```
#Import libraries
import numpy as np
import pandas as pd
import tensorflow
import matplotlib.pyplot as plt
import os
import PIL
import pathlib

#Creating Path

dataset_url =
'https://storage.googleapis.com/download.tensorflow.org/example_images
/flower_photos.tgz'

data_dir =
tensorflow.keras.utils.get_file('flower_photos',origin=dataset_url,
untar = True)

data_dir = pathlib.Path(data_dir)
```

```
Downloading data from
https://storage.googleapis.com/download.tensorflow.org/example_images/
flower_photos.tgz
228813984/228813984 ━━━━━━━━━━━━━━━━━━━━ 2s 0us/step
```

```
data_dir
```

```
PosixPath('/root/.keras/datasets/flower_photos')
```

```
#count and retrieve all Images

image_count = len(list(data_dir.glob("*/*.jpg")))

list(data_dir.glob("*/*.jpg"))[:5]
```

```
[PosixPath('/root/.keras/datasets/flower_photos/roses/
15761264350_4caaf080f6_m.jpg'),

PosixPath('/root/.keras/datasets/flower_photos/roses/5570018782_c56bee
942f.jpg'),

PosixPath('/root/.keras/datasets/flower_photos/roses/13979889721_42a59
ca9fa_m.jpg'),

PosixPath('/root/.keras/datasets/flower_photos/roses/14414117598_cf70d
f30de.jpg'),

PosixPath('/root/.keras/datasets/flower_photos/roses/2535466393_6556af
eb2f_m.jpg')]
```

```
#Display count of Roses

