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#CS120
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#MainFunctionThatCallsOtherFunctions
def collage():
    picture = makePicture(getMediaPath("2Spidermen.jpg"))
    picture2 = makePicture(getMediaPath("2Spidermen.jpg"))
    picture3 = makePicture(getMediaPath("2Spidermen.jpg"))
    picture4 = makePicture(getMediaPath("2Spidermen.jpg"))
    picture5 = makePicture(getMediaPath("2Spidermen.jpg"))
    canvas = makeEmptyPicture(736, 1000)
    copyPicture(picture, canvas, 0, 0)
    e = grayscale(picture)
    mirrororizontal(e, canvas, 365, 0)
    n = redblueswitcharoo(picture3)
    mirrorvertical(n, canvas, 0, 500)
    q = increaseRed(picture2)
    mirrorboth(q, canvas, 365, 500)
    y = mirror(picture4)
    z = cropPicture(y)
    copycroppedpicture(z, canvas, (getWidth(canvas)/2)-88, (getHeight(canvas)/2)-157)
    explore(canvas)

#CopiesTheOriginalPicture
def copyPicture(picture, canvas, startX, startY):
    endX = startX + getWidth(picture)
    endY = startY + getHeight(picture)
    sourceX = 0
    for targetX in range(startX, endX-1):
        sourceY = 0
        for targetY in range(startY, endY-1):
            color = getColor(getPixel(picture, sourceX, sourceY))
            setColor(getPixel(canvas, targetX, targetY), color)
            sourceY = sourceY + 1
        sourceX = sourceX + 1
#CropsTheFinalPicture
def cropPicture(picture5):
croppedPic = makeEmptyPicture(176, 315)
targetX = 0
for sourceX in range(94,270):
    targetY = 0
    for sourceY in range(185,getHeight(picture5)):
        color = getColor(getPixel(picture5,sourceX,sourceY))
        setColor(getPixel(croppedPic,targetX,targetY), color)
        targetY = targetY + 1
    targetX = targetX + 1
return croppedPic

#CopysTheCroppedPicture
def copycroppedpicture(picture4,canvas,startX,startY):
    endX = startX+getWidth(picture4) #Changed this
    endY = startY+getHeight(picture4)
    sourceX = 0
    for targetX in range(startX,endX-1):
        sourceY = 0
        for targetY in range(startY,endY):
            color = getColor(getPixel(picture4,sourceX,sourceY))
            setColor(getPixel(canvas,targetX,targetY), color)
            sourceY= sourceY + 1
        sourceX = sourceX + 1

#MirrorsTheFinalPicture
def mirror(picture4):
    mirrorPoint = getWidth(picture4)
    width = getWidth(picture4)
    for y in range(0, getHeight(picture4)):
        for x in range(0, mirrorPoint):
            leftPixel = getPixel(picture4,x,y)
            rightPixel = getPixel(picture4,width -x -1,y)
            color = getColor(leftPixel)
            setColor(rightPixel,color)
    return(picture4)

#MirrorsPictureOverTheYAxis
def mirrorvertical(picture,canvas,startX,startY):
    endX = startX+getWidth(picture)
    endY = startY+getHeight(picture)
    sourceX = 0
    for targetX in range(startX,endX-1):
        sourceY = getHeight(picture)-1
        for targetY in range(startY,endY):
            color = getColor(getPixel(picture,sourceX,sourceY))
            setColor(getPixel(canvas,targetX,targetY), color)
            sourceY= sourceY - 1
        sourceX = sourceX + 1

#MirrorsThePictureOverBothTheXandYAxis
def mirrorboth(picture2,canvas,startX,startY):
    endX = startX+getWidth(picture2)
    endY = startY+getHeight(picture2)
    sourceX = getWidth(picture2)-1
    for targetX in range(startX,endX-1):
        sourceY = getHeight(picture2)-1
        for targetY in range(startY,endY):
color = getColor(getPixel(picture2, sourceX, sourceY))
setColor(getPixel(canvas, targetX, targetY), color)
sourceY = sourceY - 1
sourceX = sourceX - 1
#MirrorsOverTheXAxis
def mirrorhorizontal(picture, canvas, startX, startY):
    endX = startX + getWidth(picture)
    endY = startY + getHeight(picture)
    sourceX = getWidth(picture) - 1
    for targetX in range(startX, endX - 1):
        sourceY = 0
        for targetY in range(startY, endY):
            color = getColor(getPixel(picture, sourceX, sourceY))
            setColor(getPixel(canvas, targetX, targetY), color)
            sourceY = sourceY + 1
        sourceX = sourceX - 1
    return(picture)
#AppliesAGrayscale
def grayscale(picture):
    for p in getPixels(picture):
        intensity = (getRed(p) + getGreen(p) + getBlue(p)) / 3
        setColor(p, makeColor(intensity, intensity, intensity))
    return(picture)
#SwitchesTheRedandBlueValuesForThePicture
def redblueswitcharoo(picture3):
    endX = getWidth(picture3) - 1
    endY = getHeight(picture3) - 1
    startX = 0
    for targetX in range(0, endX):
        startY = 0
        for targetY in range(0, endY):
            red = getBlue(getPixel(picture3, startX, (startY)))
            blue = getRed(getPixel(picture3, startX, startY))
            green = getGreen(getPixel(picture3, startX, startY))
            color2 = makeColor(red, green, blue)
            setColor(getPixel(picture3, targetX, targetY), color2)
        startY = startY + 1
        startX = startX + 1
    return(picture3)
#ReducesTheBlueAndGreenValuesInThePicture
def increaseRed(picture2):
    for p in getPixels(picture2):
        value = getBlue(p)
        setBlue(p, value * 0.7)
        value = getGreen(p)
        setGreen(p, value * 0.7)
    return(picture2)