

Ex.No.10	Graphic Design and Image Processing	Reg.No: URK23CS1261
3.4.24		

10 A) Create a program to load an image and demonstrate the following operations on it

- Display the image**
- Plot the image in console window**
- Display the image size(width and height)**
- Reduce the Image size of its half size**
- Rotate the image 145 degrees**
- Resize the image with 50 units in x direction and 70 units in y direction**
- Flip the image (Left to Right, Top to Bottom)**
- Crop the image**
- Change the color image to Gray Scale, Black and White**
- Apply blur effect on the image**

Aim: The objective of this program is to load an image and demonstrate various methods in pillow module.

Algorithm:

Step 1: Import the necessary modules: `Image` and `ImageFilter` from the PIL library.

Step 2: Open and display a predefined image named `display`.

Step 3: Prompt the user to input a path for another image.

Step 4: Open and display the image specified by the user.

Step 5: Print the height and width of the `display` image.

Step 6: Perform various operations on the `display` image:

- Resize the image to half its original size and display it.
- Rotate the image by 145 degrees and display it.
- Resize the image to a specified size (50x70) and display it.
- Transpose the image horizontally (flip left to right) and display it.
- Transpose the image vertically (flip top to bottom) and display it.
- Crop a portion of the image and display it.
- Convert the image to grayscale and display it.
- Convert the image to black and white and display it.
- Apply a Gaussian blur filter with a radius of 5 and display the image.

Step 7: End the program.

Program:

```

from PIL import Image, ImageFilter

display = Image.open(r"C:\Users\urk23cs1261\Downloads\Tkinter\Ex\Image1.jpg")
display.show()

path = input("Enter path: ")
img = Image.open(f'{path}')
img.show()
print(f"Height: {display.height} width: {display.width}")
halfsize = display.resize(size=(int(display.height/2),int(display.width/2)))
halfsize.show()
rotate = display.rotate(145)
rotate.show()
rsize = display.resize(size=(50, 70))

```

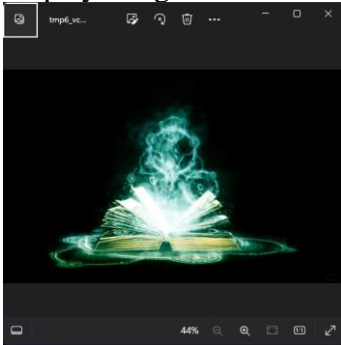
```

rsize.show()
Fliplr = display.transpose(Image.FLIP_LEFT_RIGHT)
Fliplr.show()
Fliptb = display.transpose(Image.FLIP_TOP_BOTTOM)
Fliptb.show()
cr = display.crop((20, 30, 100, 100))
cr.show()
gray = display.convert(mode='LA')
gray.show()
black = display.convert(mode='L')
black.show()
bl = display.filter(ImageFilter.GaussianBlur(radius=5))
bl.show()
print("=====\\n|| Tanvik ||\\n|| URK23CS1261 ||\\n=====")

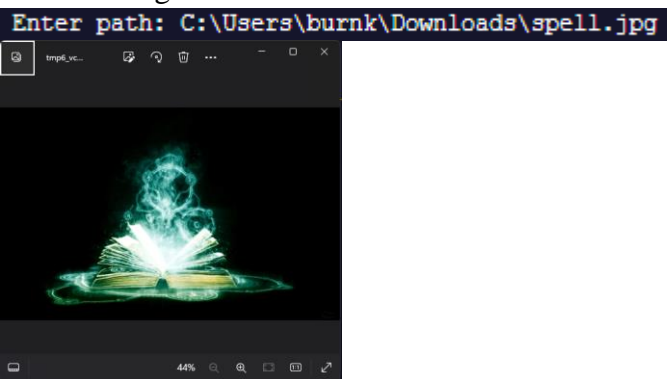
```

Output:

a) Display Image



b) Plot the image in console window



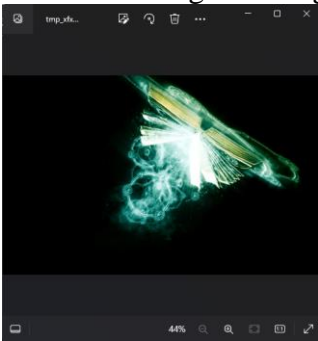
c) Display the image size(width and height)