len(list(data_dir.glob("roses/*.jpg")))
```

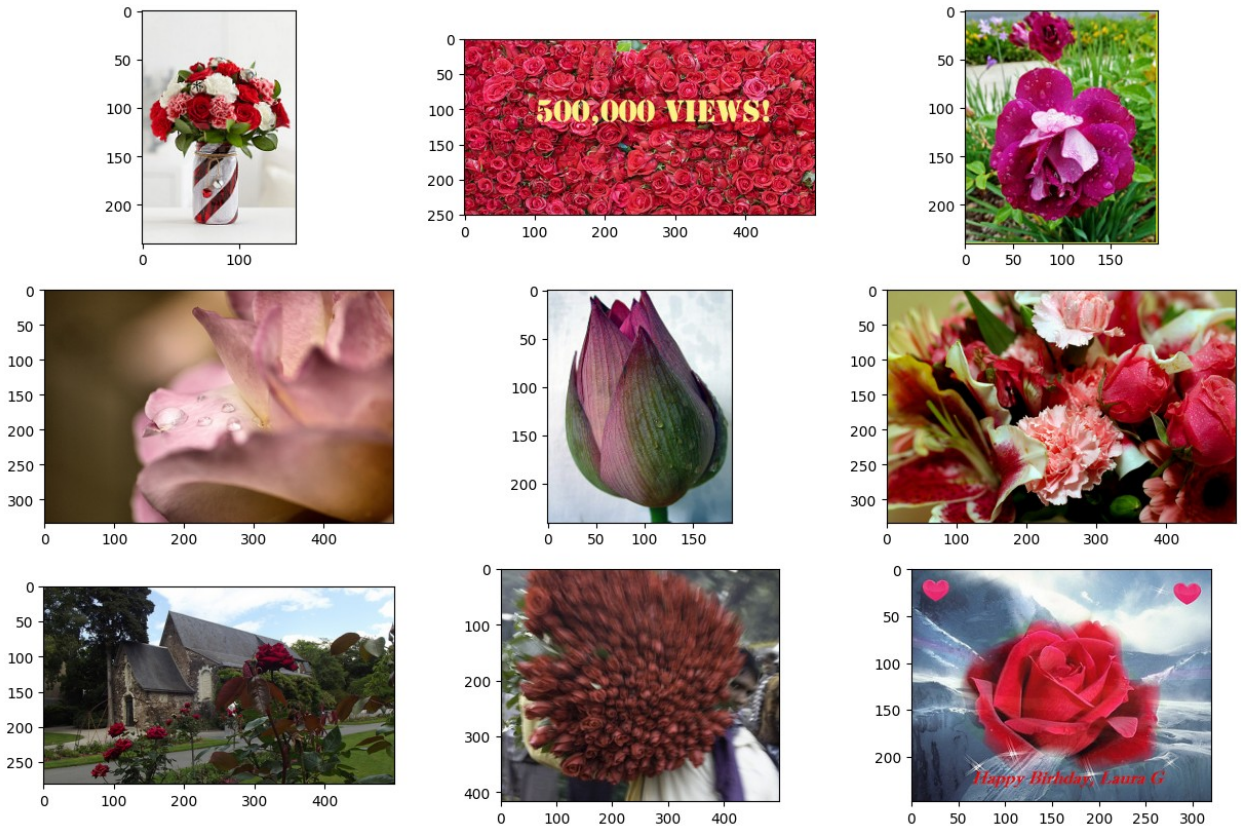
```
641
```

```
image_count_roses = len(list(data_dir.glob("roses/*.jpg")))
print(image_count_roses)
```

```
641
```

```
#copy all paths or names of roses
rose = list(data_dir.glob("roses/*.jpg"))

#Display Images
plt.figure(figsize = (15,10))
for i in range(9):
  plt.subplot(3,3,i+1)
  plt.imshow(PIL.Image.open(rose[i]))
```

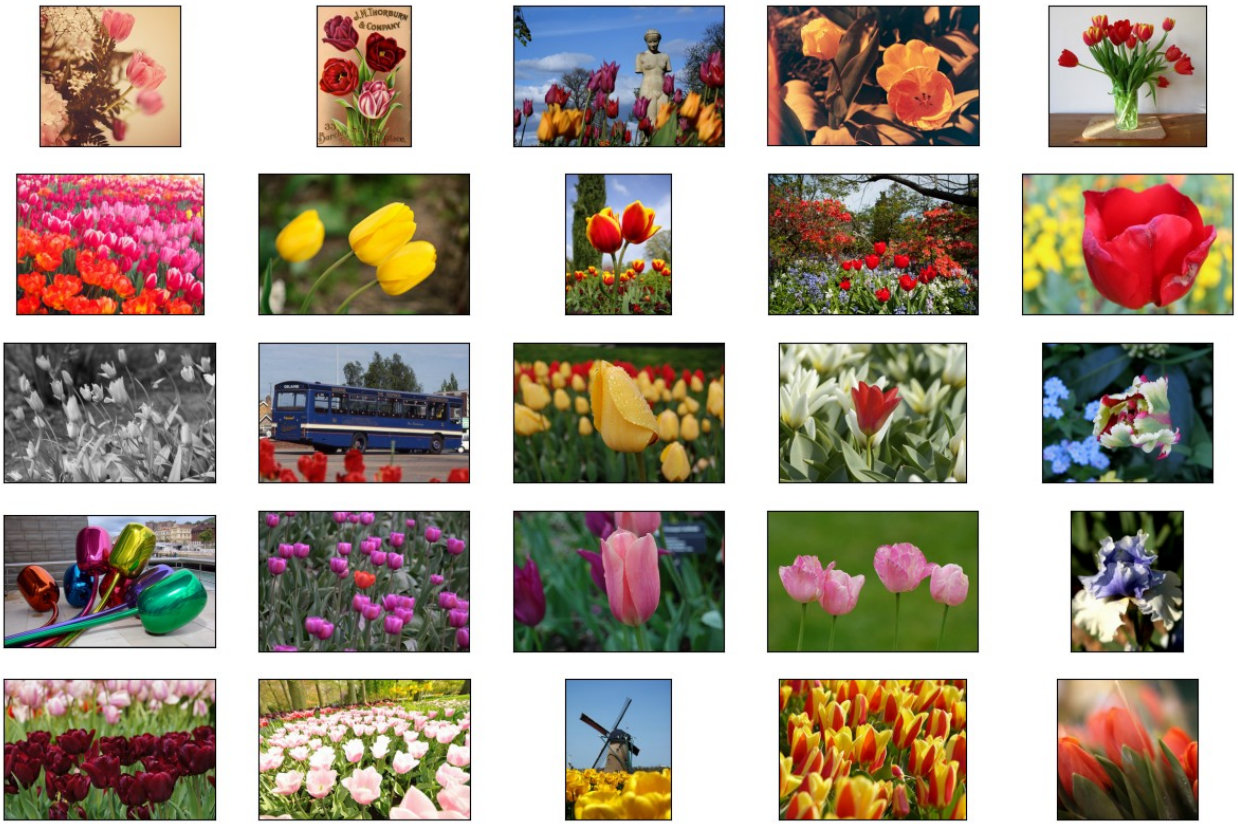



```
#tulip
tulips = list(data_dir.glob("tulips/*.jpg"))
```

```
image_count_tulips = len(tulips)
image_count_tulips
```

```
799
```

```
#Display Tulips Images
plt.figure(figsize = (15,10))
for i in range(25):
  plt.subplot(5,5,i+1)
  plt.imshow(PIL.Image.open(tulips[i]))
  plt.xticks([])
  plt.yticks([])
```



```
#create Training Dataset

img_height = 180
img_width = 180
batch_size = 32
train_ds =
tensorflow.keras.utils.image_dataset_from_directory(directory =
data_dir,

validation_split = 0.20,
                                                        subset
```

```
= 'training',

image_size = (img_height,img_width),
                                                                    seed =
123)
```

```
Found 3670 files belonging to 5 classes.
Using 2936 files for training.
