c_project_conv (Conv2D)   (None, 28, 28, 96)    36864
['block3c_expand_activation[0][0]
                                                             ']

 block3c_project_bn (BatchNorma   (None, 28, 28, 96)    384
['block3c_project_conv[0][0]']
 lization)

 block3c_drop (Dropout)          (None, 28, 28, 96)    0
['block3c_project_bn[0][0]']

 block3c_add (Add)               (None, 28, 28, 96)    0
['block3c_drop[0][0]',
'block3b_add[0][0]']

 block3d_expand_conv (Conv2D)    (None, 28, 28, 384)   331776
['block3c_add[0][0]']

 block3d_expand_bn (BatchNormal   (None, 28, 28, 384)   1536
['block3d_expand_conv[0][0]']
 ization)

 block3d_expand_activation (Act   (None, 28, 28, 384)   0
['block3d_expand_bn[0][0]']
 ivation)

 block3d_project_conv (Conv2D)   (None, 28, 28, 96)    36864
['block3d_expand_activation[0][0]
                                                             ']

 block3d_project_bn (BatchNorma   (None, 28, 28, 96)    384
['block3d_project_conv[0][0]']
 lization)

 block3d_drop (Dropout)          (None, 28, 28, 96)    0
['block3d_project_bn[0][0]']

 block3d_add (Add)               (None, 28, 28, 96)    0
['block3d_drop[0][0]',
```

```
'block3c_add[0][0]']

 block3e_expand_conv (Conv2D)    (None, 28, 28, 384)   331776
['block3d_add[0][0]']

 block3e_expand_bn (BatchNormal  (None, 28, 28, 384)   1536
['block3e_expand_conv[0][0]'
 ization)

 block3e_expand_activation (Act  (None, 28, 28, 384)   0
['block3e_expand_bn[0][0]']
 ivation)

 block3e_project_conv (Conv2D)   (None, 28, 28, 96)    36864
['block3e_expand_activation[0][0]
                                                             ']

 block3e_project_bn (BatchNorma  (None, 28, 28, 96)    384
['block3e_project_conv[0][0]']
 lization)

 block3e_drop (Dropout)          (None, 28, 28, 96)    0
['block3e_project_bn[0][0]']

 block3e_add (Add)               (None, 28, 28, 96)    0
['block3e_drop[0][0]',
 'block3d_add[0][0]']

 block3f_expand_conv (Conv2D)    (None, 28, 28, 384)   331776
['block3e_add[0][0]']

 block3f_expand_bn (BatchNormal  (None, 28, 28, 384)   1536
['block3f_expand_conv[0][0]']
 ization)

 block3f_expand_activation (Act  (None, 28, 28, 384)   0
['block3f_expand_bn[0][0]']
 ivation)

 block3f_project_conv (Conv2D)   (None, 28, 28, 96)    36864
['block3f_expand_activation[0][0]
                                                             ']

 block3f_project_bn (BatchNorma  (None, 28, 28, 96)    384
['block3f_project_conv[0][0]']
 lization)

 block3f_drop (Dropout)          (None, 28, 28, 96)    0
```

```
['block3f_project_bn[0][0]']

 block3f_add (Add)              (None, 28, 28, 96)   0
['block3f_drop[0][0]',
'block3e_add[0][0]']

 block3g_expand_conv (Conv2D)   (None, 28, 28, 384)  331776
['block3f_add[0][0]']

 block3g_expand_bn (BatchNormal (None, 28, 28, 384)  1536
['block3g_expand_conv[0][0]'
 ization)

 block3g_expand_activation (Act (None, 28, 28, 384)  0
['block3g_expand_bn[0][0]']
 ivation)

 block3g_project_conv (Conv2D)  (None, 28, 28, 96)   36864
['block3g_expand_activation[0][0
                                                                                  ']

 block3g_project_bn (BatchNorma (None, 28, 28, 96)   384
['block3g_project_conv[0][0]']
 lization)

 block3g_drop (Dropout)         (None, 28, 28, 96)   0
['block3g_project_bn[0][0]']

 block3g_add (Add)              (None, 28, 28, 96)   0
['block3g_drop[0][0]',
'block3f_add[0][0]']

 block4a_expand_conv (Conv2D)   (None, 28, 28, 384)  36864
['block3g_add[0][0]']

 block4a_expand_bn (BatchNormal (None, 28, 28, 384)  1536
['block4a_expand_conv[0][0]']
 ization)

 block4a_expand_activation (Act (None, 28, 28, 384)  0
['block4a_expand_bn[0][0]']
 ivation)

 block4a_dwconv2 (DepthwiseConv (None, 14, 14, 384)  3456
['block4a_expand_activation[0][0
 2D)                                                                              ']

 block4a_bn (BatchNormalization (None, 14, 14, 384)  1536
```

```
['block4a_dwconv2[0][0]']
 )

 block4a_activation (Activation  (None, 14, 14, 384)  0
['block4a_bn[0][0]']
 )

 block4a_se_squeeze (GlobalAver  (None, 384)          0
['block4a_activation[0][0]']
 agePooling2D)

 block4a_se_reshape (Reshape)    (None, 1, 1, 384)    0
['block4a_se_squeeze[0][0]']

 block4a_se_reduce (Conv2D)      (None, 1, 1, 24)     9240
['block4a_se_reshape[0][0]']

 block4a_se_expand (Conv2D)      (None, 1, 1, 384)    9600
['block4a_se_reduce[0][0]']

 block4a_se_excite (Multiply)    (None, 14, 14, 384)  0
['block4a_activation[0][0]',
 'block4a_se_expand[0][0]']

 block4a_project_conv (Conv2D)   (None, 14, 14, 192)  73728
['block4a_se_excite[0][0]']

 block4a_project_bn (BatchNorma  (None, 14, 14, 192)  768
['block4a_project_conv[0][0]']
 lization)

 block4b_expand_conv (Conv2D)    (None, 14, 14, 768)  147456
['block4a_project_bn[0][0]']

 block4b_expand_bn (BatchNormal  (None, 14, 14, 768)  3072
['block4b_expand_conv[0][0]']
 ization)

 block4b_expand_activation (Act  (None, 14, 14, 768)  0
['block4b_expand_bn[0][0]']
 ivation)

 block4b_dwconv2 (DepthwiseConv  (None, 14, 14, 768)  6912
['block4b_expand_activation[0][0]
 2D)                                                                    ']

 block4b_bn (BatchNormalization  (None, 14, 14, 768)  3072
['block4b_dwconv2[0][0]']
```

```
)

 block4b_activation (Activation  (None, 14, 14, 768)  0
['block4b_bn[0][0]']
 )

 block4b_se_squeeze (GlobalAver  (None, 768)          0
['block4b_activation[0][0]']
 agePooling2D)

 block4b_se_reshape (Reshape)    (None, 1, 1, 768)    0
['block4b_se_squeeze[0][0]']

 block4b_se_reduce (Conv2D)      (None, 1, 1, 48)     36912
['block4b_se_reshape[0][0]']

 block4b_se_expand (Conv2D)      (None, 1, 1, 768)    37632
['block4b_se_reduce[0][0]']

 block4b_se_excite (Multiply)    (None, 14, 14, 768)  0
['block4b_activation[0][0]',
'block4b_se_expand[0][0]']

 block4b_project_conv (Conv2D)   (None, 14, 14, 192)  147456
['block4b_se_excite[0][0]']

 block4b_project_bn (BatchNorma  (None, 14, 14, 192)  768
['block4b_project_conv[0][0]']
 lization)

 block4b_drop (Dropout)          (None, 14, 14, 192)  0
['block4b_project_bn[0][0]']

 block4b_add (Add)               (None, 14, 14, 192)  0
['block4b_drop[0][0]',
'block4a_project_bn[0][0]']

 block4c_expand_conv (Conv2D)    (None, 14, 14, 768)  147456
['block4b_add[0][0]']

 block4c_expand_bn (BatchNormal  (None, 14, 14, 768)  3072
['block4c_expand_conv[0][0]']
 ization)

 block4c_expand_activation (Act  (None, 14, 14, 768)  0
['block4c_expand_bn[0][0]']
 ivation)
```

```
 block4c_dwconv2 (DepthwiseConv   (None, 14, 14, 768)   6912
['block4c_expand_activation[0][0]
 2D)                                                                      ']


 block4c_bn (BatchNormalization   (None, 14, 14, 768)   3072
['block4c_dwconv2[0][0]']
 )


 block4c_activation (Activation   (None, 14, 14, 768)   0
['block4c_bn[0][0]']
 )


 block4c_se_squeeze (GlobalAver   (None, 768)           0
['block4c_activation[0][0]']
 agePooling2D)


 block4c_se_reshape (Reshape)     (None, 1, 1, 768)     0
['block4c_se_squeeze[0][0]']


 block4c_se_reduce (Conv2D)       (None, 1, 1, 48)      36912
['block4c_se_reshape[0][0]']


 block4c_se_expand (Conv2D)       (None, 1, 1, 768)     37632
['block4c_se_reduce[0][0]']


 block4c_se_excite (Multiply)     (None, 14, 14, 768)   0
['block4c_activation[0][0]',
 'block4c_se_expand[0][0]']


 block4c_project_conv (Conv2D)    (None, 14, 14, 192)   147456
['block4c_se_excite[0][0]']


 block4c_project_bn (BatchNorma   (None, 14, 14, 192)   768
['block4c_project_conv[0][0]']
 lization)


 block4c_drop (Dropout)           (None, 14, 14, 192)   0
['block4c_project_bn[0][0]']


 block4c_add (Add)                (None, 14, 14, 192)   0
['block4c_drop[0][0]',
 'block4b_add[0][0]']


 block4d_expand_conv (Conv2D)     (None, 14, 14, 768)   147456
['block4c_add[0][0]']


 block4d_expand_bn (BatchNormal   (None, 14, 14, 768)   3072
['block4d_expand_conv[0][0]']
```

```
ization)

 block4d_expand_activation (Act    (None, 14, 14, 768)   0
['block4d_expand_bn[0][0]']
 ivation)

 block4d_dwconv2 (DepthwiseConv   (None, 14, 14, 768)   6912
['block4d_expand_activation[0][0]
 2D)                                                          ']

 block4d_bn (BatchNormalization   (None, 14, 14, 768)   3072
['block4d_dwconv2[0][0]']
 )

 block4d_activation (Activation   (None, 14, 14, 768)   0
['block4d_bn[0][0]']
 )

 block4d_se_squeeze (GlobalAver   (None, 768)           0
['block4d_activation[0][0]']
 agePooling2D)

 block4d_se_reshape (Reshape)     (None, 1, 1, 768)     0
['block4d_se_squeeze[0][0]']

 block4d_se_reduce (Conv2D)       (None, 1, 1, 48)      36912
['block4d_se_reshape[0][0]']

 block4d_se_expand (Conv2D)       (None, 1, 1, 768)     37632
['block4d_se_reduce[0][0]']

 block4d_se_excite (Multiply)     (None, 14, 14, 768)   0
['block4d_activation[0][0]',
'block4d_se_expand[0][0]']

 block4d_project_conv (Conv2D)   (None, 14, 14, 192)   147456
['block4d_se_excite[0][0]']

 block4d_project_bn (BatchNorma   (None, 14, 14, 192)   768
['block4d_project_conv[0][0]']
 lization)

 block4d_drop (Dropout)           (None, 14, 14, 192)   0
['block4d_project_bn[0][0]']

 block4d_add (Add)                (None, 14, 14, 192)   0
['block4d_drop[0][0]',
'block4c_add[0][0]']
```

```
 block4e_expand_conv (Conv2D)    (None, 14, 14, 768)  147456
['block4d_add[0][0]']

 block4e_expand_bn (BatchNormal  (None, 14, 14, 768)  3072
['block4e_expand_conv[0][0]']
 ization)

 block4e_expand_activation (Act  (None, 14, 14, 768)  0
['block4e_expand_bn[0][0]']
 ivation)

 block4e_dwconv2 (DepthwiseConv  (None, 14, 14, 768)  6912
['block4e_expand_activation[0][0]
 2D)                                                                        ']

 block4e_bn (BatchNormalization  (None, 14, 14, 768)  3072
['block4e_dwconv2[0][0]']
 )

 block4e_activation (Activation  (None, 14, 14, 768)  0
['block4e_bn[0][0]']
 )

 block4e_se_squeeze (GlobalAver  (None, 768)          0
['block4e_activation[0][0]']
 agePooling2D)

 block4e_se_reshape (Reshape)    (None, 1, 1, 768)    0
['block4e_se_squeeze[0][0]']

 block4e_se_reduce (Conv2D)      (None, 1, 1, 48)     36912
['block4e_se_reshape[0][0]']

 block4e_se_expand (Conv2D)      (None, 1, 1, 768)    37632
['block4e_se_reduce[0][0]']

 block4e_se_excite (Multiply)    (None, 14, 14, 768)  0
['block4e_activation[0][0]',
 'block4e_se_expand[0][0]']

 block4e_project_conv (Conv2D)   (None, 14, 14, 192)  147456
['block4e_se_excite[0][0]']

 block4e_project_bn (BatchNorma  (None, 14, 14, 192)  768
['block4e_project_conv[0][0]']
 lization)
```

```
block4e_drop (Dropout)        (None, 14, 14, 192)   0
['block4e_project_bn[0][0]']

block4e_add (Add)             (None, 14, 14, 192)   0
['block4e_drop[0][0]',
'block4d_add[0][0]']

block4f_expand_conv (Conv2D)  (None, 14, 14, 768)   147456
['block4e_add[0][0]']

block4f_expand_bn (BatchNormal  (None, 14, 14, 768)  3072
['block4f_expand_conv[0][0]']
ization)

block4f_expand_activation (Act  (None, 14, 14, 768)  0
['block4f_expand_bn[0][0]']
ivation)

block4f_dwconv2 (DepthwiseConv  (None, 14, 14, 768)  6912
['block4f_expand_activation[0][0]
2D)                                                                    ']

block4f_bn (BatchNormalization  (None, 14, 14, 768)  3072
['block4f_dwconv2[0][0]']
)

block4f_activation (Activation  (None, 14, 14, 768)  0
['block4f_bn[0][0]']
)

block4f_se_squeeze (GlobalAver  (None, 768)          0
['block4f_activation[0][0]']
agePooling2D)

block4f_se_reshape (Reshape)  (None, 1, 1, 768)    0
['block4f_se_squeeze[0][0]']

block4f_se_reduce (Conv2D)    (None, 1, 1, 48)     36912
['block4f_se_reshape[0][0]']

block4f_se_expand (Conv2D)    (None, 1, 1, 768)    37632
['block4f_se_reduce[0][0]']

block4f_se_excite (Multiply)  (None, 14, 14, 768)   0
['block4f_activation[0][0]',
'block4f_se_expand[0][0]']

block4f_project_conv (Conv2D)  (None, 14, 14, 192)  147456
```

```
['block4f_se_excite[0][0]']

 block4f_project_bn (BatchNorma   (None, 14, 14, 192)   768
['block4f_project_conv[0][0]']
 lization)

 block4f_drop (Dropout)          (None, 14, 14, 192)   0
['block4f_project_bn[0][0]']

 block4f_add (Add)               (None, 14, 14, 192)   0
['block4f_drop[0][0]',
'block4e_add[0][0]']

 block4g_expand_conv (Conv2D)    (None, 14, 14, 768)   147456
['block4f_add[0][0]']

 block4g_expand_bn (BatchNormal  (None, 14, 14, 768)   3072
['block4g_expand_conv[0][0]']
 ization)

 block4g_expand_activation (Act  (None, 14, 14, 768)   0
['block4g_expand_bn[0][0]']
 ivation)

 block4g_dwconv2 (DepthwiseConv  (None, 14, 14, 768)   6912
['block4g_expand_activation[0][0]
 2D)                                                                               ']

 block4g_bn (BatchNormalization  (None, 14, 14, 768)   3072
['block4g_dwconv2[0][0]']
 )

 block4g_activation (Activation  (None, 14, 14, 768)   0
['block4g_bn[0][0]']
 )

 block4g_se_squeeze (GlobalAver  (None, 768)           0
['block4g_activation[0][0]']
 agePooling2D)

 block4g_se_reshape (Reshape)    (None, 1, 1, 768)     0
['block4g_se_squeeze[0][0]']

 block4g_se_reduce (Conv2D)      (None, 1, 1, 48)      36912
['block4g_se_reshape[0][0]']

 block4g_se_expand (Conv2D)      (None, 1, 1, 768)     37632
['block4g_se_reduce[0][0]']
```

