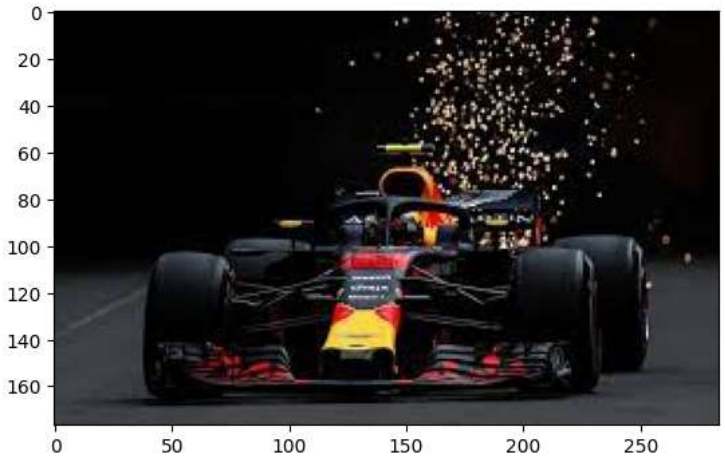
```
 # Interpolation is the way yhe extra pixels in the new image is calculated.
# If the original image is small, then the largest image is rescaled image has extra pixels which is not exactly the same as a nearby pix

# inter_nearest - a nearest-neigbor interpolation
# inter_linear - a bilinear interpolation ( used by default )
# inter_cubic - a bicubic interpolation over 4x4 pixel neigbourhood
# inter_lanczos4 - a lanczos interpolation over 8x8 pixel


import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
import cv2

img_path='/content/randomimage.jpeg'
img=cv2.imread(img_path,cv2.COLOR_BGR2RGB)
img=cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
plt.imshow(img)
```

```
<matplotlib.image.AxesImage at 0x79f007d67af0>
```

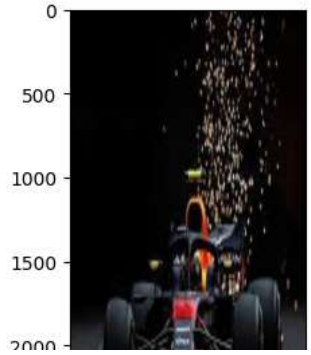



```
img_nearest=cv2.resize(img,(1400,2950),interpolation=cv2.INTER_NEAREST)
img_nearest
plt.imshow(img_nearest)
```

```
<matplotlib.image.AxesImage at 0x79f0041c6fe0>
```


```
img_bilinear=cv2.resize(img,(1400,2950),interpolation=cv2.INTER_LINEAR)
img_bilinear
plt.imshow(img_bilinear)
```

```
<matplotlib.image.AxesImage at 0x79efffe62200>
```




```
img_bicubic=cv2.resize(img,(1400,2950),interpolation=cv2.INTER_CUBIC)
img_bicubic
plt.imshow(img_bicubic)
```

```
<matplotlib.image.AxesImage at 0x79efffedccd0>
```


```
img_lanczos=cv2.resize(img,(1400,2950),interpolation=cv2.INTER_LANCZOS4)
img_lanczos
plt.imshow(img_lanczos)
```

```
<matplotlib.image.AxesImage at 0x79efffd44250>
```


```
# DRAWING ON IMAGE
BLANK_IMG=np.zeros(shape=(512,512,3),dtype=np.int16)
BLANK_IMG
```

```
array([[[0, 0, 0],
        [0, 0, 0],
        [0, 0, 0],
        ...,
        [0, 0, 0],
        [0, 0, 0],
```

