#Evan Lehr Feb. 24

def collage():
    canvas=makeEmptyPicture(736,1000,black)
    name=makePicture(getMediaPath("signature.jpg"))
    source=makePicture(getMediaPath("Extreme_closeUP.jpeg"))
    miniCanvas=makeEmptyPicture(getWidth(source),getHeight(source))
    center_pic=makePicture((getMediaPath("center.png")))
    scaleDown(source,miniCanvas,4)
    original_pic=miniCanvas
    signedCanvas=makeEmptyPicture(736,1000)
    copy(name,signedCanvas,580,870,0,getWidth(name),0,getHeight(name))

    #edit canvas will each have different edits of center pic, to then be copied to
    #main pic
    editCanvas1=makeEmptyPicture(596,860)
    editCanvas2=makeEmptyPicture(596,860)
    editCanvas3=makeEmptyPicture(596,860)
    editCanvas4=makeEmptyPicture(596,860)

    #edit pics will be used to make a border
    editPic1=makeEmptyPicture(getWidth(original_pic),getHeight(original_pic))
    editPic2=makeEmptyPicture(getWidth(original_pic),getHeight(original_pic))
    editPic3=makeEmptyPicture(getWidth(original_pic),getHeight(original_pic))
    editPic4=makeEmptyPicture(getWidth(original_pic),getHeight(original_pic))

    copy(center_pic,editCanvas1,0,0,0,596,0,860)
    copy(center_pic,editCanvas2,0,0,0,596,0,860)
    copy(center_pic,editCanvas3,0,0,0,596,0,860)
    copy(center_pic,editCanvas4,0,0,0,596,0,860)

    negative(editCanvas1,editCanvas1)
    posterize(editCanvas2,editCanvas2,yellow,blue)
    linedraw(editCanvas3,editCanvas3)
    grayscale(editCanvas4,editCanvas4)

    #Corner Code
    copy(original_pic,canvas,0,930,56,126,24,94)
    copy(original_pic,canvas,0,0,56,126,24,94)
    pre_mirror=makeEmptyPicture(getWidth(original_pic),getHeight(original_pic))
    copy(original_pic,pre_mirror,0,0,56,126,24,94)
    mirror_pic=makeEmptyPicture(70,70)
    mirror(pre_mirror,mirror_pic)

    copy(mirror_pic,canvas,666,0,0,70,0,70)
copy(mirror_pic, canvas, 666, 930, 0, 70, 0, 70)

copy(original_pic, editPic1, 0, 0, 0, getWidth(original_pic), 0, getHeight(original_pic))
copy(original_pic, editPic2, 0, 0, 0, getWidth(original_pic), 0, getHeight(original_pic))
copy(original_pic, editPic3, 0, 0, 0, getWidth(original_pic), 0, getHeight(original_pic))
copy(original_pic, editPic4, 0, 0, 0, getWidth(original_pic), 0, getHeight(original_pic))

# Left Border Code
negative(editPic1, editPic1)
linedraw(editPic2, editPic2)
posterize(editPic3, editPic3, green, pink)
grayscale(editPic4, editPic4)
copy(editPic1, canvas, 0, 70, 56, 126, 24, 94)
copy(editPic1, canvas, 0, 860, 56, 126, 24, 94)
copy(editPic1, canvas, 70, 0, 56, 126, 24, 94)
copy(editPic1, canvas, 70, 930, 56, 126, 24, 94)
copy(editPic2, canvas, 1, 211, 56, 126, 24, 94)
copy(editPic2, canvas, 1, 720, 56, 126, 24, 94)
copy(editPic2, canvas, 140, 1, 56, 126, 24, 94)
copy(editPic2, canvas, 141, 930, 56, 126, 24, 94)
copy(editPic3, canvas, 0, 140, 56, 126, 24, 94)
copy(editPic3, canvas, 0, 790, 56, 126, 24, 94)
copy(editPic3, canvas, 210, 0, 56, 126, 24, 94)
copy(editPic3, canvas, 210, 930, 56, 126, 24, 94)
copy(editPic4, canvas, 0, 280, 56, 126, 24, 94)
copy(editPic4, canvas, 0, 650, 56, 126, 24, 94)
copy(editPic4, canvas, 280, 0, 56, 126, 24, 94)
copy(editPic4, canvas, 280, 930, 56, 126, 24, 94)

# Right Border Code
editPic1=makeEmptyPicture(70,70)
editPic2=makeEmptyPicture(70,70)
editPic3=makeEmptyPicture(70,70)
editPic4=makeEmptyPicture(70,70)
editPic5=makeEmptyPicture(70,70)
copy(mirror_pic, editPic1, 0, 0, 0, 70, 0, 70)
copy(mirror_pic, editPic2, 0, 0, 0, 70, 0, 70)
copy(mirror_pic, editPic3, 0, 0, 0, 70, 0, 70)
copy(mirror_pic, editPic4, 0, 0, 0, 70, 0, 70)
copy(mirror_pic, editPic5, 0, 0, 0, 70, 0, 70)
negative(editPic1, editPic1)
linedraw(editPic2, editPic2)
posterize(editPic3, editPic3, green, pink)
grayscale(editPic4, editPic4)
copy(editPic1, canvas, 666, 70, 0, 70, 0, 70)
copy(editPic1, canvas, 666, 860, 0, 70, 0, 70)

copy(editPic1, canvas, 596, 0, 70, 0, 70)
copy(editPic1, canvas, 596, 930, 0, 70, 0, 70)
copy(editPic2,canvas,666,210,0,70,0,70)
copy(editPic2,canvas,666,720,0,70,0,70)
copy(editPic2,canvas,526,0,0,70,0,70)
copy(editPic2,canvas,526,930,0,70,0,70)
copy(editPic3,canvas,666,140,0,70,0,70)
copy(editPic3,canvas,666,790,0,70,0,70)
copy(editPic3,canvas,456,0,0,70,0,70)
copy(editPic3,canvas,456,930,0,70,0,70)
copy(editPic4,canvas,666,280,0,70,0,70)
copy(editPic4,canvas,666,650,0,70,0,70)
copy(editPic4,canvas,386,0,0,70,0,70)
copy(editPic4,canvas,386,930,0,70,0,70)

#Center Code
for x in range (70,596):
    for y in range(70,860):
        setColor(getPixel(canvas,x,y),black)

#Top left
copy(editCanvas1,canvas,70,70,0,596,0,860)
#bottom left
copy(editCanvas3,canvas,70,500,0,298,430,860)
#bottom right
copy(editCanvas2,canvas,368,500,298,596,430,860)
#top right
copy(editCanvas4,canvas,368,70,298,596,0,430)
#center Center
copy(center_pic,canvas,219,200,149,447,130,669)

signing(signedCanvas,canvas)
show(signedCanvas)

def signing(pic,newbg):
    bg=makeEmptyPicture(getWidth(pic),getHeight(pic))
    for px in getPixels(pic):
        x=getX(px)
        y=getY(px)
        bgpx=getPixel(bg,x,y)
        pxcol=getColor(px)
        bgcolor=getColor(bgpx)
        if (distance(pxcol,bgc)<200.0):
            newcol=getColor(getPixel(newbg,x,y))
            setColor(px,newcol)

#This copy function is my 'modified' function. It allows me to pick a specific region
#of a picture that I want to copy, effectively cropping and copying a picture in one
def copy(pic_in,pic_out,targetX,targetY,xxrange,xyrange,yxrange,yyrange):
    targX=targetX
    for x in range(xxrange,xyrange):
        targY=targetY
        for y in range(yxrange,yyrange):
            color=getColor(getPixel(pic_in,x,y))
            setColor(getPixel(pic_out,targX,targY),color)
            targY=targY+1
targX=targX+1

def mirror(pic_in, pic_out):
    smallpic=makeEmptyPicture(70,70)
    copy(pic_in, smallpic, 0, 0, 0, 70, 0, 70)

targX=69
for x in range(0,70):
    targY=0
    for y in range(0,70):
        color=getColor(getPixel(pic_in, x, y))
        setColor(getPixel(pic_out, targX, targY), color)
        targY=targY+1
    targX=targX-1

def scaleDown(pic_in, pic_out, scaler):
    srcX=0
    for x in range(0, getWidth(pic_in)):
        srcY=0
        for y in range(0, getHeight(pic_in)):
            color=getColor(getPixel(pic_in, srcX/scaler, srcY/scaler))
            setColor(getPixel(pic_out, x/scaler, y/scaler), color)
            srcY=(srcY+scaler/1.0)
        srcX=(srcX+scaler/1.0)

def negative(pic_in, pic_out):
    for px in getPixels(pic_in):
        red=getRed(px)
        green=getGreen(px)
        blue=getBlue(px)
        negcolor=makeColor(255-red, 255-green, 255-blue)
        setColor(px, negcolor)

def posterize(pic_in, pic_out, color1, color2):
    for p in getPixels(pic_in):
        r=getRed(p)
        g=getGreen(p)
        b=getBlue(p)
        lum=(r+g+b)/3
        if lum<100:
            setColor(p, color1)
        else:
            setColor(p, color2)

def linedraw(pic_in, pic_out):
    for p in getPixels(pic_in):
        x=getX(p)
        y=getY(p)
        if y<getHeight(pic_in)-1 and x<getWidth(pic_in)-1:
            sum=getRed(p)+getGreen(p)+getBlue(p)
            botrt=getPixel(pic_in, x+1, y+1)
            sum2=getRed(botrt)+getGreen(botrt)+getBlue(botrt)
            dif=abs(sum2-sum)
            newColor=makeColor(dif, dif, dif)
            setColor(p, newColor)

def grayscale(pic_in, pic_out):
    for p in getPixels(pic_in):
        i=(getRed(p)+getGreen(p)+getBlue(p))/3
        setColor(p, makeColor(i, i, i))