PROJECT REPORT

ON

Editing Image using Python Programming

REPORT SUBMITTED

TO

VISHWAKARMA INSTITUTE OF INFORMATION TECHNOLOGY, PUNE

FOR THE PBL OF PYTHON FOR ENGINEERS

IN

ENGINEERING AND APPLIED SCIENCE DEPARTMENT

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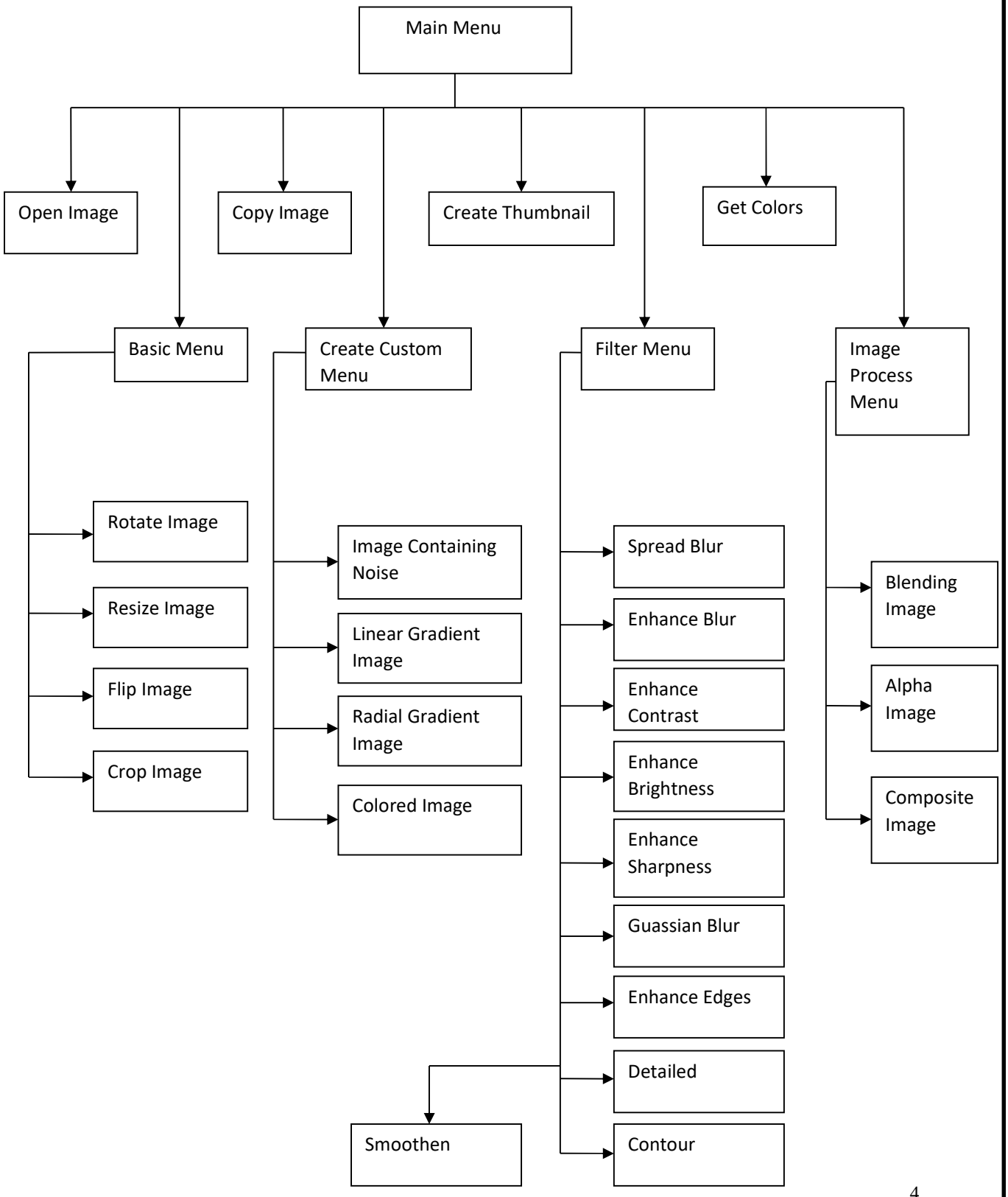
ABSTRACT:

The Pyhton programming language excels at integrated tasks. It is widely used as a high level, free and open source language is dynamic. Image processing with a Python is very efficient and effective process for carrying out operaton such as improving the quality, enhancing, zooming, blurring, inverting the image, writing text on the image, greyscale, performing image restoration, recovering etc. Is possible with Pyhton.

The Python Imaging Library or PIL for short, is one of the core libraries for image manipulation in Python programming language ans is freely available on the internet to download. Many of the Image processing tasks can be carried out using the PIL such as image inversion, binary conversion, cropping, writing text on the images, changing intensity, brightness, Image filtering such as blurring, contouring, smooting and many more.

FLOW OF PROGRAM:



SOURCE CODE OF THE PROGRAM:

```
import PIL
from PIL import ImageEnhance
from PIL import ImageFilter
from PIL import Image
from os import system
import os
def saveimg(img):
   system('cls')
   choice=input("Do you want to save the image: y/n\n").lower()
   if choice=='y':
      sloc=input("Enter File location to save:- ")
      name=input('Enter Name with which to save:- \n*NOTE:- Entering same name as existing image will replace the original image\n')
      img.save(sloc+'/'+ name+".png")
def main_menu():
   system('cls')
   choice=input(("Welcome to the Image Editor.\n\n***Main Menu*\nEnter the choice from the following(1-7):\n1. Open an Image.\n2. Copying an Image.\n3. Basic Menu.\n4. Creating Tumbnail.\n5. Create New Custom Image Menu.\n6. Filters Menu.\n7. Image Processing Menu.\n8. Get all the Colours Present in the Image.\n"))
   system('cls')
   if choice=='1':
try:
      Image.open(input("Enter the location of an image which you wants to open: ")).show()
except IOError:
      input("Give Correct Path.")
      main_menu()
```

```
        main_menu()
    elif choice=='2':
        copyimg()
    elif choice=='3':
        basic_menu()
    elif choice=='4':
        thumbnailimg()
    elif choice=='5':
        createnew_menu()
    elif choice=='6':
        filter_menu()
    elif choice=='7':
        process_menu()
    elif choice=='8':
  try:
            input(print(Image.Image.getcolors(Image.open(input("Enter the location of an
image which you wants to open: ")).convert('RGB'))))
except IOError:
            input("Give Correct Path.")
            main_menu()
        main_menu()
    else:
        input("Please Enter Valid Choice.")
        main_menu()
def copyimg():
    system('cls')
try:
        copopen=Image.open(input("Enter image location to copy: "))
except IOError:
        input("Give Correct Path.")
```

```
        copyimg()
    new_copied=copopen.copy()
    new_copied.show()
    saveimg(new_copied)
    main_menu()
def basic_menu():
    system('cls')
    choice1=input("*Basic Menu*\nEnter the choice from the following(1-5):\n1. Rotate an image by a specific angle.\n2. Resizing the image.\n3. Cropping an image.\n4. Flip Image\n5. Bact to Main Menu.\n")
    system('cls')
    if choice1=='1':
        rotateimg()
    elif choice1=='2':
        resizeimg()
    elif choice1=='3':
        cropimg()
    elif choice1=='4':
        flipimg()
    elif choice1=='5':
        main_menu()
    else:
        input("Please Enter Valid Choice.")
        basic_menu()
def thumbnailimg():#neemeesh
    system('cls')
 try:
        thumbopen=Image.open(input("Enter image location of which thumbnail is required: "))
 except IOError:
```

```
        input("Give Correct Path.")
        thumbnailimg()
    thumbopen.thumbnail((int(input("Enter Width of Thumbnail")),int(input("Enter Height of Thumbnail"))))
    thumbopen.show()
    saveimg(thumbopen)
    main_menu()
def createnew_menu():
    system('cls')
    choice1=input("*Create New Custom Image Menu*\nEnter the choice from the following(1-5):\n1. Image Containing Noise.\n2. Linear Gradient.\n3. Radial Gradient.\n4. Image of a Colour.\n5. Bact to Main Menu.\n")
    system('cls')
    if choice1=='1':
        effectnoise()
    elif choice1=='2':
        linear_gradient()
    elif choice1=='3':
        radial_gradient()
    elif choice1=='4':
        newimg()
    elif choice1=='5':
        main_menu()
    else:
        input("Please Enter Valid Choice.")
        createnew_menu()
def filter_menu():
    system('cls')
    choice1=input("**Filter Menu*\nEnter the choice from the following(1-10):\n1.  Spread blur\n2.  Enhance Colour\n3.  Enhance Contrast\n4.  Enhance Brightness\n5.  Enhance
```

```
Sharpness\n6.  Gaussian Blur\n7.  Contour\n8.  Detailed\n9.  Enhance Edges\n10.
Smoothen\n11. Back to Main Menu.\n")
   if choice1=='11':
      main_menu()
   system('cls')
 try:
      fil1=Image.open(input("Enter the location of an image on which you wants to apply
the selected filter: "))
except IOError:
      input("Give Correct Path.")
      system('cls')
      filter_menu()
   if choice1=='1':
      value=int(input("Enter value for spreading the pixels: "))
      filtered=fil1.effect_spread(value)
      filtered.show()
   elif choice1=='2':
      value=float(input("Enter value Enhancing Colour (Default is 1): "))
      filtered=ImageEnhance.Color(fil1).enhance(value)
      filtered.show()
   elif choice1=='3':
      value=float(input("Enter value Enhancing Contrast (Default is 1): "))
      filtered=ImageEnhance.Contrast(fil1).enhance(value)
      filtered.show()
   elif choice1=='4':
      value=float(input("Enter value Enhancing Brightness (Default is 1):- "))
      filtered=ImageEnhance.Brightness(fil1).enhance(value)
      filtered.show()
   elif choice1=='5':
      value=float(input("Enter value Enhancing Sharpness (Default is 1):- "))
```

```
            filtered=ImageEnhance.Sharpness(fil1).enhance(value)
            filtered.show()
        elif choice1=='6':
            value=float(input("Enter radius for Gaussian blur :- "))
            filtered=fil1.filter(ImageFilter.GaussianBlur(value))
            filtered.show()
        elif choice1=='7':
            filtered=fil1.filter(ImageFilter.CONTOUR)
            filtered.show()
        elif choice1=='8':
            filtered=fil1.filter(ImageFilter.DETAIL)
            filtered.show()
        elif choice1=='9':
            filtered=fil1.filter(ImageFilter.EDGE_ENHANCE)
            filtered.show()
        elif choice1=='10':
            filtered=fil1.filter(ImageFilter.SMOOTH)
            filtered.show()
        else:
            input("Please Enter Valid Choice.")
            filter_menu()
        saveimg(filtered)
        filter_menu()
    def process_menu():
        system('cls')
        choice1=input("**Image Processing Menu*\nEnter the choice from the following(1-
    4):\n1. Blending Image.\n2. Alphing Image.\n3. Composite Image.\n4. Back to Main
    Menu.\n")
        system('cls')
        if choice1=='1':
```

```
        blendimg()
    elif choice1=='2':
        alphimg()
    elif choice1=='3':
        compimg()
    elif choice1=='4':
        main_menu()
    else:
        input("Please Enter Valid Choice.")
        process_menu()
def rotateimg():
    system('cls')
try:
        rotopen=Image.open(input("Rotate image.\nEnter image location to rotate: "))
except IOError:
        input("Give Correct Path.")
        rotateimg()
    rotate=rotopen.rotate(float(input("Enter the Rotating Angle(in degrees): ")))
    rotate.show()
    saveimg(rotate)
    basic_menu()
def resizeimg():
    system('cls')
    resizeloc=input("Resize Image.\nEnter Image Loaction for Resizing Image: ")
    rx,ry=input("Enter starting x and y coordinate as x,y.\n*NOTE:- Resize will resize the
image if new size is smaller than original size. ").split(",")
    resizeopen=Image.open(resizeloc)
    resized=resizeopen.resize((int(rx),int(ry)))
    resized.show()
    saveimg(resized)
```

```
    basic_menu()
def cropimg():
    system('cls')
try:
        croploc=input("Crop Image.\nEnter Image Loaction for Croping Image: ")
except IOError:
        input("Give Correct Path.")