```
block4g_se_excite (Multiply)   (None, 14, 14, 768)  0
['block4g_activation[0][0]',
'block4g_se_expand[0][0]']

block4g_project_conv (Conv2D)  (None, 14, 14, 192)  147456
['block4g_se_excite[0][0]']

block4g_project_bn (BatchNorma  (None, 14, 14, 192)  768
['block4g_project_conv[0][0]']
lization)

block4g_drop (Dropout)         (None, 14, 14, 192)  0
['block4g_project_bn[0][0]']

block4g_add (Add)              (None, 14, 14, 192)  0
['block4g_drop[0][0]',
'block4f_add[0][0]']

block4h_expand_conv (Conv2D)   (None, 14, 14, 768)  147456
['block4g_add[0][0]']

block4h_expand_bn (BatchNormal  (None, 14, 14, 768)  3072
['block4h_expand_conv[0][0]']
ization)

block4h_expand_activation (Act  (None, 14, 14, 768)  0
['block4h_expand_bn[0][0]']
ivation)

block4h_dwconv2 (DepthwiseConv  (None, 14, 14, 768)  6912
['block4h_expand_activation[0][0]
2D)                                                                              ']

block4h_bn (BatchNormalization  (None, 14, 14, 768)  3072
['block4h_dwconv2[0][0]']
)

block4h_activation (Activation  (None, 14, 14, 768)  0
['block4h_bn[0][0]']
)

block4h_se_squeeze (GlobalAver  (None, 768)          0
['block4h_activation[0][0]']
agePooling2D)

block4h_se_reshape (Reshape)   (None, 1, 1, 768)    0
['block4h_se_squeeze[0][0]']
```

```
block4h_se_reduce (Conv2D)      (None, 1, 1, 48)      36912
['block4h_se_reshape[0][0]']

block4h_se_expand (Conv2D)      (None, 1, 1, 768)     37632
['block4h_se_reduce[0][0]']

block4h_se_excite (Multiply)    (None, 14, 14, 768)   0
['block4h_activation[0][0]',
'block4h_se_expand[0][0]']

block4h_project_conv (Conv2D)   (None, 14, 14, 192)   147456
['block4h_se_excite[0][0]']

block4h_project_bn (BatchNorma  (None, 14, 14, 192)   768
['block4h_project_conv[0][0]']
lization)

block4h_drop (Dropout)          (None, 14, 14, 192)   0
['block4h_project_bn[0][0]']

block4h_add (Add)               (None, 14, 14, 192)   0
['block4h_drop[0][0]',
'block4g_add[0][0]']

block4i_expand_conv (Conv2D)    (None, 14, 14, 768)   147456
['block4h_add[0][0]']

block4i_expand_bn (BatchNormal  (None, 14, 14, 768)   3072
['block4i_expand_conv[0][0]']
ization)

block4i_expand_activation (Act  (None, 14, 14, 768)   0
['block4i_expand_bn[0][0]']
ivation)

block4i_dwconv2 (DepthwiseConv  (None, 14, 14, 768)   6912
['block4i_expand_activation[0][0]
2D)                                                                         ']

block4i_bn (BatchNormalization  (None, 14, 14, 768)   3072
['block4i_dwconv2[0][0]']
)

block4i_activation (Activation  (None, 14, 14, 768)   0
['block4i_bn[0][0]']
)
```

```
block4i_se_squeeze (GlobalAver    (None, 768)         0
['block4i_activation[0][0]']
 agePooling2D)

 block4i_se_reshape (Reshape)     (None, 1, 1, 768)    0
['block4i_se_squeeze[0][0]']

 block4i_se_reduce (Conv2D)       (None, 1, 1, 48)     36912
['block4i_se_reshape[0][0]']

 block4i_se_expand (Conv2D)       (None, 1, 1, 768)    37632
['block4i_se_reduce[0][0]']

 block4i_se_excite (Multiply)     (None, 14, 14, 768)  0
['block4i_activation[0][0]',
 'block4i_se_expand[0][0]']

 block4i_project_conv (Conv2D)    (None, 14, 14, 192)  147456
['block4i_se_excite[0][0]']

 block4i_project_bn (BatchNorma   (None, 14, 14, 192)  768
['block4i_project_conv[0][0]']
 lization)

 block4i_drop (Dropout)           (None, 14, 14, 192)  0
['block4i_project_bn[0][0]']

 block4i_add (Add)                (None, 14, 14, 192)  0
['block4i_drop[0][0]',
 'block4h_add[0][0]']

 block4j_expand_conv (Conv2D)     (None, 14, 14, 768)  147456
['block4i_add[0][0]']

 block4j_expand_bn (BatchNormal   (None, 14, 14, 768)  3072
['block4j_expand_conv[0][0]']
 ization)

 block4j_expand_activation (Act   (None, 14, 14, 768)  0
['block4j_expand_bn[0][0]']
 ivation)

 block4j_dwconv2 (DepthwiseConv   (None, 14, 14, 768)  6912
['block4j_expand_activation[0][0]
 2D)                                                                      ']

 block4j_bn (BatchNormalization   (None, 14, 14, 768)  3072
['block4j_dwconv2[0][0]']
```

```
 )

 block4j_activation (Activation   (None, 14, 14, 768)   0
['block4j_bn[0][0]']
 )

 block4j_se_squeeze (GlobalAver   (None, 768)           0
['block4j_activation[0][0]']
 agePooling2D)

 block4j_se_reshape (Reshape)     (None, 1, 1, 768)     0
['block4j_se_squeeze[0][0]']

 block4j_se_reduce (Conv2D)       (None, 1, 1, 48)      36912
['block4j_se_reshape[0][0]']

 block4j_se_expand (Conv2D)       (None, 1, 1, 768)     37632
['block4j_se_reduce[0][0]']

 block4j_se_excite (Multiply)     (None, 14, 14, 768)   0
['block4j_activation[0][0]',
 'block4j_se_expand[0][0]']

 block4j_project_conv (Conv2D)    (None, 14, 14, 192)   147456
['block4j_se_excite[0][0]']

 block4j_project_bn (BatchNorma   (None, 14, 14, 192)   768
['block4j_project_conv[0][0]']
 lization)

 block4j_drop (Dropout)           (None, 14, 14, 192)   0
['block4j_project_bn[0][0]']

 block4j_add (Add)                (None, 14, 14, 192)   0
['block4j_drop[0][0]',
 'block4i_add[0][0]']

 block5a_expand_conv (Conv2D)     (None, 14, 14, 1152   221184
['block4j_add[0][0]']
                                  )

 block5a_expand_bn (BatchNormal   (None, 14, 14, 1152   4608
['block5a_expand_conv[0][0]']
 ization)                         )

 block5a_expand_activation (Act   (None, 14, 14, 1152   0
['block5a_expand_bn[0][0]']
 ivation)                         )
```

```
block5a_dwconv2 (DepthwiseConv   (None, 14, 14, 1152   10368
['block5a_expand_activation[0][0]
 2D)                             )                                      ']


 block5a_bn (BatchNormalization  (None, 14, 14, 1152   4608
['block5a_dwconv2[0][0]']
 )                               )


 block5a_activation (Activation  (None, 14, 14, 1152   0
['block5a_bn[0][0]']
 )                               )


 block5a_se_squeeze (GlobalAver  (None, 1152)          0
['block5a_activation[0][0]']
 agePooling2D)


 block5a_se_reshape (Reshape)    (None, 1, 1, 1152)    0
['block5a_se_squeeze[0][0]']


 block5a_se_reduce (Conv2D)      (None, 1, 1, 48)      55344
['block5a_se_reshape[0][0]']


 block5a_se_expand (Conv2D)      (None, 1, 1, 1152)    56448
['block5a_se_reduce[0][0]']


 block5a_se_excite (Multiply)    (None, 14, 14, 1152   0
['block5a_activation[0][0]',
                                 )
'block5a_se_expand[0][0]']


 block5a_project_conv (Conv2D)   (None, 14, 14, 224)   258048
['block5a_se_excite[0][0]']


 block5a_project_bn (BatchNorma  (None, 14, 14, 224)   896
['block5a_project_conv[0][0]']
 lization)


 block5b_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5a_project_bn[0][0]']
                                 )


 block5b_expand_bn (BatchNormal  (None, 14, 14, 1344   5376
['block5b_expand_conv[0][0]']
 ization)                        )


 block5b_expand_activation (Act  (None, 14, 14, 1344   0
['block5b_expand_bn[0][0]']
```

```
ivation)                            )

block5b_dwconv2 (DepthwiseConv  (None, 14, 14, 1344  12096
['block5b_expand_activation[0][0]
 2D)                                )                                  ']

block5b_bn (BatchNormalization  (None, 14, 14, 1344  5376
['block5b_dwconv2[0][0]']
 )                                  )

block5b_activation (Activation  (None, 14, 14, 1344  0
['block5b_bn[0][0]']
 )                                  )

block5b_se_squeeze (GlobalAver  (None, 1344)         0
['block5b_activation[0][0]']
 agePooling2D)

block5b_se_reshape (Reshape)    (None, 1, 1, 1344)   0
['block5b_se_squeeze[0][0]']

block5b_se_reduce (Conv2D)      (None, 1, 1, 56)     75320
['block5b_se_reshape[0][0]']

block5b_se_expand (Conv2D)      (None, 1, 1, 1344)   76608
['block5b_se_reduce[0][0]']

block5b_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5b_activation[0][0]',
                                )
'block5b_se_expand[0][0]']

block5b_project_conv (Conv2D)   (None, 14, 14, 224)  301056
['block5b_se_excite[0][0]']

block5b_project_bn (BatchNorma  (None, 14, 14, 224)  896
['block5b_project_conv[0][0]']
 lization)

block5b_drop (Dropout)          (None, 14, 14, 224)  0
['block5b_project_bn[0][0]']

block5b_add (Add)               (None, 14, 14, 224)  0
['block5b_drop[0][0]',
'block5a_project_bn[0][0]']

block5c_expand_conv (Conv2D)    (None, 14, 14, 1344  301056
['block5b_add[0][0]']
```

```
                                      )

 block5c_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block5c_expand_conv[0][0]']
 ization)                        )

 block5c_expand_activation (Act  (None, 14, 14, 1344  0
['block5c_expand_bn[0][0]']
 ivation)                        )

 block5c_dwconv2 (DepthwiseConv  (None, 14, 14, 1344  12096
['block5c_expand_activation[0][0]
 2D)                             )                                                    ']

 block5c_bn (BatchNormalization  (None, 14, 14, 1344  5376
['block5c_dwconv2[0][0]']
 )                               )

 block5c_activation (Activation  (None, 14, 14, 1344  0
['block5c_bn[0][0]']
 )                               )

 block5c_se_squeeze (GlobalAver  (None, 1344)         0
['block5c_activation[0][0]']
 agePooling2D)

 block5c_se_reshape (Reshape)    (None, 1, 1, 1344)   0
['block5c_se_squeeze[0][0]']

 block5c_se_reduce (Conv2D)      (None, 1, 1, 56)     75320
['block5c_se_reshape[0][0]']

 block5c_se_expand (Conv2D)      (None, 1, 1, 1344)   76608
['block5c_se_reduce[0][0]']

 block5c_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5c_activation[0][0]',
                                 )
'block5c_se_expand[0][0]']

 block5c_project_conv (Conv2D)   (None, 14, 14, 224)  301056
['block5c_se_excite[0][0]']

 block5c_project_bn (BatchNorma  (None, 14, 14, 224)  896
['block5c_project_conv[0][0]']
 lization)

 block5c_drop (Dropout)          (None, 14, 14, 224)  0
```

```
['block5c_project_bn[0][0]']

 block5c_add (Add)              (None, 14, 14, 224)  0
['block5c_drop[0][0]',
'block5b_add[0][0]']

 block5d_expand_conv (Conv2D)   (None, 14, 14, 1344  301056
['block5c_add[0][0]']
                                )

 block5d_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block5d_expand_conv[0][0]']
 ization)                       )

 block5d_expand_activation (Act  (None, 14, 14, 1344  0
['block5d_expand_bn[0][0]']
 ivation)                       )

 block5d_dwconv2 (DepthwiseConv  (None, 14, 14, 1344  12096
['block5d_expand_activation[0][0]
 2D)                            )                                    ']

 block5d_bn (BatchNormalization  (None, 14, 14, 1344  5376
['block5d_dwconv2[0][0]']
 )                              )

 block5d_activation (Activation  (None, 14, 14, 1344  0
['block5d_bn[0][0]']
 )                              )

 block5d_se_squeeze (GlobalAver  (None, 1344)         0
['block5d_activation[0][0]']
 agePooling2D)

 block5d_se_reshape (Reshape)    (None, 1, 1, 1344)   0
['block5d_se_squeeze[0][0]']

 block5d_se_reduce (Conv2D)      (None, 1, 1, 56)     75320
['block5d_se_reshape[0][0]']

 block5d_se_expand (Conv2D)      (None, 1, 1, 1344)   76608
['block5d_se_reduce[0][0]']

 block5d_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5d_activation[0][0]',
                                )
'block5d_se_expand[0][0]']
```

```
 block5d_project_conv (Conv2D)  (None, 14, 14, 224)  301056
['block5d_se_excite[0][0]']

 block5d_project_bn (BatchNorma  (None, 14, 14, 224)  896
['block5d_project_conv[0][0]']
 lization)

 block5d_drop (Dropout)         (None, 14, 14, 224)  0
['block5d_project_bn[0][0]']

 block5d_add (Add)              (None, 14, 14, 224)  0
['block5d_drop[0][0]',
'block5c_add[0][0]']

 block5e_expand_conv (Conv2D)   (None, 14, 14, 1344  301056
['block5d_add[0][0]']
                                )

 block5e_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block5e_expand_conv[0][0]']
 ization)                       )

 block5e_expand_activation (Act  (None, 14, 14, 1344  0
['block5e_expand_bn[0][0]']
 ivation)                       )

 block5e_dwconv2 (DepthwiseConv  (None, 14, 14, 1344  12096
['block5e_expand_activation[0][0]
 2D)                            )                                            ']

 block5e_bn (BatchNormalization  (None, 14, 14, 1344  5376
['block5e_dwconv2[0][0]']
 )                              )

 block5e_activation (Activation  (None, 14, 14, 1344  0
['block5e_bn[0][0]']
 )                              )

 block5e_se_squeeze (GlobalAver  (None, 1344)         0
['block5e_activation[0][0]']
 agePooling2D)

 block5e_se_reshape (Reshape)   (None, 1, 1, 1344)   0
['block5e_se_squeeze[0][0]']

 block5e_se_reduce (Conv2D)     (None, 1, 1, 56)     75320
['block5e_se_reshape[0][0]']
```

