Ryan Schlechty

Completed   Original


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# Ryan Schlechty 3/14/21

def collage():
    picture=makePicture(getMediaPath("groot2.jpg"))
    picture2=makePicture(getMediaPath("groot2.jpg"))
    picture3=makePicture(getMediaPath("groot2.jpg"))
    picture4=makePicture(getMediaPath("groot2.jpg"))
    picture5=makePicture(getMediaPath("groot2.jpg"))

    signature = makePicture(getMediaPath("signature.jpeg"))

    width = getWidth(picture)
    height = getHeight(picture)

    #first picture
    finished = makeEmptyPicture(1000,int(getHeight(picture)*200.0/width))
    canvas = makeEmptyPicture(200,int(getHeight(picture)*200.0/width),white)
    scale(picture,canvas,200.0/width)
    copyPicture(canvas,finished,0,0)

    #second picture
    picture=grayscale(picture)
    scale(picture,canvas,200.0/width)
    copyPicture(canvas,finished,200,0)

    # fifth picture
    colorSwap(picture2)
    canvas1 = makeEmptyPicture(200,int(getHeight(picture)*200.0/width),white)
    scale(picture2,canvas1,200.0/width)
    copyPicture(canvas1,finished,800,0)
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    # middle picture
    threeWayGray(picture3)
    verticalLines(picture3)
    canvas2 = makeEmptyPicture(200,int(getHeight(picture)*200.0/width),white)
    scale(picture3,canvas2,200.0/width)
    copyPicture(canvas2,finished,400,0)

    #fourth picture
    mirrorSideways(picture4)
    colorSwap2(picture4)
    canvas3=makeEmptyPicture(200,int(getHeight(picture)*200.0/width),white)
    scale(picture4,canvas3,200.0/width)
    copyPicture(canvas3,finished,600,0)


     #signature
    canvas4=makeEmptyPicture(int(getWidth(signature)*.15),int(getHeight(signature)*.15),white)
    scale(signature,canvas4,.15)
    name(canvas4,finished)

    show(finished)

def copyPicture(picture,targett,targetX,targetY):
    targXX= targetX
    for x in range(0,getWidth(picture)):
      targYY = targetY
      for y in range(0,getHeight(picture)):
        px = getColor(getPixel(picture,x,y))
        setColor(getPixel(targett,targXX,targYY),px)
        targYY +=1
      targXX +=1
    return picture



def scale(picture,big_picture,factor):
    sourceXX = 0
    for targetXX in range(0,int(getWidth(picture)*factor)):
      sourceYY = 0
      for targetYY in range(0,int(getHeight(picture)*factor)):
        srcpx = getPixel(picture,int(sourceXX),int(sourceYY))
        color = getColor(srcpx)
        setColor(getPixel(big_picture,targetXX,targetYY),color)
        sourceYY = sourceYY + 1.0/factor
      sourceXX = sourceXX + 1.0/factor
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def grayscale(picture):
    for p in getPixels(picture):
        intensity = (getRed(p)+getGreen(p)+getBlue(p))/3
        setColor(p,makeColor(intensity,intensity,intensity))
    return picture


def colorSwap(picture):
    for p in getPixels(picture):
        r = getRed(p)
        b = getBlue(p)
        g = getGreen(p)
        setRed(p,b)
        setBlue(p,g)
        setGreen(p,r)
    return picture

def colorSwap2(picture):
    for p in getPixels(picture):
        r = getRed(p)
        b = getBlue(p)
        g = getGreen(p)
        setRed(p,b)
        setBlue(p,r)
        setGreen(p,g)
    return picture



def threeWayGray(source):
    for px in getPixels(source):
        r = getRed(px)
        g = getRed(px)
        b = getBlue(px)
        luminance = (r+g+b)/3
        if luminance < 50:
            setColor(px,black)
        if luminance >= 50 and luminance <= 165:
            setColor(px,black)
        if luminance > 165:
            setColor(px,white)
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def mirrorSideways(picture4):
  mirrorPoint = getWidth(picture4)/2
  width = getWidth(picture4)
  for x in range(0,mirrorPoint):
    for y in range(0,getHeight(picture4)):
      leftPixel = getPixel(picture4,x,y)
      rightPixel = getPixel(picture4, width - x - 1,y)
      color = getColor(leftPixel)
      setColor(rightPixel,color)




def name(signature,picture5):
  for px in getPixels(signature):
    XX = getX(px)
    YY = getY(px)
    if (getRed(px) <  140 and getGreen(px) <  140 and getBlue(px) < 140):
      bgPx = getPixel(picture5,XX+450,YY+145)
      setColor(bgPx,white)




def verticalLines(picture):
  for x in range(0,getWidth(picture),30):
    for y in range(0,getHeight(picture)):
      setColor(getPixel(picture,x,y),red)
```