        cropimg()
    x1,y1=input("Enter Starting x and y Co-ordinate as x,y: ").split(",")
    x2,y2=input("Enter Ending x and y Co-ordinate as x,y: ").split(",")
    cropopen=Image.open(croploc)
    cropped=cropopen.crop((int(x1),int(y1),int(x2),int(y2)))
    cropped.show()
    saveimg(cropped)
    basic_menu
def flipimg():
    system('cls')
    print("Flipping of Image.")
try:
        oimage1=Image.open(input("Enter Image Location for Fliping Image: "))
except IOError:
        input("Give Correct Path.")
        flipimg()
    flip=input("Enter Image orientation \n1. Flip Left to Right\n2. Flip Top to Bottom\n3.
Transpose\n4. Transverse\n")
    if flip=="1":
        dis=oimage1.transpose(PIL.Image.FLIP_LEFT_RIGHT)
    elif flip=="2":
        dis=oimage1.transpose(PIL.Image.FLIP_TOP_BOTTOM)
    elif flip=="3":
```

```
        dis=oimage1.transpose(PIL.Image.TRANSPOSE)
    elif flip=="4":
        dis=oimage1.transpose(PIL.Image.TRANSVERSE)
    dis.show()
    saveimg(dis)
    basic_menu()
def effectnoise():
    print("Make an Image Containing Noise.")
    noiseinp=input("1. Size is 256x256\n2. Size is 720x720\n3. Size is 1080x1080\n4. Size is
2000x2000\n5. Custom\n")
    if noiseinp=="1":
        size=(256,256)
        sigma=500
    elif noiseinp=="2":
        size=(720,720)
        sigma=500
    elif noiseinp=="3":
        size=(1080,1080)
        sigma=500
    elif noiseinp=="4":
        size=(2000,2000)
        sigma=500
    elif noiseinp=="Custom":
        width=int(input("Enter Width: "))
        height=int(input("Enter Height: "))
        size=(width,height)
        sigma=int(input("Enter Sigma for noise: "))
    noiseeffect=Image.effect_noise(size, sigma)
    noiseeffect.show()
    saveimg(noiseeffect)
```

```
    createnew_menu()
def linear_gradient():
    system('cls')
    lig=Image.linear_gradient("L")
    lig.show()
    saveimg(lig)
    createnew_menu()
def radial_gradient():
    system('cls')
    rad=Image.radial_gradient("L")
    rad.show()
    saveimg(rad)
    createnew_menu()
def newimg():
    system('cls')
    mode1=input("Enter Mode: RGB, RGBA or L: ")
    size1=int(input("Enter Width: "))
    size2=int(input("Enter Height: "))
    colour1=input("Enter
colour:\nBlack\nWhite\nRed\nMaroon\nMagenta\nLime\nGreen\nTeal\nBlue\nCyan\nN
avy\nPurple\nYellow\nOlive\nSilver\nGrey\n")
    if colour1=="Black" and mode1!='L':
        makenew=Image.new(mode1,(size1,size2),(0,0,0))
    elif colour1=="White" and mode1!='L':
        makenew=Image.new(mode1,(size1,size2),(255,255,255))
    elif colour1=="Red" and mode1!='L':
        makenew=Image.new(mode1,(size1,size2),(255,0,0))
    elif colour1=="Maroon" and mode1!='L':
        makenew=Image.new(mode1,(size1,size2),(128,0,0))
    elif colour1=="Magenta" and mode1!='L':
```

```
    makenew=Image.new(mode1,(size1,size2),(255,0,255))
elif colour1=="Lime" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(0,255,0))
elif colour1=="Green" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(0,128,0))
elif colour1=="Teal" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(0,128,128))
elif colour1=="Blue" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(0,0,255))
elif colour1=="Cyan" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(0,255,255))
elif colour1=="Navy" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(0,0,128))
elif colour1=="Purple" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(128,0,128))
elif colour1=="Yellow" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(255,255,0))
elif colour1=="Olive" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(128,128,0))
elif colour1=="Silver" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(192,192,192))
elif colour1=="Green" and mode1!='L':
    makenew=Image.new(mode1,(size1,size2),(128,128,128))
elif colour1=="Black" and mode1=='L':
    makenew=Image.new(mode1,(size1,size2),0)
elif colour1=="White" and mode1=='L':
    makenew=Image.new(mode1,(size1,size2),255)
else:
    print("Mode and colour not compatible ")
makenew.show()
```

```
    saveimg(makenew)
    createnew_menu()
def blendimg():
    system('cls')
    print("Blend Image.")
try:
        image1=Image.open(input("Enter Background Image Location: ")).convert("RGBA")
        image2=Image.open(input("Enter Foreground Image Location: ")).convert("RGBA")
except IOError:
        input("Give Correct Path.")
        system('cls')
        blendimg()
    choice=input("Choose Transparency:-\n1. More background\n2. 50-50\n3. More
foreground\nPress any key for custom alpha.")
    if choice=='1':
        alpha=0.3
    elif choice=='2':
        alpha=0.5
    elif choice=='3':
        alpha=0.7
    else:
        alpha=float(input("Enter alpha(Background fraction(from 0-1)): "))
    image1.thumbnail(image2.size)
    img1_edit=image1.resize(image2.size)
    blend=Image.blend(img1_edit,image2,alpha)
    blend.show()
    saveimg(blend)
    process_menu()
def alphimg():
    system('cls')
```

```
    print("Alpha Image.")
try:
        print("*NOTE-If foreground is not RGBA and has tranceparency, only Foreground is
shown.")
        aimage1=Image.open(input("Enter Background Image Location: ")).convert("RGBA")
        aimage2=Image.open(input("Enter Foreground Image Location: ")).convert("RGBA")
except IOError:
        input("Give Correct Path.")
        system('cls')
        alphimg()
    aimage1.thumbnail(aimage2.size)
    aimg1_edit=aimage1.resize(aimage2.size)
    amix=Image.alpha_composite(aimg1_edit,aimage2)
    amix.show()
    saveimg(amix)
    process_menu()
def compimg():
    system('cls')
    print("Composite Image.")
try:
        cimage1=Image.open(input("Enter Background Image Location: ")).convert("RGBA")
        cimage2=Image.open(input("Enter Foreground Image Location: ")).convert("RGBA")
        print("*NOTE-Third image is cut from foreground to show background, so Third image
should be of transperent type.")
        cimage3=Image.open(input("Enter Third Image Location: ")).convert("RGBA")
except IOError:
        input("Give Correct Path.")
        system('cls')
        compimg()
    cimage1.thumbnail(cimage2.size)
```

```
    cimg1_edit=cimage1.resize(cimage2.size)
    cimage3.thumbnail(cimage2.size)
    cimg3_edit=cimage3.resize(cimage2.size)
    compos=Image.composite(cimg1_edit,cimage2,cimg3_edit)
    compos.show()
    saveimg(compos)
    process_menu()
main_menu()
```

LIST OF THE TOPICS/ CONCEPT WHICH ARE COVERED FROM THE SYLLABUS:

Function:-

- Define a Function
- Call a Function
- Recursive Functions

If-else:-

- If-statement
- If-elif-else ladder

Try and expect

LIST OF THE TOPICS/ CONCEPT WHICH ARE OUT OF SYLLABUS:

PIL Library:-

- Image
- Image Enhance
- Image Filter

System:-

- System('cls')

CONCLUSION:

Thus, we have successfully written and executed a python code for Editing Image. This program can be used to perform different actions on the image like crop, copy, apply filter, merge two images, etc.

In this program, we used PIL Library. This Library contain different modules which contain different function. The Image Enhance modules is one of the module from PIL. This module consists classes brightness, sharpness, colour,contrast, Enhance. The Image Filter is also module which consists classes like blur, contour, smooth, etc. The open, save, show this functions are predefined function. By using this program, the Image location which user provided that image is editied and after excuting that work it goes to main menu.

REFERENCES:

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- https://www.geeksforgeeks.org/working-images-python/
- https://youtu.be/6Qs3wObeWwc