In [1]:
```
###NumPy Homework
import numpy as np
width = 300
height = 300
array = np.zeros([height, width, 3], dtype=np.uint8)
print(array.shape)
```

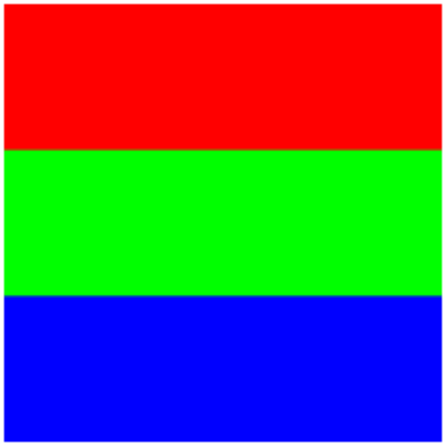
```
(300, 300, 3)
```

In [2]:
```
import matplotlib.pyplot as plt
# show no axis
plt.axis('off')
#
# Display image from array
#
plt.imshow(array)
```

Out[2]: <matplotlib.image.AxesImage at 0x7ff170aa2190>

In [3]:
```
#RGB configuration
array[:100,:] = [255, 0, 0]
array[100:200,:] = [0, 255, 0]
array[200:300,:] = [0, 0, 255]
import matplotlib.pyplot as plt
# show no axis
plt.axis('off')
#
# Display image from array
#
plt.imshow(array)
```

Out[3]: <matplotlib.image.AxesImage at 0x7ff148132730>



In [4]:
```
import matplotlib.image as mpimg
#save img directly from array
mpimg.imsave('RBG_row_strip.png',array)
```

In [5]:
```
flower_src = mpimg.imread('/home/ANA522/mod02/flower.png') #this statement load
,!the flower.png from the server
# show dimension
print(flower_src.shape)
#display the image
plt.axis('off')
plt.imshow(flower_src)
plt.savefig('flowerimage.jpeg')
```

```
/bin/bash: -c: line 0: syntax error near unexpected token `"flower.png",'
/bin/bash: -c: line 0: `the("flower.png", "from", "the", "server")'
(1300, 1800, 3)
```

In [6]:
```
print(type(flower_src))
print(flower_src.dtype)
print(flower_src.shape)
# and all cells of the array
#print(flower_src)
```

```
<class 'numpy.ndarray'>
float32
(1300, 1800, 3)
```

In [7]:

```
## 0.0.1 Problem 01:Crop image
crop_image = flower_src[100:1200, 350:1550]
#print(crop_image)
plt.imshow(crop_image)
plt.savefig('cropimage.jpeg')
```

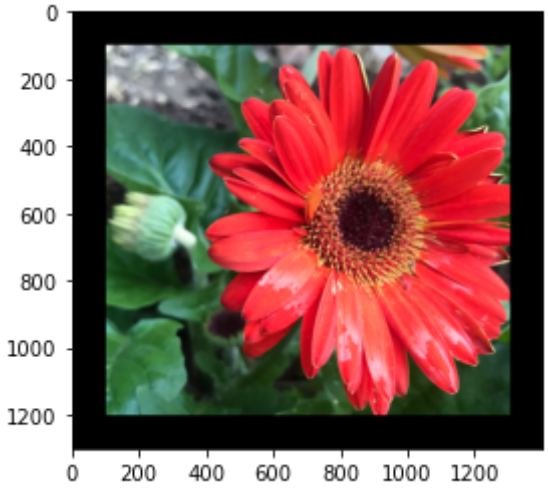
In [8]:

```
## 0.0.2 Problem 02: Image Padding
pad_image = np.pad(crop_image, ((100, 100), (100, 100), (0, 0)), mode='constant'
#print(pad_image)
print("below is padded image:")
plt.imshow(pad_image)
```

```
below is padded image:
```

Out[8]:

```
<matplotlib.image.AxesImage at 0x7ff1477cf940>
```



In [9]:

```
##0.0.3 Problem 03:Flip flower
flipped_flower = np.flipud(flower_src)
plt.imshow(flipped_flower)
plt.imshow(np.fliplr(flipped_flower))
```

Out[9]:

```
<matplotlib.image.AxesImage at 0x7ff147786df0>
```


0
200
400
600
800
1000
1200
0
200
400
600
800
1000
1200
1400
1600

In [ ]: