Gabe Manning
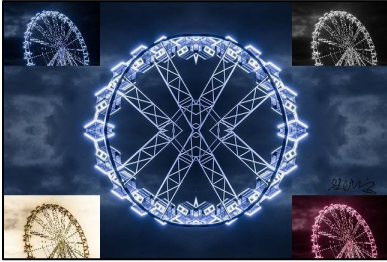
Completed

Original


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#Gabe Manning
#10/12/22

def collage():
    setMediaPath("C:\\Users\\gabem\\Desktop\\CS120\\Labs+Projects\\Project 2\\")
    pic = makePicture("ferris-wheel.jpg")
    #original is 640x427
    collagecanvas = makeEmptyPicture(getWidth(pic), getHeight(pic))
    small_pic = makeEmptyPicture(getWidth(pic)/4, getHeight(pic)/4)
    #small_pic is a scaled down original

    mirrorLeft(pic)
    mirrorBottom(pic)
    copy(pic, collagecanvas, 0, 0)
    #creates cool mirrored circle on canvas

    pic = makePicture("ferris-wheel.jpg")
    #resets pic to original jpg
    scale(pic, small_pic, 0.25)
    copy(small_pic, collagecanvas, 0, 0)
    #puts a scaled down original pic in top left

    scale(pic, small_pic, 0.25)
    greyscale(small_pic)
    copy(small_pic, collagecanvas, getWidth(pic)-getWidth(small_pic), 0)
    #puts a scaled down greyscaled pic in top right

    scale(pic, small_pic, 0.25)
    negative(small_pic)
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  copy(small_pic, collagecanvas, 0, getHeight(pic)-getHeight(small_pic))
  #puts a scaled down negative pic in bottom left

  scale(pic, small_pic, 0.25)
  colorswap(small_pic)
  copy(small_pic, collagecanvas,  getWidth(pic)-getWidth(small_pic), getHeight(pic)-getHeight(small_pic))
  #puts a scaled down colorswapped pic in bottom right

  signature = makePicture("signature.jpg")
  addSignature(collagecanvas, signature, 530, 265, black)
  #puts signature above colorswapped pic

  explore(collagecanvas)

def scale(picture_in, picture_out, scale):
  inX = 0
  for x in range(0, int(getWidth(picture_in)*scale)):
    inY = 0
    for y in range(0, int(getHeight(picture_in)*scale)):
      incolor = getColor(getPixel(picture_in, int(inX), int(inY)))
      setColor(getPixel(picture_out, x, y), incolor)
      inY = inY + 1.00/scale
    inX = inX + 1.00/scale

def copy(picture_in,picture_out,targetX,targetY):
  height = getHeight(picture_in)
  newX = targetX
  for x in range(0,getWidth(picture_in)):
    newY = targetY
    for y in range(0, getHeight(picture_in)):
      pixel = getPixel(picture_in, x, y)
      newPixel = getPixel(picture_out, newX, newY)
      setColor(newPixel, getColor(pixel))
      newY = newY + 1
    newX = newX + 1


def mirrorLeft(picture):
  width = getWidth(picture)
  mirror = width/2
  for x in range(0, mirror):
    for y in range(0, getHeight(picture)):
      leftPixels = getPixel(picture, x, y)
      rightPixels = getPixel(picture, width-x-1, y)
      setColor(rightPixels, getColor(leftPixels))
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def mirrorBottom(picture):
  height = getHeight(picture)
  mirror= height/2
  for y in range(0, mirror):
    for x in range(0, getWidth(picture)):
      topPixels = getPixel(picture, x, y)
      bottomPixels = getPixel(picture, x, height-y-1)
      setColor(bottomPixels, getColor(topPixels))

def greyscale(picture):
  for p in getPixels(picture):
    color= (getRed(p) + getGreen(p) + getBlue(p))/3
    setColor(p,makeColor(color, color, color))

def negative(picture):
  for p in getPixels(picture):
    red = getRed(p)
    green = getGreen(p)
    blue = getBlue(p)
    color = makeColor(255-red, 255-green, 255-blue)
    setColor(p, color)

def colorswap(picture):
  for p in getPixels(picture):
    red = getRed(p)
    green = getGreen(p)
    blue = getBlue(p)
    setColor(p, makeColor(blue, red, green))

def addSignature(target, signature, toX, toY, color):
  toYStart = toY
  for x in range(0, getWidth(signature)):
    toY = toYStart
    for y in range(0,getHeight(signature)):
      p = getPixel(signature, x, y)
      if (getRed(p) < 225 and getGreen(p) < 225 and getBlue(p) < 225):
        setColor(getPixel(target, toX, toY), color)
      toY = toY + 1
    toX = toX + 1
  return target
```