```
block5e_se_expand (Conv2D)      (None, 1, 1, 1344)    76608
['block5e_se_reduce[0][0]']

block5e_se_excite (Multiply)    (None, 14, 14, 1344   0
['block5e_activation[0][0]',
                                )
'block5e_se_expand[0][0]']

block5e_project_conv (Conv2D)   (None, 14, 14, 224)   301056
['block5e_se_excite[0][0]']

block5e_project_bn (BatchNorma  (None, 14, 14, 224)   896
['block5e_project_conv[0][0]']
 lization)

block5e_drop (Dropout)          (None, 14, 14, 224)   0
['block5e_project_bn[0][0]']

block5e_add (Add)               (None, 14, 14, 224)   0
['block5e_drop[0][0]',
'block5d_add[0][0]']

block5f_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5e_add[0][0]']
                                )

block5f_expand_bn (BatchNormal  (None, 14, 14, 1344   5376
['block5f_expand_conv[0][0]']
 ization)                       )

block5f_expand_activation (Act  (None, 14, 14, 1344   0
['block5f_expand_bn[0][0]']
 ivation)                       )

block5f_dwconv2 (DepthwiseConv  (None, 14, 14, 1344   12096
['block5f_expand_activation[0][0]
 2D)                            )                                          ']

block5f_bn (BatchNormalization  (None, 14, 14, 1344   5376
['block5f_dwconv2[0][0]']
 )                              )

block5f_activation (Activation  (None, 14, 14, 1344   0
['block5f_bn[0][0]']
 )                              )

block5f_se_squeeze (GlobalAver  (None, 1344)          0
['block5f_activation[0][0]']
```

```
 agePooling2D)

 block5f_se_reshape (Reshape)    (None, 1, 1, 1344)    0
['block5f_se_squeeze[0][0]']

 block5f_se_reduce (Conv2D)      (None, 1, 1, 56)      75320
['block5f_se_reshape[0][0]']

 block5f_se_expand (Conv2D)      (None, 1, 1, 1344)    76608
['block5f_se_reduce[0][0]']

 block5f_se_excite (Multiply)    (None, 14, 14, 1344   0
['block5f_activation[0][0]',
                                 )
'block5f_se_expand[0][0]']

 block5f_project_conv (Conv2D)   (None, 14, 14, 224)   301056
['block5f_se_excite[0][0]']

 block5f_project_bn (BatchNorma   (None, 14, 14, 224)   896
['block5f_project_conv[0][0]']
 lization)

 block5f_drop (Dropout)          (None, 14, 14, 224)   0
['block5f_project_bn[0][0]']

 block5f_add (Add)               (None, 14, 14, 224)   0
['block5f_drop[0][0]',
'block5e_add[0][0]']

 block5g_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5f_add[0][0]']
                                 )

 block5g_expand_bn (BatchNormal   (None, 14, 14, 1344   5376
['block5g_expand_conv[0][0]']
 ization)                        )

 block5g_expand_activation (Act  (None, 14, 14, 1344   0
['block5g_expand_bn[0][0]']
 ivation)                        )

 block5g_dwconv2 (DepthwiseConv   (None, 14, 14, 1344   12096
['block5g_expand_activation[0][0]
 2D)                             )                                        ']

 block5g_bn (BatchNormalization   (None, 14, 14, 1344   5376
['block5g_dwconv2[0][0]']
```

```
 )                              )

 block5g_activation (Activation  (None, 14, 14, 1344  0
['block5g_bn[0][0]']
 )                              )

 block5g_se_squeeze (GlobalAver  (None, 1344)         0
['block5g_activation[0][0]']
 agePooling2D)

 block5g_se_reshape (Reshape)    (None, 1, 1, 1344)   0
['block5g_se_squeeze[0][0]']

 block5g_se_reduce (Conv2D)      (None, 1, 1, 56)     75320
['block5g_se_reshape[0][0]']

 block5g_se_expand (Conv2D)      (None, 1, 1, 1344)   76608
['block5g_se_reduce[0][0]']

 block5g_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5g_activation[0][0]',
                                 )
'block5g_se_expand[0][0]']

 block5g_project_conv (Conv2D)   (None, 14, 14, 224)  301056
['block5g_se_excite[0][0]']

 block5g_project_bn (BatchNorma  (None, 14, 14, 224)  896
['block5g_project_conv[0][0]']
 lization)

 block5g_drop (Dropout)          (None, 14, 14, 224)  0
['block5g_project_bn[0][0]']

 block5g_add (Add)               (None, 14, 14, 224)  0
['block5g_drop[0][0]',
'block5f_add[0][0]']

 block5h_expand_conv (Conv2D)    (None, 14, 14, 1344  301056
['block5g_add[0][0]']
                                 )

 block5h_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block5h_expand_conv[0][0]']
 ization)                       )

 block5h_expand_activation (Act  (None, 14, 14, 1344  0
['block5h_expand_bn[0][0]']
```

```
 ivation)                              )

 block5h_dwconv2 (DepthwiseConv  (None, 14, 14, 1344   12096
['block5h_expand_activation[0][0]
 2D)                             )                                    ']

 block5h_bn (BatchNormalization  (None, 14, 14, 1344   5376
['block5h_dwconv2[0][0]']
 )                              )

 block5h_activation (Activation  (None, 14, 14, 1344   0
['block5h_bn[0][0]']
 )                              )

 block5h_se_squeeze (GlobalAver  (None, 1344)          0
['block5h_activation[0][0]']
 agePooling2D)

 block5h_se_reshape (Reshape)    (None, 1, 1, 1344)    0
['block5h_se_squeeze[0][0]']

 block5h_se_reduce (Conv2D)      (None, 1, 1, 56)      75320
['block5h_se_reshape[0][0]']

 block5h_se_expand (Conv2D)      (None, 1, 1, 1344)    76608
['block5h_se_reduce[0][0]']

 block5h_se_excite (Multiply)    (None, 14, 14, 1344   0
['block5h_activation[0][0]',
                                 )
'block5h_se_expand[0][0]']

 block5h_project_conv (Conv2D)   (None, 14, 14, 224)   301056
['block5h_se_excite[0][0]']

 block5h_project_bn (BatchNorma  (None, 14, 14, 224)   896
['block5h_project_conv[0][0]']
 lization)

 block5h_drop (Dropout)          (None, 14, 14, 224)   0
['block5h_project_bn[0][0]']

 block5h_add (Add)               (None, 14, 14, 224)   0
['block5h_drop[0][0]',
'block5g_add[0][0]']

 block5i_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5h_add[0][0]']
```

```
                                         )

 block5i_expand_bn (BatchNormal   (None, 14, 14, 1344   5376
['block5i_expand_conv[0][0]']
 ization)                         )

 block5i_expand_activation (Act   (None, 14, 14, 1344   0
['block5i_expand_bn[0][0]']
 ivation)                         )

 block5i_dwconv2 (DepthwiseConv   (None, 14, 14, 1344   12096
['block5i_expand_activation[0][0]
 2D)                              )                                            ']

 block5i_bn (BatchNormalization   (None, 14, 14, 1344   5376
['block5i_dwconv2[0][0]']
 )                                )

 block5i_activation (Activation   (None, 14, 14, 1344   0
['block5i_bn[0][0]']
 )                                )

 block5i_se_squeeze (GlobalAver   (None, 1344)          0
['block5i_activation[0][0]']
 agePooling2D)

 block5i_se_reshape (Reshape)     (None, 1, 1, 1344)    0
['block5i_se_squeeze[0][0]']

 block5i_se_reduce (Conv2D)       (None, 1, 1, 56)      75320
['block5i_se_reshape[0][0]']

 block5i_se_expand (Conv2D)       (None, 1, 1, 1344)    76608
['block5i_se_reduce[0][0]']

 block5i_se_excite (Multiply)     (None, 14, 14, 1344   0
['block5i_activation[0][0]',
                                  )
'block5i_se_expand[0][0]']

 block5i_project_conv (Conv2D)    (None, 14, 14, 224)   301056
['block5i_se_excite[0][0]']

 block5i_project_bn (BatchNorma   (None, 14, 14, 224)   896
['block5i_project_conv[0][0]']
 lization)

 block5i_drop (Dropout)           (None, 14, 14, 224)   0
```

```
['block5i_project_bn[0][0]']

 block5i_add (Add)              (None, 14, 14, 224)  0
['block5i_drop[0][0]',
'block5h_add[0][0]']

 block5j_expand_conv (Conv2D)   (None, 14, 14, 1344  301056
['block5i_add[0][0]']
                                )

 block5j_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block5j_expand_conv[0][0]']
 ization)                       )

 block5j_expand_activation (Act  (None, 14, 14, 1344  0
['block5j_expand_bn[0][0]']
 ivation)                       )

 block5j_dwconv2 (DepthwiseConv  (None, 14, 14, 1344  12096
['block5j_expand_activation[0][0]
 2D)                            )                                  ']

 block5j_bn (BatchNormalization  (None, 14, 14, 1344  5376
['block5j_dwconv2[0][0]']
 )                              )

 block5j_activation (Activation  (None, 14, 14, 1344  0
['block5j_bn[0][0]']
 )                              )

 block5j_se_squeeze (GlobalAver  (None, 1344)         0
['block5j_activation[0][0]']
 agePooling2D)

 block5j_se_reshape (Reshape)   (None, 1, 1, 1344)   0
['block5j_se_squeeze[0][0]']

 block5j_se_reduce (Conv2D)     (None, 1, 1, 56)     75320
['block5j_se_reshape[0][0]']

 block5j_se_expand (Conv2D)     (None, 1, 1, 1344)   76608
['block5j_se_reduce[0][0]']

 block5j_se_excite (Multiply)   (None, 14, 14, 1344  0
['block5j_activation[0][0]',
                                )
'block5j_se_expand[0][0]']
```

```
block5j_project_conv (Conv2D)   (None, 14, 14, 224)   301056
['block5j_se_excite[0][0]']

block5j_project_bn (BatchNorma  (None, 14, 14, 224)   896
['block5j_project_conv[0][0]']
 lization)

block5j_drop (Dropout)          (None, 14, 14, 224)   0
['block5j_project_bn[0][0]']

block5j_add (Add)               (None, 14, 14, 224)   0
['block5j_drop[0][0]',
'block5i_add[0][0]']

block5k_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5j_add[0][0]']
                                )

block5k_expand_bn (BatchNormal  (None, 14, 14, 1344   5376
['block5k_expand_conv[0][0]']
 ization)                       )

block5k_expand_activation (Act  (None, 14, 14, 1344   0
['block5k_expand_bn[0][0]']
 ivation)                       )

block5k_dwconv2 (DepthwiseConv  (None, 14, 14, 1344   12096
['block5k_expand_activation[0][0]
 2D)                            )                                              ']

block5k_bn (BatchNormalization  (None, 14, 14, 1344   5376
['block5k_dwconv2[0][0]']
 )                              )

block5k_activation (Activation  (None, 14, 14, 1344   0
['block5k_bn[0][0]']
 )                              )

block5k_se_squeeze (GlobalAver  (None, 1344)          0
['block5k_activation[0][0]']
 agePooling2D)

block5k_se_reshape (Reshape)    (None, 1, 1, 1344)    0
['block5k_se_squeeze[0][0]']

block5k_se_reduce (Conv2D)      (None, 1, 1, 56)      75320
['block5k_se_reshape[0][0]']
```

```
block5k_se_expand (Conv2D)      (None, 1, 1, 1344)    76608
['block5k_se_reduce[0][0]']


block5k_se_excite (Multiply)    (None, 14, 14, 1344   0
['block5k_activation[0][0]',
                                 )
'block5k_se_expand[0][0]']


block5k_project_conv (Conv2D)   (None, 14, 14, 224)   301056
['block5k_se_excite[0][0]']


block5k_project_bn (BatchNorma  (None, 14, 14, 224)   896
['block5k_project_conv[0][0]']
 lization)


block5k_drop (Dropout)          (None, 14, 14, 224)   0
['block5k_project_bn[0][0]']


block5k_add (Add)               (None, 14, 14, 224)   0
['block5k_drop[0][0]',
'block5j_add[0][0]']


block5l_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5k_add[0][0]']
                                 )


block5l_expand_bn (BatchNormal  (None, 14, 14, 1344   5376
['block5l_expand_conv[0][0]']
 ization)                        )


block5l_expand_activation (Act  (None, 14, 14, 1344   0
['block5l_expand_bn[0][0]']
 ivation)                        )


block5l_dwconv2 (DepthwiseConv  (None, 14, 14, 1344   12096
['block5l_expand_activation[0][0]
 2D)                             )                                            ']


block5l_bn (BatchNormalization  (None, 14, 14, 1344   5376
['block5l_dwconv2[0][0]']
 )                               )


block5l_activation (Activation  (None, 14, 14, 1344   0
['block5l_bn[0][0]']
 )                               )


block5l_se_squeeze (GlobalAver  (None, 1344)          0
['block5l_activation[0][0]']
```

```
agePooling2D)

 block5l_se_reshape (Reshape)    (None, 1, 1, 1344)    0
['block5l_se_squeeze[0][0]']

 block5l_se_reduce (Conv2D)      (None, 1, 1, 56)      75320
['block5l_se_reshape[0][0]']

 block5l_se_expand (Conv2D)      (None, 1, 1, 1344)    76608
['block5l_se_reduce[0][0]']

 block5l_se_excite (Multiply)    (None, 14, 14, 1344   0
['block5l_activation[0][0]',
                                 )
'block5l_se_expand[0][0]']

 block5l_project_conv (Conv2D)   (None, 14, 14, 224)   301056
['block5l_se_excite[0][0]']

 block5l_project_bn (BatchNorma  (None, 14, 14, 224)   896
['block5l_project_conv[0][0]']
 lization)

 block5l_drop (Dropout)          (None, 14, 14, 224)   0
['block5l_project_bn[0][0]']

 block5l_add (Add)               (None, 14, 14, 224)   0
['block5l_drop[0][0]',
'block5k_add[0][0]']

 block5m_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5l_add[0][0]']
                                 )

 block5m_expand_bn (BatchNormal  (None, 14, 14, 1344   5376
['block5m_expand_conv[0][0]']
 ization)                        )

 block5m_expand_activation (Act  (None, 14, 14, 1344   0
['block5m_expand_bn[0][0]']
 ivation)                        )

 block5m_dwconv2 (DepthwiseConv  (None, 14, 14, 1344   12096
['block5m_expand_activation[0][0]
 2D)                             )                                    ']

 block5m_bn (BatchNormalization  (None, 14, 14, 1344   5376
['block5m_dwconv2[0][0]']
```

```
 )                              )

 block5m_activation (Activation  (None, 14, 14, 1344  0
['block5m_bn[0][0]']
 )                              )

 block5m_se_squeeze (GlobalAver  (None, 1344)        0
['block5m_activation[0][0]']
 agePooling2D)

 block5m_se_reshape (Reshape)    (None, 1, 1, 1344)  0
['block5m_se_squeeze[0][0]']

 block5m_se_reduce (Conv2D)      (None, 1, 1, 56)    75320
['block5m_se_reshape[0][0]']

 block5m_se_expand (Conv2D)      (None, 1, 1, 1344)  76608
['block5m_se_reduce[0][0]']

 block5m_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5m_activation[0][0]',
                                 )
'block5m_se_expand[0][0]']

 block5m_project_conv (Conv2D)   (None, 14, 14, 224)  301056
['block5m_se_excite[0][0]']

 block5m_project_bn (BatchNorma  (None, 14, 14, 224)  896
['block5m_project_conv[0][0]']
 lization)

 block5m_drop (Dropout)          (None, 14, 14, 224)  0
['block5m_project_bn[0][0]']

 block5m_add (Add)               (None, 14, 14, 224)  0
['block5m_drop[0][0]',
'block5l_add[0][0]']

 block5n_expand_conv (Conv2D)    (None, 14, 14, 1344  301056
['block5m_add[0][0]']
                                 )

 block5n_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block5n_expand_conv[0][0]']
 ization)                        )

 block5n_expand_activation (Act  (None, 14, 14, 1344  0
['block5n_expand_bn[0][0]']
```

