

Code and Output

```
import tensorflow as tf
from tensorflow.keras.applications import VGG16
from tensorflow.keras.applications.vgg16 import preprocess_input, decode_predictions
from tensorflow.keras.preprocessing import image
import numpy as np
import matplotlib.pyplot as plt
```

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```
model = VGG16(weights='imagenet')
```

```
img_path_cat = 'cat.jpg'
img_cat = image.load_img(img_path_cat, target_size=(224, 224))
img_array_cat = image.img_to_array(img_cat)
img_array_cat = np.expand_dims(img_array_cat, axis=0)
img_array_cat = preprocess_input(img_array_cat)
```

```
img_path_dog = 'dog.jpg'
img_dog = image.load_img(img_path_dog, target_size=(224, 224))
img_array_dog = image.img_to_array(img_dog)
img_array_dog = np.expand_dims(img_array_dog, axis=0)
img_array_dog = preprocess_input(img_array_dog)
```

```
predictions_cat = model.predict(img_array_cat)
```

```
1/1 [=====] - 1s 1s/step
```

```
predictions_dog = model.predict(img_array_dog)
```

```
1/1 [=====] - 0s 267ms/step
```

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```
decoded_predictions_cat = decode_predictions(predictions_cat, top=5)[0]
```

```
decoded_predictions_dog = decode_predictions(predictions_dog, top=5)[0]
```

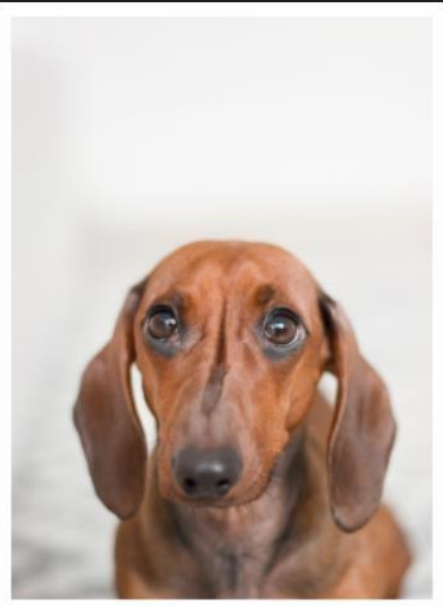
```
img_cat = image.load_img(img_path_cat)
plt.imshow(img_cat)
plt.axis('off')
plt.show()
```

```
for label, description, score in decoded_predictions_cat:
    print(f'{description} ({label}): {score:.2f}')
```



```
tiger_cat (n02123159): 0.25  
Egyptian_cat (n02124075): 0.19  
tabby (n02123045): 0.15  
computer_keyboard (n03085013): 0.03  
screen (n04152593): 0.03
```

```
img_dog = image.load_img(img_path_dog)  
plt.imshow(img_dog)  
plt.axis('off')  
plt.show()  
  
for label, description, score in decoded_predictions_dog:  
    print(f'{description} ({label}): {score:.2f}')
```



```
redbone (n02090379): 0.98  
Rhodesian_ridgeback (n02087394): 0.01
```

Conclusion

The Architecture and parameter used in this network are capable of producing accuracy of 97.56% on Validation Data which is pretty good.