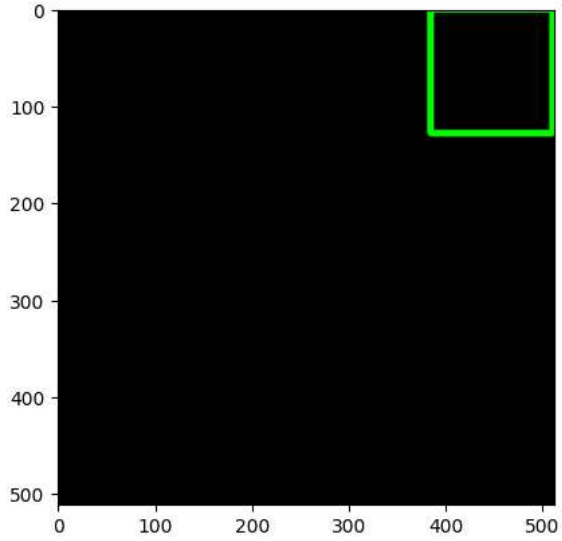
```
        [0, 0, 0]],

       [[0, 0, 0],
        [0, 0, 0],
        [0, 0, 0],
        ...,
        [0, 0, 0],
        [0, 0, 0],
        [0, 0, 0]],

       [[0, 0, 0],
        [0, 0, 0],
        [0, 0, 0],
        ...,
        [0, 0, 0],
        [0, 0, 0],
        [0, 0, 0]],

       ...,

       [[0, 0, 0],
        [0, 0, 0],
        [0, 0, 0],
        ...,
        [0, 0, 0],
        [0, 0, 0],
        [0, 0, 0]],

       [[0, 0, 0],
        [0, 0, 0],
        [0, 0, 0],
        ...,
        [0, 0, 0],
        [0, 0, 0],
        [0, 0, 0]],

       [[0, 0, 0],
        [0, 0, 0],
        [0, 0, 0],
        ...,
        [0, 0, 0],
        [0, 0, 0],
        [0, 0, 0]]], dtype=int16)
```

```
BLANK_IMG.shape
```

```
(512, 512, 3)
```

```
# pt1 = top left
# pt2 = botton right
cv2.rectangle(BLANK_IMG,pt1=(384,0),pt2=(510,128),color=(0,255,0),thickness=5)
plt.imshow(BLANK_IMG)
```

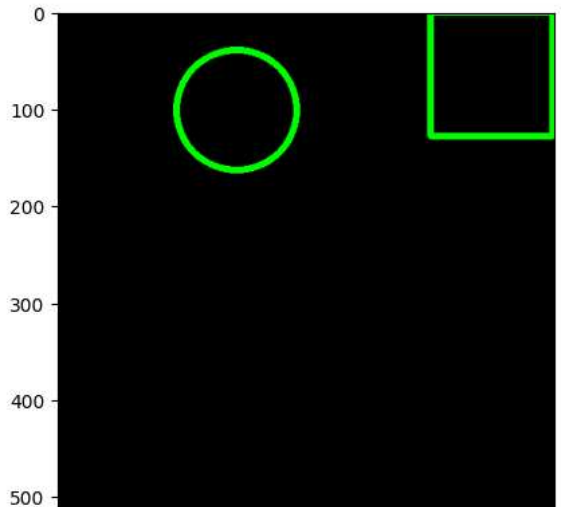
```
<matplotlib.image.AxesImage at 0x79efffaa7760>
```




```
cv2.circle(BLANK_IMG,center=(184,101),radius=62,color=(0,255,0),thickness=5)
plt.imshow(BLANK_IMG)
```

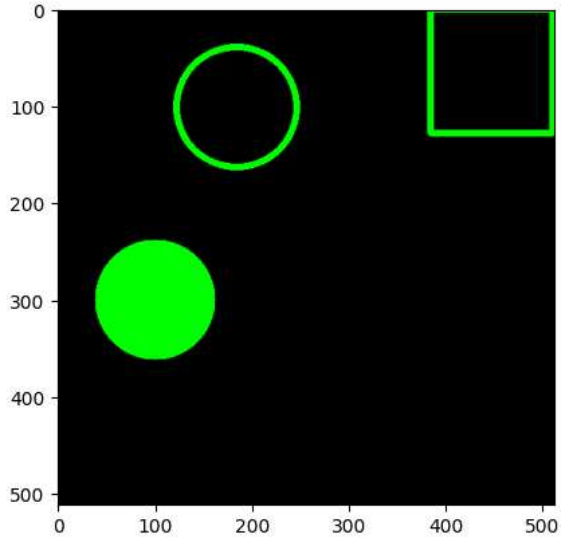
```
# for circle give radius
```

```
<matplotlib.image.AxesImage at 0x79efff412410>
```