```
 ivation)                                )

 block5n_dwconv2 (DepthwiseConv  (None, 14, 14, 1344  12096
['block5n_expand_activation[0][0]
 2D)                                )                                   ']

 block5n_bn (BatchNormalization  (None, 14, 14, 1344  5376
['block5n_dwconv2[0][0]']
 )                                )

 block5n_activation (Activation  (None, 14, 14, 1344  0
['block5n_bn[0][0]']
 )                                )

 block5n_se_squeeze (GlobalAver  (None, 1344)         0
['block5n_activation[0][0]']
 agePooling2D)

 block5n_se_reshape (Reshape)    (None, 1, 1, 1344)   0
['block5n_se_squeeze[0][0]']

 block5n_se_reduce (Conv2D)      (None, 1, 1, 56)     75320
['block5n_se_reshape[0][0]']

 block5n_se_expand (Conv2D)      (None, 1, 1, 1344)   76608
['block5n_se_reduce[0][0]']

 block5n_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5n_activation[0][0]',
                                 )
'block5n_se_expand[0][0]']

 block5n_project_conv (Conv2D)   (None, 14, 14, 224)  301056
['block5n_se_excite[0][0]']

 block5n_project_bn (BatchNorma  (None, 14, 14, 224)  896
['block5n_project_conv[0][0]']
 lization)

 block5n_drop (Dropout)          (None, 14, 14, 224)  0
['block5n_project_bn[0][0]']

 block5n_add (Add)               (None, 14, 14, 224)  0
['block5n_drop[0][0]',
'block5m_add[0][0]']

 block5o_expand_conv (Conv2D)    (None, 14, 14, 1344  301056
['block5n_add[0][0]']
```

```
                                     )

 block5o_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block5o_expand_conv[0][0]']
 ization)                       )

 block5o_expand_activation (Act  (None, 14, 14, 1344  0
['block5o_expand_bn[0][0]']
 ivation)                       )

 block5o_dwconv2 (DepthwiseConv  (None, 14, 14, 1344  12096
['block5o_expand_activation[0][0]
 2D)                            )                                              ']

 block5o_bn (BatchNormalization  (None, 14, 14, 1344  5376
['block5o_dwconv2[0][0]']
 )                              )

 block5o_activation (Activation  (None, 14, 14, 1344  0
['block5o_bn[0][0]']
 )                              )

 block5o_se_squeeze (GlobalAver  (None, 1344)         0
['block5o_activation[0][0]']
 agePooling2D)

 block5o_se_reshape (Reshape)    (None, 1, 1, 1344)   0
['block5o_se_squeeze[0][0]']

 block5o_se_reduce (Conv2D)      (None, 1, 1, 56)     75320
['block5o_se_reshape[0][0]']

 block5o_se_expand (Conv2D)      (None, 1, 1, 1344)   76608
['block5o_se_reduce[0][0]']

 block5o_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5o_activation[0][0]',
                                )
'block5o_se_expand[0][0]']

 block5o_project_conv (Conv2D)   (None, 14, 14, 224)  301056
['block5o_se_excite[0][0]']

 block5o_project_bn (BatchNorma  (None, 14, 14, 224)  896
['block5o_project_conv[0][0]']
 lization)

 block5o_drop (Dropout)          (None, 14, 14, 224)  0
```

```
['block5o_project_bn[0][0]']

 block5o_add (Add)              (None, 14, 14, 224)   0
['block5o_drop[0][0]',
'block5n_add[0][0]']

 block5p_expand_conv (Conv2D)   (None, 14, 14, 1344   301056
['block5o_add[0][0]']
                                )

 block5p_expand_bn (BatchNormal (None, 14, 14, 1344   5376
['block5p_expand_conv[0][0]']
 ization)                       )

 block5p_expand_activation (Act (None, 14, 14, 1344   0
['block5p_expand_bn[0][0]']
 ivation)                       )

 block5p_dwconv2 (DepthwiseConv (None, 14, 14, 1344   12096
['block5p_expand_activation[0][0]
 2D)                            )                                       ']

 block5p_bn (BatchNormalization (None, 14, 14, 1344   5376
['block5p_dwconv2[0][0]']
 )                              )

 block5p_activation (Activation (None, 14, 14, 1344   0
['block5p_bn[0][0]']
 )                              )

 block5p_se_squeeze (GlobalAver (None, 1344)          0
['block5p_activation[0][0]']
 agePooling2D)

 block5p_se_reshape (Reshape)   (None, 1, 1, 1344)    0
['block5p_se_squeeze[0][0]']

 block5p_se_reduce (Conv2D)     (None, 1, 1, 56)      75320
['block5p_se_reshape[0][0]']

 block5p_se_expand (Conv2D)     (None, 1, 1, 1344)    76608
['block5p_se_reduce[0][0]']

 block5p_se_excite (Multiply)   (None, 14, 14, 1344   0
['block5p_activation[0][0]',
                                )
'block5p_se_expand[0][0]']
```

```
block5p_project_conv (Conv2D)   (None, 14, 14, 224)   301056
['block5p_se_excite[0][0]']

block5p_project_bn (BatchNorma   (None, 14, 14, 224)   896
['block5p_project_conv[0][0]']
 lization)

block5p_drop (Dropout)          (None, 14, 14, 224)   0
['block5p_project_bn[0][0]']

block5p_add (Add)               (None, 14, 14, 224)   0
['block5p_drop[0][0]',
'block5o_add[0][0]']

block5q_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5p_add[0][0]']
                                )

block5q_expand_bn (BatchNormal   (None, 14, 14, 1344   5376
['block5q_expand_conv[0][0]']
 ization)                       )

block5q_expand_activation (Act   (None, 14, 14, 1344   0
['block5q_expand_bn[0][0]']
 ivation)                       )

block5q_dwconv2 (DepthwiseConv   (None, 14, 14, 1344   12096
['block5q_expand_activation[0][0]
 2D)                            )                                            ']

block5q_bn (BatchNormalization   (None, 14, 14, 1344   5376
['block5q_dwconv2[0][0]']
 )                              )

block5q_activation (Activation   (None, 14, 14, 1344   0
['block5q_bn[0][0]']
 )                              )

block5q_se_squeeze (GlobalAver   (None, 1344)          0
['block5q_activation[0][0]']
 agePooling2D)

block5q_se_reshape (Reshape)    (None, 1, 1, 1344)    0
['block5q_se_squeeze[0][0]']

block5q_se_reduce (Conv2D)      (None, 1, 1, 56)      75320
['block5q_se_reshape[0][0]']
```

```
 block5q_se_expand (Conv2D)      (None, 1, 1, 1344)    76608
['block5q_se_reduce[0][0]']


 block5q_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5q_activation[0][0]',
                                 )
'block5q_se_expand[0][0]']


 block5q_project_conv (Conv2D)   (None, 14, 14, 224)   301056
['block5q_se_excite[0][0]']


 block5q_project_bn (BatchNorma  (None, 14, 14, 224)   896
['block5q_project_conv[0][0]']
 lization)


 block5q_drop (Dropout)          (None, 14, 14, 224)   0
['block5q_project_bn[0][0]']


 block5q_add (Add)               (None, 14, 14, 224)   0
['block5q_drop[0][0]',
'block5p_add[0][0]']


 block5r_expand_conv (Conv2D)    (None, 14, 14, 1344   301056
['block5q_add[0][0]']
                                 )


 block5r_expand_bn (BatchNormal  (None, 14, 14, 1344   5376
['block5r_expand_conv[0][0]']
 ization)                        )


 block5r_expand_activation (Act  (None, 14, 14, 1344   0
['block5r_expand_bn[0][0]']
 ivation)                        )


 block5r_dwconv2 (DepthwiseConv  (None, 14, 14, 1344   12096
['block5r_expand_activation[0][0]
 2D)                             )                                           ']


 block5r_bn (BatchNormalization  (None, 14, 14, 1344   5376
['block5r_dwconv2[0][0]']
 )                               )


 block5r_activation (Activation  (None, 14, 14, 1344   0
['block5r_bn[0][0]']
 )                               )


 block5r_se_squeeze (GlobalAver  (None, 1344)          0
['block5r_activation[0][0]']
```

```
 agePooling2D)

 block5r_se_reshape (Reshape)    (None, 1, 1, 1344)    0
['block5r_se_squeeze[0][0]']

 block5r_se_reduce (Conv2D)      (None, 1, 1, 56)     75320
['block5r_se_reshape[0][0]']

 block5r_se_expand (Conv2D)      (None, 1, 1, 1344)   76608
['block5r_se_reduce[0][0]']

 block5r_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5r_activation[0][0]',
                                 )
'block5r_se_expand[0][0]']

 block5r_project_conv (Conv2D)  (None, 14, 14, 224)  301056
['block5r_se_excite[0][0]']

 block5r_project_bn (BatchNorma  (None, 14, 14, 224)   896
['block5r_project_conv[0][0]']
 lization)

 block5r_drop (Dropout)          (None, 14, 14, 224)  0
['block5r_project_bn[0][0]']

 block5r_add (Add)               (None, 14, 14, 224)  0
['block5r_drop[0][0]',
'block5q_add[0][0]']

 block5s_expand_conv (Conv2D)   (None, 14, 14, 1344  301056
['block5r_add[0][0]']
                                 )

 block5s_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block5s_expand_conv[0][0]']
 ization)                         )

 block5s_expand_activation (Act  (None, 14, 14, 1344  0
['block5s_expand_bn[0][0]']
 ivation)                         )

 block5s_dwconv2 (DepthwiseConv  (None, 14, 14, 1344  12096
['block5s_expand_activation[0][0]
 2D)                              )                                          ']

 block5s_bn (BatchNormalization  (None, 14, 14, 1344  5376
['block5s_dwconv2[0][0]']
```

```
)                                  )

 block5s_activation (Activation  (None, 14, 14, 1344  0
['block5s_bn[0][0]']
 )                                  )

 block5s_se_squeeze (GlobalAver  (None, 1344)         0
['block5s_activation[0][0]']
 agePooling2D)

 block5s_se_reshape (Reshape)    (None, 1, 1, 1344)   0
['block5s_se_squeeze[0][0]']

 block5s_se_reduce (Conv2D)      (None, 1, 1, 56)     75320
['block5s_se_reshape[0][0]']

 block5s_se_expand (Conv2D)      (None, 1, 1, 1344)   76608
['block5s_se_reduce[0][0]']

 block5s_se_excite (Multiply)    (None, 14, 14, 1344  0
['block5s_activation[0][0]',
                                  )
'block5s_se_expand[0][0]']

 block5s_project_conv (Conv2D)   (None, 14, 14, 224)  301056
['block5s_se_excite[0][0]']

 block5s_project_bn (BatchNorma  (None, 14, 14, 224)  896
['block5s_project_conv[0][0]']
 lization)

 block5s_drop (Dropout)          (None, 14, 14, 224)  0
['block5s_project_bn[0][0]']

 block5s_add (Add)               (None, 14, 14, 224)  0
['block5s_drop[0][0]',
'block5r_add[0][0]']

 block6a_expand_conv (Conv2D)    (None, 14, 14, 1344  301056
['block5s_add[0][0]']
                                  )

 block6a_expand_bn (BatchNormal  (None, 14, 14, 1344  5376
['block6a_expand_conv[0][0]']
 ization)                          )