```

```
#create validation Dataset

img_height = 180
img_width = 180
batch_size = 32
val_ds = tensorflow.keras.utils.image_dataset_from_directory(directory
= data_dir,

validation_split = 0.20,
                                                                    subset
= 'validation',

image_size = (img_height,img_width),
                                                                    seed =
123)
```

```
Found 3670 files belonging to 5 classes.
Using 734 files for validation.
```

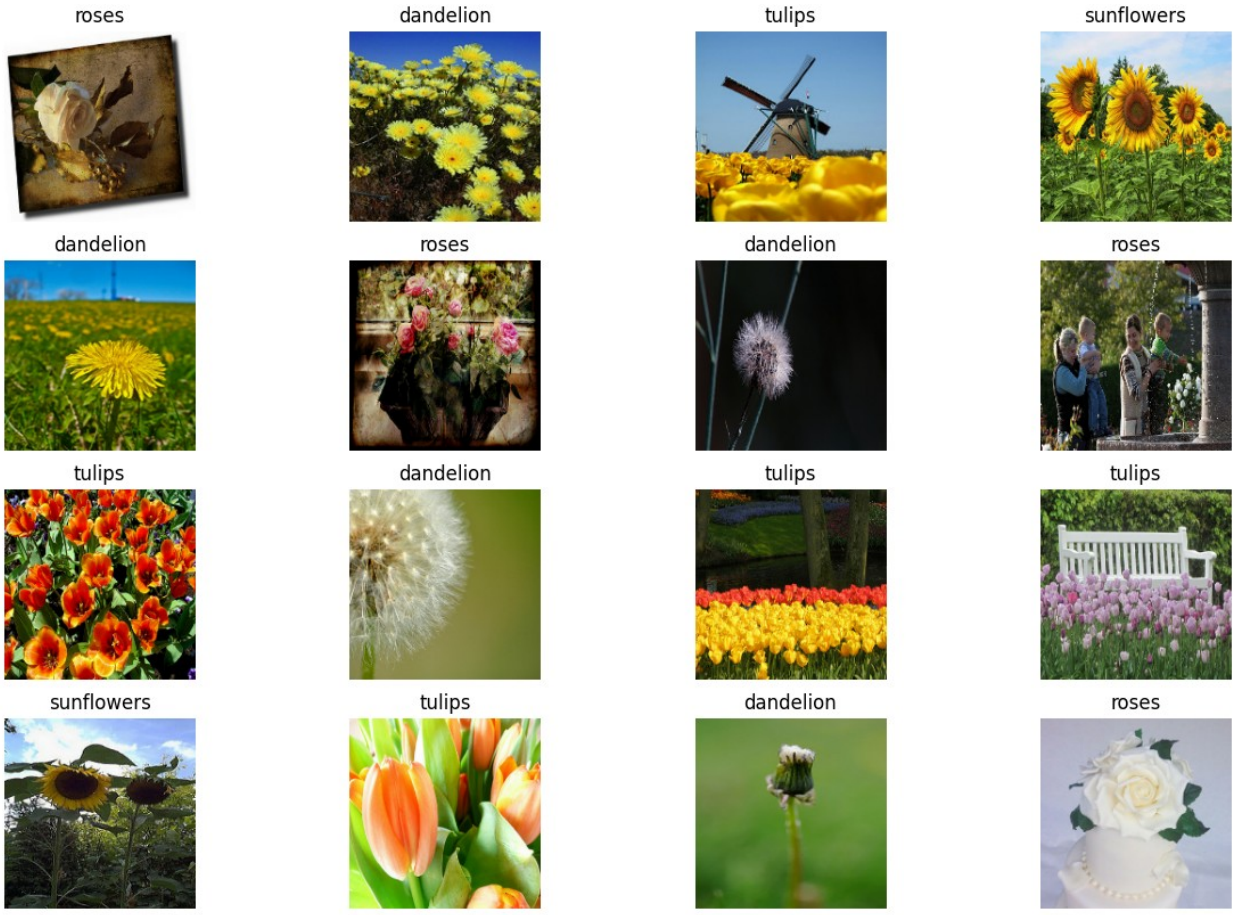
```
#training Dataset

train_ds.class_names
```

```
['daisy', 'dandelion', 'roses', 'sunflowers', 'tulips']
```

```
#Display training dataset Images

plt.figure(figsize = (15,10))
for images, labels in train_ds.take(1):
  for i in range(16):
    plt.subplot(4,4,i+1)
    plt.imshow(images[i].numpy().astype('uint8'))
    plt.title(train_ds.class_names[labels[i]])
    plt.axis('off')
```




```
train_ds.take(5)
```

```
<_TakeDataset element_spec=(TensorSpec(shape=(None, 180, 180, 3),
dtype=tf.float32, name=None), TensorSpec(shape=(None,),
dtype=tf.int32, name=None))>
```