Height: 707 width: 1131

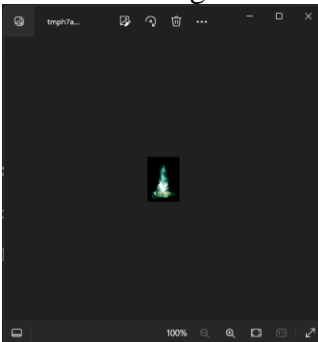
d) Reduce the Image size of its half size



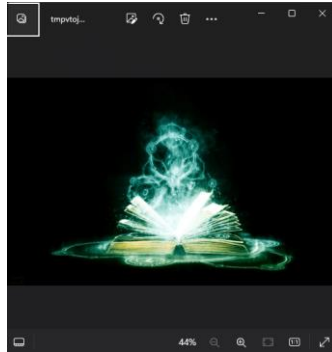
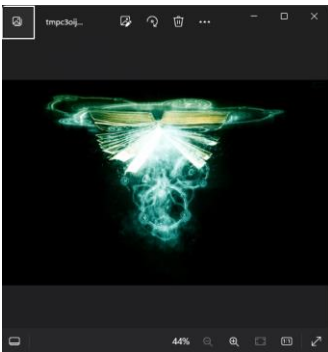
e) Rotate the image 145 degrees



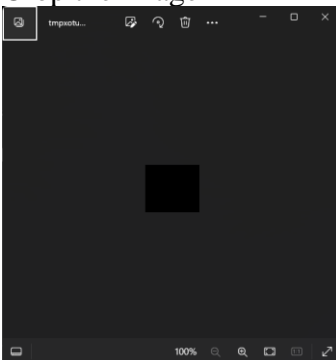
f) Resize the image with 50 units in x direction and 70 units in y direction



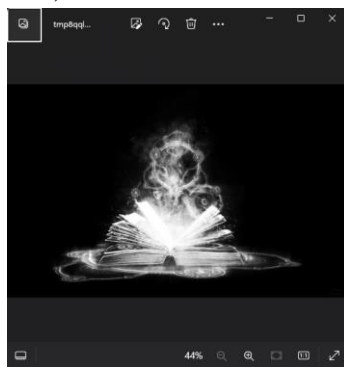
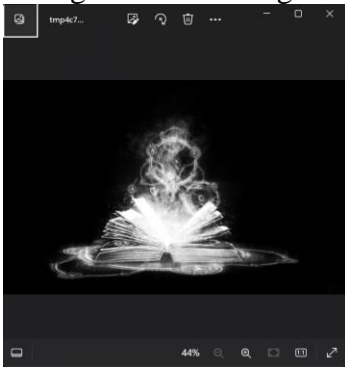
g) Flip the image (Left to Right, Top to Bottom)



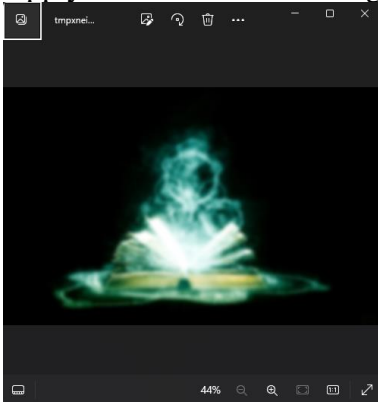
h) Crop the image



i) Change the color image to Gray Scale, Black and White

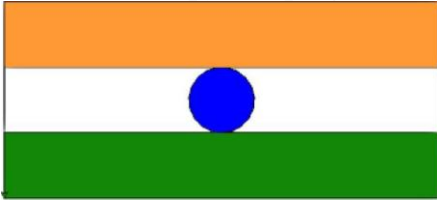


j) Apply blur effect on the image



Result: Thus, The program has successfully produced the desired output.

10 B) Create a python program using module turtle and draw India Flag



Aim: The objective of this program is to draw India flag with turtle.

Algorithm:

Step 1: Start the program.

Step 2: Import the turtle module.

Step 3: Initialize the main turtle object named `main`.

Step 4: Set up the turtle window with dimensions 1000x1000.