 block6a_expand_activation (Act  (None, 14, 14, 1344  0
['block6a_expand_bn[0][0]']
```

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```
 ivation)                          )

 block6a_dwconv2 (DepthwiseConv   (None, 7, 7, 1344)   12096
['block6a_expand_activation[0][0]
 2D)                                                                      ']

 block6a_bn (BatchNormalization   (None, 7, 7, 1344)   5376
['block6a_dwconv2[0][0]']
 )

 block6a_activation (Activation   (None, 7, 7, 1344)   0
['block6a_bn[0][0]']
 )

 block6a_se_squeeze (GlobalAver   (None, 1344)         0
['block6a_activation[0][0]']
 agePooling2D)

 block6a_se_reshape (Reshape)     (None, 1, 1, 1344)   0
['block6a_se_squeeze[0][0]']

 block6a_se_reduce (Conv2D)       (None, 1, 1, 56)     75320
['block6a_se_reshape[0][0]']

 block6a_se_expand (Conv2D)       (None, 1, 1, 1344)   76608
['block6a_se_reduce[0][0]']

 block6a_se_excite (Multiply)     (None, 7, 7, 1344)   0
['block6a_activation[0][0]',
'block6a_se_expand[0][0]']

 block6a_project_conv (Conv2D)    (None, 7, 7, 384)    516096
['block6a_se_excite[0][0]']

 block6a_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6a_project_conv[0][0]']
 lization)

 block6b_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6a_project_bn[0][0]']

 block6b_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6b_expand_conv[0][0]']
 ization)

 block6b_expand_activation (Act   (None, 7, 7, 2304)   0
['block6b_expand_bn[0][0]']
 ivation)
```

```
block6b_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6b_expand_activation[0][0]
 2D)                                                              ']


 block6b_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6b_dwconv2[0][0]']
 )


 block6b_activation (Activation   (None, 7, 7, 2304)   0
['block6b_bn[0][0]']
 )


 block6b_se_squeeze (GlobalAver   (None, 2304)         0
['block6b_activation[0][0]']
 agePooling2D)


 block6b_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6b_se_squeeze[0][0]']


 block6b_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6b_se_reshape[0][0]']


 block6b_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
['block6b_se_reduce[0][0]']


 block6b_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6b_activation[0][0]',
 'block6b_se_expand[0][0]']


 block6b_project_conv (Conv2D)   (None, 7, 7, 384)    884736
['block6b_se_excite[0][0]']


 block6b_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6b_project_conv[0][0]']
 lization)


 block6b_drop (Dropout)           (None, 7, 7, 384)    0
['block6b_project_bn[0][0]']


 block6b_add (Add)                (None, 7, 7, 384)    0
['block6b_drop[0][0]',
 'block6a_project_bn[0][0]']


 block6c_expand_conv (Conv2D)    (None, 7, 7, 2304)   884736
['block6b_add[0][0]']


 block6c_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
```

```
['block6c_expand_conv[0][0]']
 ization)

 block6c_expand_activation (Act    (None, 7, 7, 2304)    0
['block6c_expand_bn[0][0]']
 ivation)

 block6c_dwconv2 (DepthwiseConv    (None, 7, 7, 2304)    20736
['block6c_expand_activation[0][0]
 2D)                                                                    ']

 block6c_bn (BatchNormalization    (None, 7, 7, 2304)    9216
['block6c_dwconv2[0][0]']
 )

 block6c_activation (Activation    (None, 7, 7, 2304)    0
['block6c_bn[0][0]']
 )

 block6c_se_squeeze (GlobalAver    (None, 2304)          0
['block6c_activation[0][0]']
 agePooling2D)

 block6c_se_reshape (Reshape)      (None, 1, 1, 2304)    0
['block6c_se_squeeze[0][0]']

 block6c_se_reduce (Conv2D)        (None, 1, 1, 96)      221280
['block6c_se_reshape[0][0]']

 block6c_se_expand (Conv2D)        (None, 1, 1, 2304)    223488
['block6c_se_reduce[0][0]']

 block6c_se_excite (Multiply)      (None, 7, 7, 2304)    0
['block6c_activation[0][0]',
 'block6c_se_expand[0][0]']

 block6c_project_conv (Conv2D)     (None, 7, 7, 384)     884736
['block6c_se_excite[0][0]']

 block6c_project_bn (BatchNorma    (None, 7, 7, 384)     1536
['block6c_project_conv[0][0]']
 lization)

 block6c_drop (Dropout)            (None, 7, 7, 384)     0
['block6c_project_bn[0][0]']

 block6c_add (Add)                 (None, 7, 7, 384)     0
['block6c_drop[0][0]',
```

```
'block6b_add[0][0]']

 block6d_expand_conv (Conv2D)    (None, 7, 7, 2304)    884736
['block6c_add[0][0]']

 block6d_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6d_expand_conv[0][0]']
 ization)

 block6d_expand_activation (Act   (None, 7, 7, 2304)   0
['block6d_expand_bn[0][0]']
 ivation)

 block6d_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6d_expand_activation[0][0]
 2D)                                                                  ']

 block6d_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6d_dwconv2[0][0]']
 )

 block6d_activation (Activation   (None, 7, 7, 2304)   0
['block6d_bn[0][0]']
 )

 block6d_se_squeeze (GlobalAver   (None, 2304)         0
['block6d_activation[0][0]']
 agePooling2D)

 block6d_se_reshape (Reshape)    (None, 1, 1, 2304)   0
['block6d_se_squeeze[0][0]']

 block6d_se_reduce (Conv2D)      (None, 1, 1, 96)     221280
['block6d_se_reshape[0][0]']

 block6d_se_expand (Conv2D)      (None, 1, 1, 2304)   223488
['block6d_se_reduce[0][0]']

 block6d_se_excite (Multiply)    (None, 7, 7, 2304)   0
['block6d_activation[0][0]',
 'block6d_se_expand[0][0]']

 block6d_project_conv (Conv2D)   (None, 7, 7, 384)    884736
['block6d_se_excite[0][0]']

 block6d_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6d_project_conv[0][0]']
 lization)
```

```
block6d_drop (Dropout)          (None, 7, 7, 384)    0
['block6d_project_bn[0][0]']

block6d_add (Add)               (None, 7, 7, 384)    0
['block6d_drop[0][0]',
'block6c_add[0][0]']

block6e_expand_conv (Conv2D)    (None, 7, 7, 2304)   884736
['block6d_add[0][0]']

block6e_expand_bn (BatchNormal  (None, 7, 7, 2304)   9216
['block6e_expand_conv[0][0]']
ization)

block6e_expand_activation (Act  (None, 7, 7, 2304)   0
['block6e_expand_bn[0][0]']
ivation)

block6e_dwconv2 (DepthwiseConv  (None, 7, 7, 2304)   20736
['block6e_expand_activation[0][0]
2D)                                                                      ']

block6e_bn (BatchNormalization  (None, 7, 7, 2304)   9216
['block6e_dwconv2[0][0]']
)

block6e_activation (Activation  (None, 7, 7, 2304)   0
['block6e_bn[0][0]']
)

block6e_se_squeeze (GlobalAver  (None, 2304)         0
['block6e_activation[0][0]']
agePooling2D)

block6e_se_reshape (Reshape)    (None, 1, 1, 2304)   0
['block6e_se_squeeze[0][0]']

block6e_se_reduce (Conv2D)      (None, 1, 1, 96)     221280
['block6e_se_reshape[0][0]']

block6e_se_expand (Conv2D)      (None, 1, 1, 2304)   223488
['block6e_se_reduce[0][0]']

block6e_se_excite (Multiply)    (None, 7, 7, 2304)   0
['block6e_activation[0][0]',
'block6e_se_expand[0][0]']
```

```
block6e_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6e_se_excite[0][0]']

block6e_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6e_project_conv[0][0]']
lization)

block6e_drop (Dropout)           (None, 7, 7, 384)    0
['block6e_project_bn[0][0]']

block6e_add (Add)                (None, 7, 7, 384)    0
['block6e_drop[0][0]',
'block6d_add[0][0]']

block6f_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6e_add[0][0]']

block6f_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6f_expand_conv[0][0]']
ization)

block6f_expand_activation (Act   (None, 7, 7, 2304)   0
['block6f_expand_bn[0][0]']
ivation)

block6f_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6f_expand_activation[0][0]
2D)                                                                              ']

block6f_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6f_dwconv2[0][0]']
)

block6f_activation (Activation   (None, 7, 7, 2304)   0
['block6f_bn[0][0]']
)

block6f_se_squeeze (GlobalAver   (None, 2304)         0
['block6f_activation[0][0]']
agePooling2D)

block6f_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6f_se_squeeze[0][0]']

block6f_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6f_se_reshape[0][0]']

block6f_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
```

```
['block6f_se_reduce[0][0]']

 block6f_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6f_activation[0][0]',
'block6f_se_expand[0][0]']

 block6f_project_conv (Conv2D)    (None, 7, 7, 384)     884736
['block6f_se_excite[0][0]']

 block6f_project_bn (BatchNorma   (None, 7, 7, 384)     1536
['block6f_project_conv[0][0]']
 lization)

 block6f_drop (Dropout)           (None, 7, 7, 384)     0
['block6f_project_bn[0][0]']

 block6f_add (Add)                (None, 7, 7, 384)     0
['block6f_drop[0][0]',
'block6e_add[0][0]']

 block6g_expand_conv (Conv2D)     (None, 7, 7, 2304)    884736
['block6f_add[0][0]']

 block6g_expand_bn (BatchNormal   (None, 7, 7, 2304)    9216
['block6g_expand_conv[0][0]']
 ization)

 block6g_expand_activation (Act   (None, 7, 7, 2304)    0
['block6g_expand_bn[0][0]']
 ivation)

 block6g_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)    20736
['block6g_expand_activation[0][0]
 2D)                                                                    ']

 block6g_bn (BatchNormalization   (None, 7, 7, 2304)    9216
['block6g_dwconv2[0][0]']
 )

 block6g_activation (Activation   (None, 7, 7, 2304)    0
['block6g_bn[0][0]']
 )

 block6g_se_squeeze (GlobalAver   (None, 2304)          0
['block6g_activation[0][0]']
 agePooling2D)

 block6g_se_reshape (Reshape)     (None, 1, 1, 2304)    0
```

```
['block6g_se_squeeze[0][0]']

 block6g_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6g_se_reshape[0][0]']

 block6g_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
['block6g_se_reduce[0][0]']

 block6g_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6g_activation[0][0]',
 'block6g_se_expand[0][0]']

 block6g_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6g_se_excite[0][0]']

 block6g_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6g_project_conv[0][0]']
 lization)

 block6g_drop (Dropout)           (None, 7, 7, 384)    0
['block6g_project_bn[0][0]']

 block6g_add (Add)                (None, 7, 7, 384)    0
['block6g_drop[0][0]',
 'block6f_add[0][0]']

 block6h_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6g_add[0][0]']

 block6h_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6h_expand_conv[0][0]']
 ization)

 block6h_expand_activation (Act   (None, 7, 7, 2304)   0
['block6h_expand_bn[0][0]']
 ivation)

 block6h_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6h_expand_activation[0][0]
 2D)                                                                    ']

 block6h_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6h_dwconv2[0][0]']
 )

 block6h_activation (Activation   (None, 7, 7, 2304)   0
['block6h_bn[0][0]']
 )
```

```
block6h_se_squeeze (GlobalAver   (None, 2304)        0        ['block6h_activation[0][0]']
agePooling2D)

block6h_se_reshape (Reshape)     (None, 1, 1, 2304)  0        ['block6h_se_squeeze[0][0]']

block6h_se_reduce (Conv2D)       (None, 1, 1, 96)    221280   ['block6h_se_reshape[0][0]']

block6h_se_expand (Conv2D)       (None, 1, 1, 2304)  223488   ['block6h_se_reduce[0][0]']

block6h_se_excite (Multiply)     (None, 7, 7, 2304)  0        ['block6h_activation[0][0]',
                                                               'block6h_se_expand[0][0]']

block6h_project_conv (Conv2D)    (None, 7, 7, 384)   884736   ['block6h_se_excite[0][0]']

block6h_project_bn (BatchNorma   (None, 7, 7, 384)   1536     ['block6h_project_conv[0][0]']
lization)

block6h_drop (Dropout)           (None, 7, 7, 384)   0        ['block6h_project_bn[0][0]']

block6h_add (Add)                (None, 7, 7, 384)   0        ['block6h_drop[0][0]',
                                                               'block6g_add[0][0]']

block6i_expand_conv (Conv2D)     (None, 7, 7, 2304)  884736   ['block6h_add[0][0]']

block6i_expand_bn (BatchNormal   (None, 7, 7, 2304)  9216     ['block6i_expand_conv[0][0]']
ization)

block6i_expand_activation (Act   (None, 7, 7, 2304)  0        ['block6i_expand_bn[0][0]']
ivation)

block6i_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)  20736    ['block6i_expand_activation[0][0]
2D)                                                            ']

block6i_bn (BatchNormalization   (None, 7, 7, 2304)  9216
```

```
['block6i_dwconv2[0][0]']
 )

 block6i_activation (Activation  (None, 7, 7, 2304)  0
['block6i_bn[0][0]']
 )

 block6i_se_squeeze (GlobalAver  (None, 2304)         0
['block6i_activation[0][0]']
 agePooling2D)

 block6i_se_reshape (Reshape)    (None, 1, 1, 2304)  0
['block6i_se_squeeze[0][0]']

 block6i_se_reduce (Conv2D)      (None, 1, 1, 96)    221280
['block6i_se_reshape[0][0]']

 block6i_se_expand (Conv2D)      (None, 1, 1, 2304)  223488
['block6i_se_reduce[0][0]']

 block6i_se_excite (Multiply)    (None, 7, 7, 2304)  0
['block6i_activation[0][0]',
 'block6i_se_expand[0][0]']

 block6i_project_conv (Conv2D)  (None, 7, 7, 384)    884736
['block6i_se_excite[0][0]']

 block6i_project_bn (BatchNorma  (None, 7, 7, 384)   1536
['block6i_project_conv[0][0]']
 lization)

 block6i_drop (Dropout)          (None, 7, 7, 384)    0
['block6i_project_bn[0][0]']

 block6i_add (Add)               (None, 7, 7, 384)    0
['block6i_drop[0][0]',
 'block6h_add[0][0]']

 block6j_expand_conv (Conv2D)    (None, 7, 7, 2304)  884736
['block6i_add[0][0]']

 block6j_expand_bn (BatchNormal  (None, 7, 7, 2304)  9216
['block6j_expand_conv[0][0]']
 ization)

 block6j_expand_activation (Act  (None, 7, 7, 2304)  0
['block6j_expand_bn[0][0]']
 ivation)
```

```
block6j_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6j_expand_activation[0][0]
 2D)                                                                        ']

 block6j_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6j_dwconv2[0][0]']
 )

 block6j_activation (Activation   (None, 7, 7, 2304)   0
['block6j_bn[0][0]']
 )

 block6j_se_squeeze (GlobalAver   (None, 2304)         0
['block6j_activation[0][0]'
 agePooling2D)

 block6j_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6j_se_squeeze[0][0]']

 block6j_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6j_se_reshape[0][0]']

 block6j_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
['block6j_se_reduce[0][0]']

 block6j_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6j_activation[0][0]',
 'block6j_se_expand[0][0]']

 block6j_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6j_se_excite[0][0]']

 block6j_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6j_project_conv[0][0]']
 lization)

 block6j_drop (Dropout)           (None, 7, 7, 384)    0
['block6j_project_bn[0][0]']

 block6j_add (Add)                (None, 7, 7, 384)    0
['block6j_drop[0][0]',
 'block6i_add[0][0]']

 block6k_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6j_add[0][0]']

 block6k_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
```

```
                                          ['block6k_expand_conv[0][0]']
 ization)

 block6k_expand_activation (Act   (None, 7, 7, 2304)   0
['block6k_expand_bn[0][0]']
 ivation)

 block6k_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6k_expand_activation[0][0]
 2D)                                                                        ']

 block6k_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6k_dwconv2[0][0]']
 )

 block6k_activation (Activation   (None, 7, 7, 2304)   0
['block6k_bn[0][0]']
 )

 block6k_se_squeeze (GlobalAver   (None, 2304)         0
['block6k_activation[0][0]']
 agePooling2D)

 block6k_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6k_se_squeeze[0][0]']

 block6k_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6k_se_reshape[0][0]']

 block6k_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
['block6k_se_reduce[0][0]']

 block6k_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6k_activation[0][0]',
 'block6k_se_expand[0][0]']

 block6k_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6k_se_excite[0][0]']

 block6k_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6k_project_conv[0][0]']
 lization)

 block6k_drop (Dropout)           (None, 7, 7, 384)    0
['block6k_project_bn[0][0]']

 block6k_add (Add)                (None, 7, 7, 384)    0
['block6k_drop[0][0]',
```

```
                                                      'block6j_add[0][0]']

 block6l_expand_conv (Conv2D)    (None, 7, 7, 2304)    884736
['block6k_add[0][0]']

 block6l_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6l_expand_conv[0][0]']
 ization)

 block6l_expand_activation (Act   (None, 7, 7, 2304)   0
['block6l_expand_bn[0][0]']
 ivation)

 block6l_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6l_expand_activation[0][0]
 2D)                                                                             ']

 block6l_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6l_dwconv2[0][0]']
 )

 block6l_activation (Activation   (None, 7, 7, 2304)   0
['block6l_bn[0][0]']
 )

 block6l_se_squeeze (GlobalAver   (None, 2304)         0
['block6l_activation[0][0]']
 agePooling2D)

 block6l_se_reshape (Reshape)    (None, 1, 1, 2304)   0
['block6l_se_squeeze[0][0]']

 block6l_se_reduce (Conv2D)      (None, 1, 1, 96)     221280
['block6l_se_reshape[0][0]']

 block6l_se_expand (Conv2D)      (None, 1, 1, 2304)   223488
['block6l_se_reduce[0][0]']

 block6l_se_excite (Multiply)    (None, 7, 7, 2304)   0
['block6l_activation[0][0]',
 'block6l_se_expand[0][0]']

 block6l_project_conv (Conv2D)   (None, 7, 7, 384)    884736
['block6l_se_excite[0][0]']

 block6l_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6l_project_conv[0][0]']
 lization)
```

```
block6l_drop (Dropout)          (None, 7, 7, 384)    0
['block6l_project_bn[0][0]']

block6l_add (Add)               (None, 7, 7, 384)    0
['block6l_drop[0][0]',
'block6k_add[0][0]']

block6m_expand_conv (Conv2D)    (None, 7, 7, 2304)   884736
['block6l_add[0][0]']

block6m_expand_bn (BatchNormal  (None, 7, 7, 2304)   9216
['block6m_expand_conv[0][0]']
 ization)

block6m_expand_activation (Act  (None, 7, 7, 2304)   0
['block6m_expand_bn[0][0]']
 ivation)

block6m_dwconv2 (DepthwiseConv  (None, 7, 7, 2304)   20736
['block6m_expand_activation[0][0]
 2D)                                                                         ']

block6m_bn (BatchNormalization  (None, 7, 7, 2304)   9216
['block6m_dwconv2[0][0]']
 )

block6m_activation (Activation  (None, 7, 7, 2304)   0
['block6m_bn[0][0]']
 )

block6m_se_squeeze (GlobalAver  (None, 2304)         0
['block6m_activation[0][0]']
 agePooling2D)

block6m_se_reshape (Reshape)    (None, 1, 1, 2304)   0
['block6m_se_squeeze[0][0]']

block6m_se_reduce (Conv2D)      (None, 1, 1, 96)     221280
['block6m_se_reshape[0][0]']

block6m_se_expand (Conv2D)      (None, 1, 1, 2304)   223488
['block6m_se_reduce[0][0]']

block6m_se_excite (Multiply)    (None, 7, 7, 2304)   0
['block6m_activation[0][0]',
'block6m_se_expand[0][0]']
```

```
 block6m_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6m_se_excite[0][0]']

 block6m_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6m_project_conv[0][0]']
 lization)

 block6m_drop (Dropout)           (None, 7, 7, 384)    0
['block6m_project_bn[0][0]']

 block6m_add (Add)                (None, 7, 7, 384)    0
['block6m_drop[0][0]',
'block6l_add[0][0]']

 block6n_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6m_add[0][0]']

 block6n_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6n_expand_conv[0][0]']
 ization)

 block6n_expand_activation (Act   (None, 7, 7, 2304)   0
['block6n_expand_bn[0][0]']
 ivation)

 block6n_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6n_expand_activation[0][0]
 2D)                                                                ']

 block6n_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6n_dwconv2[0][0]']
 )

 block6n_activation (Activation   (None, 7, 7, 2304)   0
['block6n_bn[0][0]']
 )

 block6n_se_squeeze (GlobalAver   (None, 2304)         0
['block6n_activation[0][0]']
 agePooling2D)

 block6n_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6n_se_squeeze[0][0]']

 block6n_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6n_se_reshape[0][0]']

 block6n_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
```

```
                                              ['block6n_se_reduce[0][0]']

 block6n_se_excite (Multiply)    (None, 7, 7, 2304)    0