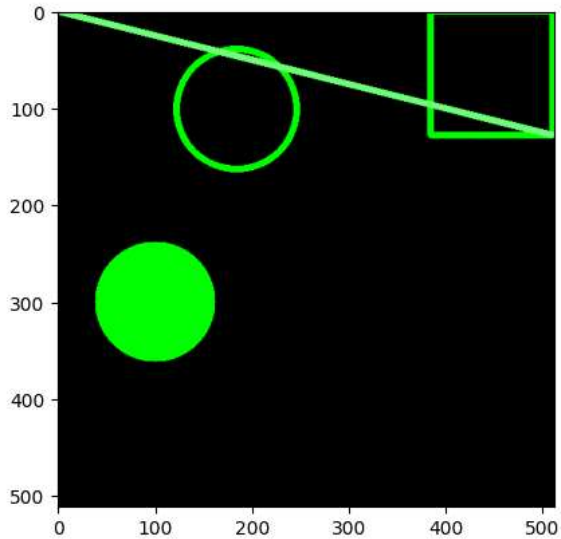

```
cv2.circle(BLANK_IMG,center=(100,300),radius=62,color=(0,255,0),thickness=-1)
plt.imshow(BLANK_IMG)

# give negative thickness ( constant = -1 )
```

```
<matplotlib.image.AxesImage at 0x79efff4836d0>
```



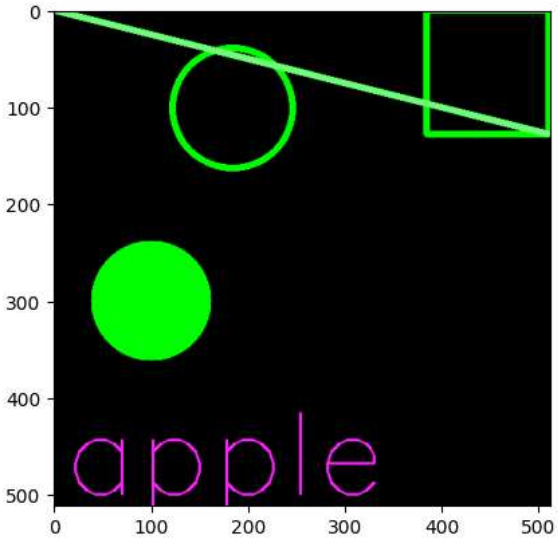

```
cv2.line(BLANK_IMG,pt1=(0,0),pt2=(510,128),color=(110,255,120),thickness=5)
plt.imshow(BLANK_IMG)

# same parameters just like the rectangle function
```

```
<matplotlib.image.AxesImage at 0x79efff4efbe0>
```



```
font=cv2.FONT_HERSHEY_SIMPLEX
a=input("enter the text duh??")
cv2.putText(BLANK_IMG,text=a,org=(10,500),fontFace=font,fontScale=4,color=(255,32,255),thickness=2,)
plt.imshow(BLANK_IMG)

# org - origin
```

```
enter the text duh??apple
<matplotlib.image.AxesImage at 0x79efff37c8b0>
```




```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
import cv2

img='/content/unnamed.jpg'
img=cv2.imread(img,cv2.COLOR_BGR2RGB)
img=cv2.cvtColor(img,cv2.COLOR_BGR2RGB)
plt.imshow(img)
```

```
<matplotlib.image.AxesImage at 0x79effe9362c0>
```


```
cv2.circle(img,center=(350,241),radius=110,color=(0,255,0),thickness=5)
plt.imshow(img)

# for circle give radius
```

```
<matplotlib.image.AxesImage at 0x79effe99b730>
```


```
font=cv2.FONT_HERSHEY_SIMPLEX
a=input("enter the text duh??")
cv2.putText(img,text=a,org=(200,400),fontFace=font,fontScale=0.5,color=(255,32,255),thickness=2,)
plt.imshow(img)

# org - origin
```

```
enter the text duh??dhrish e0320008
<matplotlib.image.AxesImage at 0x79effe829120>
```


```
vertices=np.array([[100,300],[200,200],[400,300],[200,400]],np.int32)
vertices
```

```
array([[100, 300],
       [200, 200],
       [400, 300],
       [200, 400]], dtype=int32)
```

```
pts=vertices.reshape((-1,1,2))
cv2.polylines(img,[pts],isClosed=True,color=(255,0,0),thickness=5)
plt.imshow(img)
```

```
<matplotlib.image.AxesImage at 0x79effe89a740>
```