Step 5: Draw the rectangles:

- Draw the first rectangle with white fill color and black pen color.
- Draw the second rectangle with green fill color and black pen color.
- Draw the third rectangle with orange fill color and black pen color.

Step 6: Move the turtle forward by 80 units.

Step 7: Draw the circle:

- Draw a blue circle with a radius of 40 units.

Step 8: End the program.

Program:

```
import turtle
main = turtle.Turtle()
turtle.setup(1000, 1000)

main.color('black', "white")
main.begin_fill()
main.forward(200)
main.left(90)
main.forward(80)
main.left(90)
main.forward(400)
main.left(90)
main.forward(80)
main.left(90)
main.forward(200)
main.end_fill()

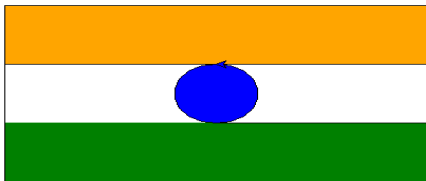
main.color('black', "green")
main.begin_fill()
main.forward(200)
main.right(90)
main.forward(80)
main.right(90)
main.forward(400)
main.right(90)
main.forward(80)
main.end_fill()
main.forward(80)
```

```
main.right(90)
main.forward(200)
```

```
main.color("black",'blue')
main.begin_fill()
main.circle(40)
main.end_fill()
turtle.done()
```

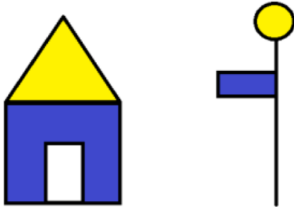
```
print("===== \n || Tanvik || \n || URK23CS1261 || \n =====")
```

Output:



Result: Thus, The program has successfully produced the desired output.

10 C) Create a python program using module turtle and draw house



Aim: The objective of this program is to draw house with turtle.

Algorithm:

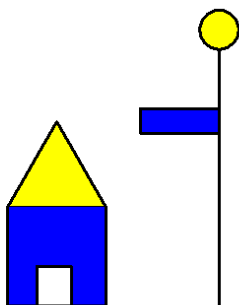
- Step 1: Start the program.
- Step 2: Import the turtle module.
- Step 3: Create a turtle object named a with hidden visibility.
- Step 4: Set the pen size to 3.
- Step 5: Fill the first triangle with yellow color using a loop.
- Step 6: Fill the second triangle with blue color using a loop.
- Step 7: Move the turtle forward by 100 units.
- Step 8: Fill the third rectangle with white color using a loop.
- Step 9: Lift the pen.
- Step 10: Move the turtle forward by 150 units.
- Step 11: Put down the pen.
- Step 12: Fill the fourth shape with blue color using a loop.
- Step 13: Move the turtle forward by 60 units.
- Step 14: Turn the turtle right by 90 degrees.
- Step 15: Fill the fifth shape with yellow color using a loop.
- Step 16: End the program.

Program:

```
import turtle
a = turtle.Turtle(visible=False)
a.pensize(3)
a.fillcolor('yellow')
a.begin_fill()
a.forward(100)
a.left(120)
a.forward(100)
a.left(120)
a.forward(100)
a.left(30)
a.end_fill()
a.fillcolor('blue')
a.begin_fill()
a.forward(100)
a.left(90)
a.forward(100)
a.left(90)
a.forward(100)
a.left(180)
a.end_fill()
a.forward(100)
a.fillcolor('white')
a.begin_fill()
```

```
a.right(90)
a.forward(35)
a.right(90)
a.forward(40)
a.left(90)
a.forward(35)
a.left(90)
a.forward(40)
a.left(90)
a.forward(35)
a.end_fill()
a.up()
a.forward(150)
a.down()
a.left(90)
a.forward(200)
a.fillcolor('blue')
a.begin_fill()
a.left(90)
a.forward(80)
a.left(90)
a.forward(25)
a.left(90)
a.forward(80)
a.left(90)
a.forward(25)
a.end_fill()
a.forward(60)
a.right(90)
a.fillcolor('yellow')
a.begin_fill()
a.circle(20)
a.end_fill()
turtle.done()
print("\n Tanvik \n URK23CS1261 \n")
```

Output:



Result: Thus, The program has successfully produced the desired output.