['block6n_activation[0][0]',
'block6n_se_expand[0][0]']

 block6n_project_conv (Conv2D)   (None, 7, 7, 384)     884736
['block6n_se_excite[0][0]']

 block6n_project_bn (BatchNorma  (None, 7, 7, 384)     1536
['block6n_project_conv[0][0]']
 lization)

 block6n_drop (Dropout)          (None, 7, 7, 384)     0
['block6n_project_bn[0][0]']

 block6n_add (Add)               (None, 7, 7, 384)     0
['block6n_drop[0][0]',
'block6m_add[0][0]']

 block6o_expand_conv (Conv2D)    (None, 7, 7, 2304)    884736
['block6n_add[0][0]']

 block6o_expand_bn (BatchNormal  (None, 7, 7, 2304)    9216
['block6o_expand_conv[0][0]']
 ization)

 block6o_expand_activation (Act  (None, 7, 7, 2304)    0
['block6o_expand_bn[0][0]']
 ivation)

 block6o_dwconv2 (DepthwiseConv  (None, 7, 7, 2304)    20736
['block6o_expand_activation[0][0]
 2D)                                                                     ']

 block6o_bn (BatchNormalization  (None, 7, 7, 2304)    9216
['block6o_dwconv2[0][0]']
 )

 block6o_activation (Activation  (None, 7, 7, 2304)    0
['block6o_bn[0][0]']
 )

 block6o_se_squeeze (GlobalAver  (None, 2304)          0
['block6o_activation[0][0]']
 agePooling2D)

 block6o_se_reshape (Reshape)    (None, 1, 1, 2304)    0
```

```
['block6o_se_squeeze[0][0]']

 block6o_se_reduce (Conv2D)      (None, 1, 1, 96)      221280
['block6o_se_reshape[0][0]']

 block6o_se_expand (Conv2D)      (None, 1, 1, 2304)    223488
['block6o_se_reduce[0][0]']

 block6o_se_excite (Multiply)    (None, 7, 7, 2304)    0
['block6o_activation[0][0]',
 'block6o_se_expand[0][0]']

 block6o_project_conv (Conv2D)   (None, 7, 7, 384)     884736
['block6o_se_excite[0][0]']

 block6o_project_bn (BatchNorma   (None, 7, 7, 384)     1536
['block6o_project_conv[0][0]']
 lization)

 block6o_drop (Dropout)          (None, 7, 7, 384)     0
['block6o_project_bn[0][0]']

 block6o_add (Add)               (None, 7, 7, 384)     0
['block6o_drop[0][0]',
 'block6n_add[0][0]']

 block6p_expand_conv (Conv2D)    (None, 7, 7, 2304)    884736
['block6o_add[0][0]']

 block6p_expand_bn (BatchNormal   (None, 7, 7, 2304)    9216
['block6p_expand_conv[0][0]']
 ization)

 block6p_expand_activation (Act   (None, 7, 7, 2304)    0
['block6p_expand_bn[0][0]']
 ivation)

 block6p_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)    20736
['block6p_expand_activation[0][0]
 2D)                                                                                     ']

 block6p_bn (BatchNormalization   (None, 7, 7, 2304)    9216
['block6p_dwconv2[0][0]']
 )

 block6p_activation (Activation   (None, 7, 7, 2304)    0
['block6p_bn[0][0]']
 )
```

```
block6p_se_squeeze (GlobalAver  (None, 2304)         0       ['block6p_activation[0][0]']
agePooling2D)

block6p_se_reshape (Reshape)    (None, 1, 1, 2304)   0       ['block6p_se_squeeze[0][0]']

block6p_se_reduce (Conv2D)      (None, 1, 1, 96)      221280  ['block6p_se_reshape[0][0]']

block6p_se_expand (Conv2D)      (None, 1, 1, 2304)    223488  ['block6p_se_reduce[0][0]']

block6p_se_excite (Multiply)    (None, 7, 7, 2304)    0       ['block6p_activation[0][0]',
                                                               'block6p_se_expand[0][0]']

block6p_project_conv (Conv2D)   (None, 7, 7, 384)     884736  ['block6p_se_excite[0][0]']

block6p_project_bn (BatchNorma  (None, 7, 7, 384)     1536    ['block6p_project_conv[0][0]']
lization)

block6p_drop (Dropout)          (None, 7, 7, 384)     0       ['block6p_project_bn[0][0]']

block6p_add (Add)               (None, 7, 7, 384)     0       ['block6p_drop[0][0]',
                                                               'block6o_add[0][0]']

block6q_expand_conv (Conv2D)    (None, 7, 7, 2304)    884736  ['block6p_add[0][0]']

block6q_expand_bn (BatchNormal  (None, 7, 7, 2304)    9216    ['block6q_expand_conv[0][0]']
ization)

block6q_expand_activation (Act  (None, 7, 7, 2304)    0       ['block6q_expand_bn[0][0]']
ivation)

block6q_dwconv2 (DepthwiseConv  (None, 7, 7, 2304)    20736   ['block6q_expand_activation[0][0]
2D)                                                            ']

block6q_bn (BatchNormalization  (None, 7, 7, 2304)    9216
```

```
['block6q_dwconv2[0][0]']
 )

 block6q_activation (Activation   (None, 7, 7, 2304)   0
['block6q_bn[0][0]']
 )

 block6q_se_squeeze (GlobalAver   (None, 2304)         0
['block6q_activation[0][0]']
 agePooling2D)

 block6q_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6q_se_squeeze[0][0]']

 block6q_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6q_se_reshape[0][0]']

 block6q_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
['block6q_se_reduce[0][0]']

 block6q_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6q_activation[0][0]',
'block6q_se_expand[0][0]']

 block6q_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6q_se_excite[0][0]']

 block6q_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6q_project_conv[0][0]']
 lization)

 block6q_drop (Dropout)           (None, 7, 7, 384)    0
['block6q_project_bn[0][0]']

 block6q_add (Add)                (None, 7, 7, 384)    0
['block6q_drop[0][0]',
'block6p_add[0][0]']

 block6r_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6q_add[0][0]']

 block6r_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6r_expand_conv[0][0]']
 ization)

 block6r_expand_activation (Act   (None, 7, 7, 2304)   0
['block6r_expand_bn[0][0]']
 ivation)
```

```
block6r_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6r_expand_activation[0][0]
 2D)                                                              ']

 block6r_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6r_dwconv2[0][0]']
 )

 block6r_activation (Activation   (None, 7, 7, 2304)   0
['block6r_bn[0][0]']
 )

 block6r_se_squeeze (GlobalAver   (None, 2304)         0
['block6r_activation[0][0]'
 agePooling2D)

 block6r_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6r_se_squeeze[0][0]']

 block6r_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6r_se_reshape[0][0]']

 block6r_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
['block6r_se_reduce[0][0]']

 block6r_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6r_activation[0][0]',
 'block6r_se_expand[0][0]']

 block6r_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6r_se_excite[0][0]']

 block6r_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6r_project_conv[0][0]']
 lization)

 block6r_drop (Dropout)           (None, 7, 7, 384)    0
['block6r_project_bn[0][0]']

 block6r_add (Add)                (None, 7, 7, 384)    0
['block6r_drop[0][0]',
 'block6q_add[0][0]']

 block6s_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6r_add[0][0]']

 block6s_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
```

```
                                            ['block6s_expand_conv[0][0]']
 ization)

 block6s_expand_activation (Act    (None, 7, 7, 2304)   0
['block6s_expand_bn[0][0]']
 ivation)

 block6s_dwconv2 (DepthwiseConv     (None, 7, 7, 2304)   20736
['block6s_expand_activation[0][0]
 2D)                                                                      ']

 block6s_bn (BatchNormalization     (None, 7, 7, 2304)   9216
['block6s_dwconv2[0][0]']
 )

 block6s_activation (Activation     (None, 7, 7, 2304)   0
['block6s_bn[0][0]']
 )

 block6s_se_squeeze (GlobalAver     (None, 2304)         0
['block6s_activation[0][0]']
 agePooling2D)

 block6s_se_reshape (Reshape)       (None, 1, 1, 2304)   0
['block6s_se_squeeze[0][0]']

 block6s_se_reduce (Conv2D)         (None, 1, 1, 96)     221280
['block6s_se_reshape[0][0]']

 block6s_se_expand (Conv2D)         (None, 1, 1, 2304)   223488
['block6s_se_reduce[0][0]']

 block6s_se_excite (Multiply)       (None, 7, 7, 2304)   0
['block6s_activation[0][0]',
 'block6s_se_expand[0][0]']

 block6s_project_conv (Conv2D)      (None, 7, 7, 384)    884736
['block6s_se_excite[0][0]']

 block6s_project_bn (BatchNorma     (None, 7, 7, 384)    1536
['block6s_project_conv[0][0]']
 lization)

 block6s_drop (Dropout)             (None, 7, 7, 384)    0
['block6s_project_bn[0][0]']

 block6s_add (Add)                  (None, 7, 7, 384)    0
['block6s_drop[0][0]',
```

```
'block6r_add[0][0]']

 block6t_expand_conv (Conv2D)    (None, 7, 7, 2304)   884736
['block6s_add[0][0]']

 block6t_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6t_expand_conv[0][0]']
 ization)

 block6t_expand_activation (Act   (None, 7, 7, 2304)   0
['block6t_expand_bn[0][0]']
 ivation)

 block6t_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6t_expand_activation[0][0]
 2D)                                                                 ']

 block6t_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6t_dwconv2[0][0]']
 )

 block6t_activation (Activation   (None, 7, 7, 2304)   0
['block6t_bn[0][0]']
 )

 block6t_se_squeeze (GlobalAver   (None, 2304)         0
['block6t_activation[0][0]']
 agePooling2D)

 block6t_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6t_se_squeeze[0][0]']

 block6t_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6t_se_reshape[0][0]']

 block6t_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
['block6t_se_reduce[0][0]']

 block6t_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6t_activation[0][0]',
'block6t_se_expand[0][0]']

 block6t_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6t_se_excite[0][0]']

 block6t_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6t_project_conv[0][0]']
 lization)
```

```
block6t_drop (Dropout)           (None, 7, 7, 384)    0
['block6t_project_bn[0][0]']

block6t_add (Add)                (None, 7, 7, 384)    0
['block6t_drop[0][0]',
'block6s_add[0][0]']

block6u_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6t_add[0][0]']

block6u_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6u_expand_conv[0][0]']
ization)

block6u_expand_activation (Act   (None, 7, 7, 2304)   0
['block6u_expand_bn[0][0]']
ivation)

block6u_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6u_expand_activation[0][0]
2D)                                                                          ']

block6u_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6u_dwconv2[0][0]']
)

block6u_activation (Activation   (None, 7, 7, 2304)   0
['block6u_bn[0][0]']
)

block6u_se_squeeze (GlobalAver   (None, 2304)         0
['block6u_activation[0][0]']
agePooling2D)

block6u_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6u_se_squeeze[0][0]']

block6u_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6u_se_reshape[0][0]']

block6u_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
['block6u_se_reduce[0][0]']

block6u_se_excite (Multiply)     (None, 7, 7, 2304)   0
['block6u_activation[0][0]',
'block6u_se_expand[0][0]']
```

```
 block6u_project_conv (Conv2D)    (None, 7, 7, 384)    884736
['block6u_se_excite[0][0]']

 block6u_project_bn (BatchNorma   (None, 7, 7, 384)    1536
['block6u_project_conv[0][0]']
 lization)

 block6u_drop (Dropout)           (None, 7, 7, 384)    0
['block6u_project_bn[0][0]']

 block6u_add (Add)                (None, 7, 7, 384)    0
['block6u_drop[0][0]',
'block6t_add[0][0]']

 block6v_expand_conv (Conv2D)     (None, 7, 7, 2304)   884736
['block6u_add[0][0]']

 block6v_expand_bn (BatchNormal   (None, 7, 7, 2304)   9216
['block6v_expand_conv[0][0]']
 ization)

 block6v_expand_activation (Act   (None, 7, 7, 2304)   0
['block6v_expand_bn[0][0]']
 ivation)

 block6v_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)   20736
['block6v_expand_activation[0][0]
 2D)                                                                    ']

 block6v_bn (BatchNormalization   (None, 7, 7, 2304)   9216
['block6v_dwconv2[0][0]']
 )

 block6v_activation (Activation   (None, 7, 7, 2304)   0
['block6v_bn[0][0]']
 )

 block6v_se_squeeze (GlobalAver   (None, 2304)         0
['block6v_activation[0][0]']
 agePooling2D)

 block6v_se_reshape (Reshape)     (None, 1, 1, 2304)   0
['block6v_se_squeeze[0][0]']

 block6v_se_reduce (Conv2D)       (None, 1, 1, 96)     221280
['block6v_se_reshape[0][0]']

 block6v_se_expand (Conv2D)       (None, 1, 1, 2304)   223488
```

```
                                           ['block6v_se_reduce[0][0]']

 block6v_se_excite (Multiply)    (None, 7, 7, 2304)    0
['block6v_activation[0][0]',
'block6v_se_expand[0][0]']

 block6v_project_conv (Conv2D)   (None, 7, 7, 384)     884736
['block6v_se_excite[0][0]']

 block6v_project_bn (BatchNorma   (None, 7, 7, 384)     1536
['block6v_project_conv[0][0]']
 lization)

 block6v_drop (Dropout)          (None, 7, 7, 384)     0
['block6v_project_bn[0][0]']

 block6v_add (Add)               (None, 7, 7, 384)     0
['block6v_drop[0][0]',
'block6u_add[0][0]']

 block6w_expand_conv (Conv2D)    (None, 7, 7, 2304)    884736
['block6v_add[0][0]']

 block6w_expand_bn (BatchNormal   (None, 7, 7, 2304)    9216
['block6w_expand_conv[0][0]']
 ization)

 block6w_expand_activation (Act   (None, 7, 7, 2304)    0
['block6w_expand_bn[0][0]']
 ivation)

 block6w_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)    20736
['block6w_expand_activation[0][0]
 2D)                                                                       ']

 block6w_bn (BatchNormalization   (None, 7, 7, 2304)    9216
['block6w_dwconv2[0][0]']
 )

 block6w_activation (Activation   (None, 7, 7, 2304)    0
['block6w_bn[0][0]']
 )

 block6w_se_squeeze (GlobalAver   (None, 2304)          0
['block6w_activation[0][0]']
 agePooling2D)

 block6w_se_reshape (Reshape)    (None, 1, 1, 2304)    0
```

```
                                         ['block6w_se_squeeze[0][0]']

 block6w_se_reduce (Conv2D)       (None, 1, 1, 96)      221280
['block6w_se_reshape[0][0]']

 block6w_se_expand (Conv2D)       (None, 1, 1, 2304)    223488
['block6w_se_reduce[0][0]']

 block6w_se_excite (Multiply)     (None, 7, 7, 2304)    0
['block6w_activation[0][0]',
 'block6w_se_expand[0][0]']

 block6w_project_conv (Conv2D)    (None, 7, 7, 384)     884736
['block6w_se_excite[0][0]']

 block6w_project_bn (BatchNorma   (None, 7, 7, 384)     1536
['block6w_project_conv[0][0]']
 lization)

 block6w_drop (Dropout)           (None, 7, 7, 384)     0
['block6w_project_bn[0][0]']

 block6w_add (Add)                (None, 7, 7, 384)     0
['block6w_drop[0][0]',
 'block6v_add[0][0]']

 block6x_expand_conv (Conv2D)     (None, 7, 7, 2304)    884736
['block6w_add[0][0]']

 block6x_expand_bn (BatchNormal   (None, 7, 7, 2304)    9216
['block6x_expand_conv[0][0]']
 ization)

 block6x_expand_activation (Act   (None, 7, 7, 2304)    0
['block6x_expand_bn[0][0]']
 ivation)

 block6x_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)    20736
['block6x_expand_activation[0][0]
 2D)                                                                        ']

 block6x_bn (BatchNormalization   (None, 7, 7, 2304)    9216
['block6x_dwconv2[0][0]']
 )

 block6x_activation (Activation   (None, 7, 7, 2304)    0
['block6x_bn[0][0]']
 )
```

```
block6x_se_squeeze (GlobalAver   (None, 2304)        0        ['block6x_activation[0][0]']
agePooling2D)

block6x_se_reshape (Reshape)     (None, 1, 1, 2304)  0        ['block6x_se_squeeze[0][0]']

block6x_se_reduce (Conv2D)       (None, 1, 1, 96)    221280   ['block6x_se_reshape[0][0]']

block6x_se_expand (Conv2D)       (None, 1, 1, 2304)  223488   ['block6x_se_reduce[0][0]']

block6x_se_excite (Multiply)     (None, 7, 7, 2304)  0        ['block6x_activation[0][0]',
                                                               'block6x_se_expand[0][0]']

block6x_project_conv (Conv2D)    (None, 7, 7, 384)   884736   ['block6x_se_excite[0][0]']

block6x_project_bn (BatchNorma   (None, 7, 7, 384)   1536     ['block6x_project_conv[0][0]']
lization)

block6x_drop (Dropout)           (None, 7, 7, 384)   0        ['block6x_project_bn[0][0]']

block6x_add (Add)                (None, 7, 7, 384)   0        ['block6x_drop[0][0]',
                                                               'block6w_add[0][0]']

block6y_expand_conv (Conv2D)     (None, 7, 7, 2304)  884736   ['block6x_add[0][0]']

block6y_expand_bn (BatchNormal   (None, 7, 7, 2304)  9216     ['block6y_expand_conv[0][0]']
ization)

block6y_expand_activation (Act   (None, 7, 7, 2304)  0        ['block6y_expand_bn[0][0]']
ivation)

block6y_dwconv2 (DepthwiseConv   (None, 7, 7, 2304)  20736    ['block6y_expand_activation[0][0]
2D)                                                            ']

block6y_bn (BatchNormalization   (None, 7, 7, 2304)  9216
```

```
['block6y_dwconv2[0][0]']
 )

 block6y_activation (Activation  (None, 7, 7, 2304)  0
['block6y_bn[0][0]']
 )

 block6y_se_squeeze (GlobalAver  (None, 2304)        0
['block6y_activation[0][0]']
 agePooling2D)

 block6y_se_reshape (Reshape)    (None, 1, 1, 2304)  0
['block6y_se_squeeze[0][0]']

 block6y_se_reduce (Conv2D)      (None, 1, 1, 96)    221280
['block6y_se_reshape[0][0]']

 block6y_se_expand (Conv2D)      (None, 1, 1, 2304)  223488
['block6y_se_reduce[0][0]']

 block6y_se_excite (Multiply)    (None, 7, 7, 2304)  0
['block6y_activation[0][0]',
'block6y_se_expand[0][0]']

 block6y_project_conv (Conv2D)   (None, 7, 7, 384)   884736
['block6y_se_excite[0][0]']

 block6y_project_bn (BatchNorma  (None, 7, 7, 384)   1536
['block6y_project_conv[0][0]']
 lization)

 block6y_drop (Dropout)          (None, 7, 7, 384)   0
['block6y_project_bn[0][0]']

 block6y_add (Add)               (None, 7, 7, 384)   0
['block6y_drop[0][0]',
'block6x_add[0][0]']

 block7a_expand_conv (Conv2D)    (None, 7, 7, 2304)  884736
['block6y_add[0][0]']

 block7a_expand_bn (BatchNormal  (None, 7, 7, 2304)  9216
['block7a_expand_conv[0][0]']
 ization)

 block7a_expand_activation (Act  (None, 7, 7, 2304)  0
['block7a_expand_bn[0][0]']
 ivation)
```

```
block7a_dwconv2 (DepthwiseConv  (None, 7, 7, 2304)   20736
['block7a_expand_activation[0][0]
 2D)                                                                        ']


 block7a_bn (BatchNormalization  (None, 7, 7, 2304)   9216
['block7a_dwconv2[0][0]']
 )


 block7a_activation (Activation  (None, 7, 7, 2304)   0
['block7a_bn[0][0]']
 )


 block7a_se_squeeze (GlobalAver  (None, 2304)         0
['block7a_activation[0][0]']
 agePooling2D)


 block7a_se_reshape (Reshape)   (None, 1, 1, 2304)   0
['block7a_se_squeeze[0][0]']


 block7a_se_reduce (Conv2D)     (None, 1, 1, 96)     221280
['block7a_se_reshape[0][0]']


 block7a_se_expand (Conv2D)     (None, 1, 1, 2304)   223488
['block7a_se_reduce[0][0]']


 block7a_se_excite (Multiply)   (None, 7, 7, 2304)   0
['block7a_activation[0][0]',
'block7a_se_expand[0][0]']


 block7a_project_conv (Conv2D)  (None, 7, 7, 640)    1474560
['block7a_se_excite[0][0]']


 block7a_project_bn (BatchNorma  (None, 7, 7, 640)    2560
['block7a_project_conv[0][0]']
 lization)


 block7b_expand_conv (Conv2D)   (None, 7, 7, 3840)   2457600
['block7a_project_bn[0][0]']


 block7b_expand_bn (BatchNormal  (None, 7, 7, 3840)   15360
['block7b_expand_conv[0][0]']
 ization)


 block7b_expand_activation (Act  (None, 7, 7, 3840)   0
['block7b_expand_bn[0][0]']
 ivation)
```

```
block7b_dwconv2 (DepthwiseConv   (None, 7, 7, 3840)   34560
['block7b_expand_activation[0][0]
 2D)                                                                      ']

block7b_bn (BatchNormalization   (None, 7, 7, 3840)   15360
['block7b_dwconv2[0][0]']
 )

block7b_activation (Activation   (None, 7, 7, 3840)   0
['block7b_bn[0][0]']
 )

block7b_se_squeeze (GlobalAver   (None, 3840)         0
['block7b_activation[0][0]']
 agePooling2D)

block7b_se_reshape (Reshape)     (None, 1, 1, 3840)   0
['block7b_se_squeeze[0][0]']

block7b_se_reduce (Conv2D)       (None, 1, 1, 160)    614560
['block7b_se_reshape[0][0]']

block7b_se_expand (Conv2D)       (None, 1, 1, 3840)   618240
['block7b_se_reduce[0][0]']

block7b_se_excite (Multiply)     (None, 7, 7, 3840)   0
['block7b_activation[0][0]',
 'block7b_se_expand[0][0]']

block7b_project_conv (Conv2D)    (None, 7, 7, 640)    2457600
['block7b_se_excite[0][0]']

block7b_project_bn (BatchNorma   (None, 7, 7, 640)    2560
['block7b_project_conv[0][0]']
 lization)

block7b_drop (Dropout)           (None, 7, 7, 640)    0
['block7b_project_bn[0][0]']

block7b_add (Add)                (None, 7, 7, 640)    0
['block7b_drop[0][0]',
 'block7a_project_bn[0][0]']

block7c_expand_conv (Conv2D)     (None, 7, 7, 3840)   2457600
['block7b_add[0][0]']

block7c_expand_bn (BatchNormal   (None, 7, 7, 3840)   15360
['block7c_expand_conv[0][0]']
```

ization)

 block7c_expand_activation (Act (None, 7, 7, 3840) 0
['block7c_expand_bn[0][0]']
 ivation)

 block7c_dwconv2 (DepthwiseConv (None, 7, 7, 3840) 34560
['block7c_expand_activation[0][0]
 2D)   ']

 block7c_bn (BatchNormalization (None, 7, 7, 3840) 15360
['block7c_dwconv2[0][0]']
)

 block7c_activation (Activation (None, 7, 7, 3840) 0
['block7c_bn[0][0]']
)

 block7c_se_squeeze (GlobalAver (None, 3840)   0
['block7c_activation[0][0]']
 agePooling2D)

 block7c_se_reshape (Reshape)   (None, 1, 1, 3840) 0
['block7c_se_squeeze[0][0]']

 block7c_se_reduce (Conv2D)   (None, 1, 1, 160)   614560
['block7c_se_reshape[0][0]']

 block7c_se_expand (Conv2D)   (None, 1, 1, 3840) 618240
['block7c_se_reduce[0][0]']

 block7c_se_excite (Multiply)   (None, 7, 7, 3840) 0
['block7c_activation[0][0]',
 'block7c_se_expand[0][0]']

 block7c_project_conv (Conv2D) (None, 7, 7, 640)   2457600
['block7c_se_excite[0][0]']

 block7c_project_bn (BatchNorma (None, 7, 7, 640)   2560
['block7c_project_conv[0][0]']
 lization)

 block7c_drop (Dropout)   (None, 7, 7, 640)   0
['block7c_project_bn[0][0]']

