def Collage():
    canvas = makeEmptyPicture(1000,450)
    Normal(canvas)
    Mirror(canvas)
    Grayscale(canvas)
    Cyanotype(canvas)
    Swap(canvas)
    Signature(canvas)
    explore(canvas)

def paint(canvas,picture,Newx,Newy,scale):
    sourceX = 0
    for targetX in range(0,getWidth(picture)/scale):
        sourceY = 0
        for targetY in range(0,getHeight(picture)/scale):
            color = getColor(getPixel(picture,sourceX,sourceY))
            setColor(getPixel(canvas,targetX + Newx,targetY + Newy), color)
            sourceY = sourceY + scale
        sourceX = sourceX + scale

def Normal(canvas):
    picture = makePicture(getMediaPath("Matryoshkadoll.jpg"))
paint(canvas,picture,0,0,4)

def Mirror(canvas):
    picture = makePicture(getMediaPath("Matryoshkadoll.jpg"))
    width = getWidth(picture)
    for y in range(0, getHeight(picture)):
        for x in range(0, width):
            leftPixel = getPixel(picture, x, y)
            rightPixel = getPixel(picture, width - x - 1, y)
            color = getColor(leftPixel)
            setColor(rightPixel, color)
paint(canvas,picture,230,70,5)
def Grayscale(canvas):
    picture = makePicture(getMediaPath("Matryoshkadoll.jpg"))
    for p in getPixels(picture):
        intensity = (getRed(p)+getGreen(p)+getBlue(p))/3
        setColor(p,makeColor(intensity,intensity,intensity))
    paint(canvas,picture,420,120,6)

def Cyanotype(canvas):
    picture = makePicture(getMediaPath("Matryoshkadoll.jpg"))
    for p in getPixels(picture):
        if (getRed(p)+getGreen(p)+getBlue(p) <= 740):
            intensity = (getRed(p)+getGreen(p)+getBlue(p))/3
            setColor(p,makeColor(intensity*.75,intensity*.75,intensity))
    paint(canvas,picture,580,155,7)

def Swap(canvas):
    picture = makePicture(getMediaPath("Matryoshkadoll.jpg"))
    for p in getPixels(picture):
        Red = getBlue(p)
        Green = getRed(p)
        Blue = getGreen(p)
        setColor(p,makeColor(Red,Green,Blue))
    paint(canvas,picture,720,180,8)

def Signature(canvas):
    picture = makePicture(getMediaPath("Signature.png"))
    for p in getPixels(picture):
        if (getRed(p)+getGreen(p)+getBlue(p) >= 620):
            setColor(p,makeColor(255,255,255))
    paint(canvas,picture,720,0,2)