Experiment-3 (Drawing and writing on images using OpenCV with Python for Image)

In [5]:

```
# Importing required modules
import numpy as np
import cv2 as cv

# Defining and reading an Image usinig opencv module
img = cv.imread('./morali.jpg', cv.IMREAD_COLOR)

# drawing a line on an Image usinig opencv module
cv.line(img,(0,0), (150,150), (255,255,255), 5)

# Displaying the image
cv.imshow('Image window', img)

cv.waitKey(0)
cv.destroyAllWindows
```

Out[5]:

```
<function destroyAllWindows>
```

In [23]:

```
# Importing required modules
import numpy as np
import cv2 as cv

# Defining and reading an Image usinig opencv module
img = cv.imread('./morali.jpg', cv.IMREAD_COLOR)

# drawing a line on an Image usinig opencv module
cv.line(img,(0,0), (150,150), (255,255,255), 5)

# to draw the rectange on the plot
cv.rectangle(img, (12,35), (200,150), (0,0,255), 5)

# to draw the circle on the plot
cv.circle(img, (120,60), 35, (0,214,0), -5)

# a bunch of points in polygon, datatype np int32
pts = np.array([[10,5], [20,30], [70,20], [110,40]], np.int32)
pts = pts.reshape((-1,1,2))
cv.polylines(img,(pts), True, (155,0,0), 3)

# to write on am image
font = cv.FONT_HERSHEY_SIMPLEX
cv.putText(img, 'writing with openCV!',(10,130), font, 0.6, (120,12,112), 1, cv.LINE_AA
)

# Displaying the image
cv.imshow('Image window', img)

cv.waitKey(0)
cv.destroyAllWindows
```

Out[23]:

```
<function destroyAllWindows>
```

Image Operations

In [14]:

```
# Importing required modules
import numpy as np
import cv2 as cv

# Defining and reading an Image usinig opencv module
img = cv.imread('./water.jpg', cv.IMREAD_COLOR)

# To refer a specifi pixel
px = img[55,55]

print(px)
```

```
[32 53 28]
```

In [17]:

```
# Importing required modules
import numpy as np
import cv2 as cv

# Defining and reading an Image usinig opencv module
img = cv.imread('./water.jpg', cv.IMREAD_COLOR)

# To refer a specifi pixel
px = img[55,55]

# To modify that pixcel
img[55,55]= [120,100,215]

print(px)
```

```
[120 100 215]
```

ROI = Region of an Image is nothing but sub image of an image

In [18]:

```
# Importing required modules
import numpy as np
import cv2 as cv

# Defining and reading an Image usinig opencv module
img = cv.imread('./water.jpg', cv.IMREAD_COLOR)

# To refer a specifi pixel
px = img[55,55]

# To modify that pixcel
img[55,55]= [255,255,255]

# Region of an Image
roi=img[100:120, 100:150]

print(roi)
```

```
[[[ 45  67  65]
  [ 50  74  72]
  [ 43  70  67]
  ...
  [103 148 121]
  [ 41  89  60]
  [ 34  87  54]]

 [[ 40  64  62]
  [ 43  70  67]
  [ 56  85  82]
  ...
```

```
  [ 86 137 100]
  [ 79 132  93]
  [ 78 134  93]]

 [[ 51  75  75]
  [ 76 102 102]
  [ 42  70  70]
  ...
  [ 50 103  59]
  [ 48 103  58]
  [ 73 131  83]]

 ...

 [[ 41  65  65]
  [ 84 105 106]
  [ 66  87  88]
  ...
  [ 82 126 119]
  [ 88 135 127]
  [ 52 100  94]]

 [[ 48  74  74]
  [ 58  82  82]
  [ 42  66  66]
  ...
  [ 64 117 104]
  [ 70 123 113]
  [ 95 150 141]]

 [[ 24  50  50]
  [ 44  70  70]
  [ 52  76  76]
  ...
  [ 60 115  98]
  [ 63 120 105]
  [ 57 115 104]]]
```

In [20]:

```
#Importing required modules
import numpy as np
import cv2 as cv

# Defining and reading an Image usinig opencv module
img = cv.imread('./water.jpg', cv.IMREAD_COLOR)

# To refer a specifi pixel
px = img[55,55]

# To modify that pixcel
img[55,55]= [255,255,255]

# Region of an Image
img[100:220, 120:250] = [155,247,157]

# Displaying the image
cv.imshow('Image window', img)

cv.waitKey(0)
cv.destroyAllWindows
```

Out[20]:

```
<function destroyAllWindows>
```

In [22]:

```
#Importing required modules
import numpy as np
import cv2 as cv
```

```
# Defining and reading an Image usinig opencv module
img = cv.imread('./water.jpg', cv.IMREAD_COLOR)

# To refer a specifi pixel
px = img[55,55]

# To modify that pixcel
img[55,55]= [255,255,255]

# Region of an Image
img[100:220, 120:250] = [155,247,157]

# To Copy and past an Image
water_image = img[137:211, 209:294]
img[0:74, 0:85] = water_image

# Displaying the image
cv.imshow('Image window', img)

cv.waitKey(0)
cv.destroyAllWindows
```

Out[22]:

```
<function destroyAllWindows>
```

In [ ]:

```

```