 block7c_add (Add)   (None, 7, 7, 640)   0
['block7c_drop[0][0]',
 'block7b_add[0][0]']

```
 block7d_expand_conv (Conv2D)    (None, 7, 7, 3840)   2457600
['block7c_add[0][0]']

 block7d_expand_bn (BatchNormal  (None, 7, 7, 3840)   15360
['block7d_expand_conv[0][0]']
 ization)

 block7d_expand_activation (Act  (None, 7, 7, 3840)   0
['block7d_expand_bn[0][0]']
 ivation)

 block7d_dwconv2 (DepthwiseConv  (None, 7, 7, 3840)   34560
['block7d_expand_activation[0][0]
 2D)                                                                           ']

 block7d_bn (BatchNormalization  (None, 7, 7, 3840)   15360
['block7d_dwconv2[0][0]']
 )

 block7d_activation (Activation  (None, 7, 7, 3840)   0
['block7d_bn[0][0]']
 )

 block7d_se_squeeze (GlobalAver  (None, 3840)         0
['block7d_activation[0][0]']
 agePooling2D)

 block7d_se_reshape (Reshape)    (None, 1, 1, 3840)   0
['block7d_se_squeeze[0][0]']

 block7d_se_reduce (Conv2D)      (None, 1, 1, 160)    614560
['block7d_se_reshape[0][0]']

 block7d_se_expand (Conv2D)      (None, 1, 1, 3840)   618240
['block7d_se_reduce[0][0]']

 block7d_se_excite (Multiply)    (None, 7, 7, 3840)   0
['block7d_activation[0][0]',
 'block7d_se_expand[0][0]']

 block7d_project_conv (Conv2D)   (None, 7, 7, 640)    2457600
['block7d_se_excite[0][0]']

 block7d_project_bn (BatchNorma  (None, 7, 7, 640)    2560
['block7d_project_conv[0][0]']
 lization)
```

```
block7d_drop (Dropout)          (None, 7, 7, 640)    0
['block7d_project_bn[0][0]']

block7d_add (Add)               (None, 7, 7, 640)    0
['block7d_drop[0][0]',
'block7c_add[0][0]']

block7e_expand_conv (Conv2D)    (None, 7, 7, 3840)   2457600
['block7d_add[0][0]']

block7e_expand_bn (BatchNormal  (None, 7, 7, 3840)   15360
['block7e_expand_conv[0][0]']
ization)

block7e_expand_activation (Act  (None, 7, 7, 3840)   0
['block7e_expand_bn[0][0]']
ivation)

block7e_dwconv2 (DepthwiseConv  (None, 7, 7, 3840)   34560
['block7e_expand_activation[0][0]
2D)                                                                        ']

block7e_bn (BatchNormalization  (None, 7, 7, 3840)   15360
['block7e_dwconv2[0][0]']
)

block7e_activation (Activation  (None, 7, 7, 3840)   0
['block7e_bn[0][0]']
)

block7e_se_squeeze (GlobalAver  (None, 3840)         0
['block7e_activation[0][0]']
agePooling2D)

block7e_se_reshape (Reshape)    (None, 1, 1, 3840)   0
['block7e_se_squeeze[0][0]']

block7e_se_reduce (Conv2D)      (None, 1, 1, 160)    614560
['block7e_se_reshape[0][0]']

block7e_se_expand (Conv2D)      (None, 1, 1, 3840)   618240
['block7e_se_reduce[0][0]']

block7e_se_excite (Multiply)    (None, 7, 7, 3840)   0
['block7e_activation[0][0]',
'block7e_se_expand[0][0]']

block7e_project_conv (Conv2D)   (None, 7, 7, 640)    2457600
```

```
                                        ['block7e_se_excite[0][0]']

 block7e_project_bn (BatchNorma   (None, 7, 7, 640)     2560
['block7e_project_conv[0][0]']
 lization)

 block7e_drop (Dropout)           (None, 7, 7, 640)     0
['block7e_project_bn[0][0]']

 block7e_add (Add)                (None, 7, 7, 640)     0
['block7e_drop[0][0]',
'block7d_add[0][0]']

 block7f_expand_conv (Conv2D)     (None, 7, 7, 3840)    2457600
['block7e_add[0][0]']

 block7f_expand_bn (BatchNormal   (None, 7, 7, 3840)    15360
['block7f_expand_conv[0][0]']
 ization)

 block7f_expand_activation (Act   (None, 7, 7, 3840)    0
['block7f_expand_bn[0][0]']
 ivation)

 block7f_dwconv2 (DepthwiseConv   (None, 7, 7, 3840)    34560
['block7f_expand_activation[0][0]
 2D)                                                                          ']

 block7f_bn (BatchNormalization   (None, 7, 7, 3840)    15360
['block7f_dwconv2[0][0]']
 )

 block7f_activation (Activation   (None, 7, 7, 3840)    0
['block7f_bn[0][0]']
 )

 block7f_se_squeeze (GlobalAver   (None, 3840)          0
['block7f_activation[0][0]']
 agePooling2D)

 block7f_se_reshape (Reshape)     (None, 1, 1, 3840)    0
['block7f_se_squeeze[0][0]']

 block7f_se_reduce (Conv2D)       (None, 1, 1, 160)     614560
['block7f_se_reshape[0][0]']

 block7f_se_expand (Conv2D)       (None, 1, 1, 3840)    618240
['block7f_se_reduce[0][0]']
```

```
 block7f_se_excite (Multiply)    (None, 7, 7, 3840)    0
['block7f_activation[0][0]',
'block7f_se_expand[0][0]']

 block7f_project_conv (Conv2D)   (None, 7, 7, 640)    2457600
['block7f_se_excite[0][0]']

 block7f_project_bn (BatchNorma   (None, 7, 7, 640)    2560
['block7f_project_conv[0][0]']
 lization)

 block7f_drop (Dropout)          (None, 7, 7, 640)    0
['block7f_project_bn[0][0]']

 block7f_add (Add)               (None, 7, 7, 640)    0
['block7f_drop[0][0]',
'block7e_add[0][0]']

 block7g_expand_conv (Conv2D)    (None, 7, 7, 3840)    2457600
['block7f_add[0][0]']

 block7g_expand_bn (BatchNormal   (None, 7, 7, 3840)    15360
['block7g_expand_conv[0][0]']
 ization)

 block7g_expand_activation (Act   (None, 7, 7, 3840)    0
['block7g_expand_bn[0][0]']
 ivation)

 block7g_dwconv2 (DepthwiseConv   (None, 7, 7, 3840)    34560
['block7g_expand_activation[0][0]
 2D)                                                                ']

 block7g_bn (BatchNormalization   (None, 7, 7, 3840)    15360
['block7g_dwconv2[0][0]']
 )

 block7g_activation (Activation   (None, 7, 7, 3840)    0
['block7g_bn[0][0]']
 )

 block7g_se_squeeze (GlobalAver   (None, 3840)          0
['block7g_activation[0][0]']
 agePooling2D)

 block7g_se_reshape (Reshape)    (None, 1, 1, 3840)    0
['block7g_se_squeeze[0][0]']
```

```
block7g_se_reduce (Conv2D)      (None, 1, 1, 160)    614560
['block7g_se_reshape[0][0]']

block7g_se_expand (Conv2D)      (None, 1, 1, 3840)   618240
['block7g_se_reduce[0][0]']

block7g_se_excite (Multiply)    (None, 7, 7, 3840)   0
['block7g_activation[0][0]',
'block7g_se_expand[0][0]']

block7g_project_conv (Conv2D)   (None, 7, 7, 640)    2457600
['block7g_se_excite[0][0]']

block7g_project_bn (BatchNorma  (None, 7, 7, 640)    2560
['block7g_project_conv[0][0]']
 lization)

block7g_drop (Dropout)          (None, 7, 7, 640)    0
['block7g_project_bn[0][0]']

block7g_add (Add)               (None, 7, 7, 640)    0
['block7g_drop[0][0]',
'block7f_add[0][0]']

top_conv (Conv2D)               (None, 7, 7, 1280)   819200
['block7g_add[0][0]']

top_bn (BatchNormalization)     (None, 7, 7, 1280)   5120
['top_conv[0][0]']

top_activation (Activation)     (None, 7, 7, 1280)   0
['top_bn[0][0]']

================================================================================
==================
Total params: 117,746,848
Trainable params: 117,234,272
Non-trainable params: 512,576

--------------------------------------------------------------------------------
------------------
```

```
[8]: x = base_model.output
     x = GlobalAveragePooling2D()(x)
     output = Dense(num_classes, activation='softmax')(x)
     model = Model(inputs=base_model.input, outputs=output)
```

```
model.compile(optimizer='adam',
              loss='sparse_categorical_crossentropy',
              metrics=['accuracy'])

tensorboard_callback = tf.keras.callbacks.TensorBoard(log_dir='logs')

hist = model.fit(train_data, epochs=20, validation_data=val_data,␣
  ↪callbacks=[tensorboard_callback])
```

```
Epoch 1/20
335/335 [==============================] - 93s 208ms/step - loss: 0.7743 -
accuracy: 0.7164 - val_loss: 0.4587 - val_accuracy: 0.8139
Epoch 2/20
335/335 [==============================] - 69s 205ms/step - loss: 0.3383 -
accuracy: 0.8794 - val_loss: 0.4509 - val_accuracy: 0.8561
Epoch 3/20
335/335 [==============================] - 68s 202ms/step - loss: 0.2697 -
accuracy: 0.9050 - val_loss: 0.2383 - val_accuracy: 0.9148
Epoch 4/20
335/335 [==============================] - 68s 203ms/step - loss: 0.1974 -
accuracy: 0.9346 - val_loss: 0.2607 - val_accuracy: 0.9062
Epoch 5/20
335/335 [==============================] - 67s 201ms/step - loss: 0.1551 -
accuracy: 0.9495 - val_loss: 0.2272 - val_accuracy: 0.9313
Epoch 6/20
335/335 [==============================] - 67s 201ms/step - loss: 0.1127 -
accuracy: 0.9617 - val_loss: 0.2273 - val_accuracy: 0.9384
Epoch 7/20
335/335 [==============================] - 68s 202ms/step - loss: 0.1381 -
accuracy: 0.9523 - val_loss: 0.2182 - val_accuracy: 0.9349
Epoch 8/20
335/335 [==============================] - 68s 201ms/step - loss: 0.1127 -
accuracy: 0.9634 - val_loss: 0.2964 - val_accuracy: 0.9127
Epoch 9/20
335/335 [==============================] - 68s 202ms/step - loss: 0.1016 -
accuracy: 0.9671 - val_loss: 0.2202 - val_accuracy: 0.9413
Epoch 10/20
335/335 [==============================] - 67s 201ms/step - loss: 0.0729 -
accuracy: 0.9770 - val_loss: 0.1948 - val_accuracy: 0.9470
Epoch 11/20
335/335 [==============================] - 68s 203ms/step - loss: 0.0687 -
accuracy: 0.9776 - val_loss: 0.1656 - val_accuracy: 0.9449
Epoch 12/20
335/335 [==============================] - 68s 204ms/step - loss: 0.0844 -
accuracy: 0.9701 - val_loss: 0.3614 - val_accuracy: 0.8941
Epoch 13/20
335/335 [==============================] - 69s 206ms/step - loss: 0.0813 -
accuracy: 0.9710 - val_loss: 0.2306 - val_accuracy: 0.9384
```

```
Epoch 14/20
335/335 [==============================] - 69s 207ms/step - loss: 0.0438 -
accuracy: 0.9849 - val_loss: 0.1622 - val_accuracy: 0.9513
Epoch 15/20
335/335 [==============================] - 70s 210ms/step - loss: 0.0570 -
accuracy: 0.9826 - val_loss: 0.2120 - val_accuracy: 0.9477
Epoch 16/20
335/335 [==============================] - 70s 209ms/step - loss: 0.0602 -
accuracy: 0.9822 - val_loss: 0.2539 - val_accuracy: 0.9277
Epoch 17/20
335/335 [==============================] - 70s 209ms/step - loss: 0.0640 -
accuracy: 0.9811 - val_loss: 0.2169 - val_accuracy: 0.9370
Epoch 18/20
335/335 [==============================] - 70s 209ms/step - loss: 0.0331 -
accuracy: 0.9892 - val_loss: 0.1675 - val_accuracy: 0.9606
Epoch 19/20
335/335 [==============================] - 70s 209ms/step - loss: 0.0626 -
accuracy: 0.9796 - val_loss: 0.3283 - val_accuracy: 0.9098
Epoch 20/20
335/335 [==============================] - 70s 209ms/step - loss: 0.0583 -
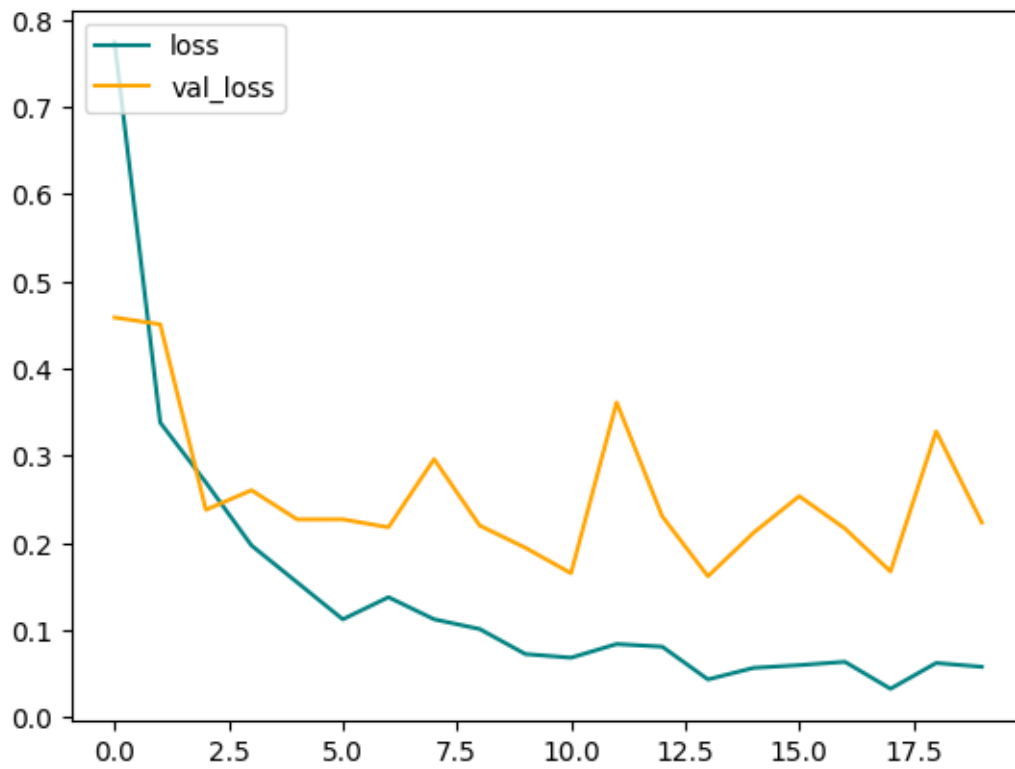accuracy: 0.9785 - val_loss: 0.2237 - val_accuracy: 0.9442
```

```python
[9]: fig = plt.figure()
     plt .plot(hist.history['loss'], color='teal', label='loss')
     plt.plot(hist.history['val_loss'], color='orange', label='val_loss')
     fig.suptitle('Loss', fontsize=20)
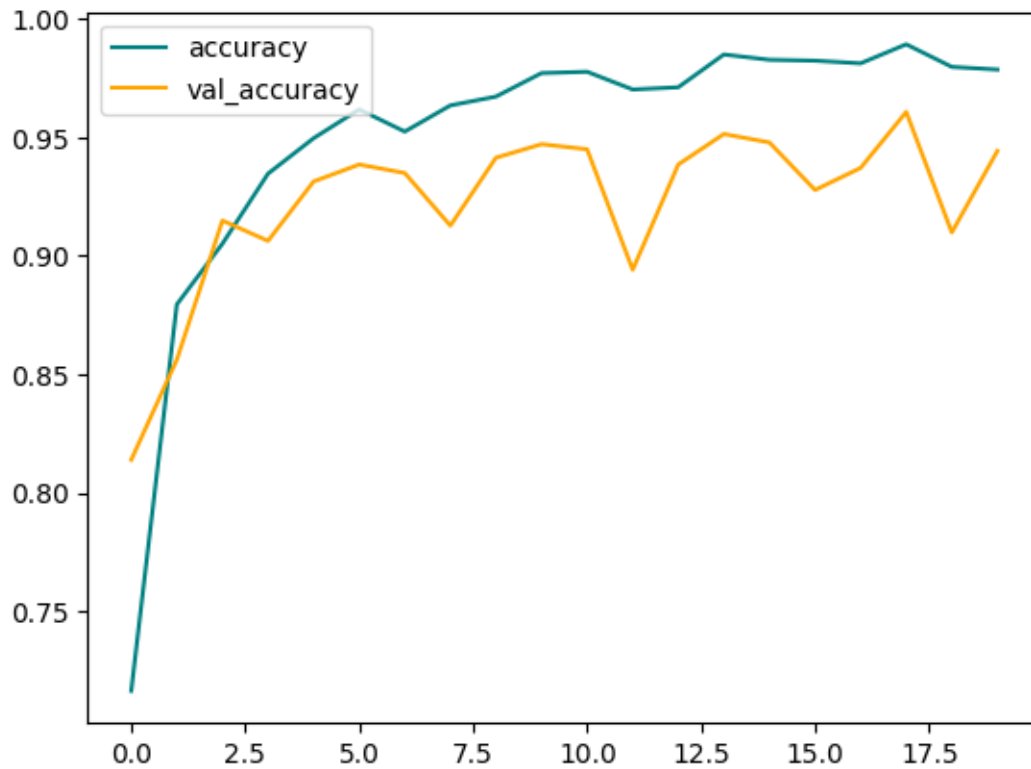     plt.legend(loc="upper left")
     plt.show()
```

Loss


```
[10]: fig = plt.figure()
      plt.plot(hist.history['accuracy'], color='teal', label='accuracy')
      plt.plot(hist.history['val_accuracy'], color='orange', label='val_accuracy')
      fig.suptitle('Accuracy', fontsize=20)
      plt.legend(loc="upper left")
      plt.show()
```

Accuracy


```
[11]: pre = Precision()
      re = Recall()
      acc = SparseCategoricalAccuracy()
```

```
[12]: for batch in test_data.as_numpy_iterator():
          X, y = batch
          yhat = model.predict(X)

          yhat_classes = tf.argmax(yhat, axis=1)

          pre.update_state(y, yhat_classes)
          re.update_state(y, yhat_classes)
          acc.update_state(y, yhat)
```

```
1/1 [==============================] - 3s 3s/step
1/1 [==============================] - 0s 44ms/step
1/1 [==============================] - 0s 50ms/step
1/1 [==============================] - 0s 53ms/step
1/1 [==============================] - 0s 43ms/step
1/1 [==============================] - 0s 47ms/step
```

```
1/1 [==============================] - 0s 51ms/step
1/1 [==============================] - 0s 53ms/step
1/1 [==============================] - 0s 53ms/step
1/1 [==============================] - 0s 42ms/step
1/1 [==============================] - 0s 43ms/step
1/1 [==============================] - 0s 49ms/step
1/1 [==============================] - 0s 50ms/step
1/1 [==============================] - 0s 40ms/step
1/1 [==============================] - 0s 46ms/step
1/1 [==============================] - 0s 45ms/step
1/1 [==============================] - 0s 56ms/step
1/1 [==============================] - 0s 45ms/step
1/1 [==============================] - 0s 56ms/step
1/1 [==============================] - 0s 43ms/step
1/1 [==============================] - 0s 55ms/step
1/1 [==============================] - 0s 53ms/step
1/1 [==============================] - 0s 43ms/step
1/1 [==============================] - 0s 55ms/step
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1/1 [==============================] - 0s 44ms/step
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1/1 [==============================] - 0s 42ms/step
1/1 [==============================] - 0s 51ms/step
1/1 [==============================] - 0s 44ms/step
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1/1 [==============================] - 0s 54ms/step
1/1 [==============================] - 0s 44ms/step
1/1 [==============================] - 0s 42ms/step
1/1 [==============================] - 0s 43ms/step
1/1 [==============================] - 0s 48ms/step
1/1 [==============================] - 0s 50ms/step
```

```
[13]: print(f"Precision: {pre.result().numpy() * 100 : .2f}%")
      print(f"Recall: {re.result().numpy() * 100 : .2f}%")
      print(f"Accuracy: {acc.result().numpy() * 100 : .2f}%")
```

```
Precision:  99.04%
Recall:  99.04%
Accuracy:  94.39%
```

```
[14]: img = cv2.imread('Styles/test/Hatchback/8_jpg.rf.
       ↪c314c1d6777942876503fa1482c82240.jpg')

      img_resized = cv2.resize(img, img_size)
      img_expanded = np.expand_dims(img_resized, axis=0)

      yhat = model.predict(img_expanded)
      predicted_class = tf.argmax(yhat, axis=1).numpy()[0]

      plt.imshow(img)
      plt.title(f'Predicted class: {predicted_class}')
      plt.axis('off')
      plt.show()
```

```
1/1 [==============================] - 3s 3s/step
```

Predicted class: 2


```
[15]: print(f'Predicted class is: {class_names[predicted_class]}')
      for idx, prob in enumerate(yhat[0]):
          print(f"Model probability for {class_names[idx]} is {prob * 100:.2f}%")
```

```
Predicted class is: Hatchback
Model probability for Convertible is 0.00%
Model probability for Coupe is 0.00%
Model probability for Hatchback is 99.81%
Model probability for Pick-Up is 0.00%
Model probability for SUV is 0.00%
Model probability for Sedan is 0.18%
Model probability for VAN is 0.00%
```

[16]:
```python
model_file_name = f"CarStyle{acc.result().numpy() * 100 : .2f}% EfficientNetV2L.
  ↪h5"
model.save(os.path.join('CarBackEnd/models/CarStyles', model_file_name))
```

[ ]: