#Austin Belt - March 9 2020
#DeVito's Dilemma - Whilst on his midnight glide through the sky, Danny DeVito is beset by four specters from his past.
I have legally obtained this stock photo of Danny DeVito through Shutterstock. No laws broken here!

def collage():
    ogpic = makePicture(getMediaPath("devito.jpg"))
    smallerpic = makeEmptyPicture(int(getWidth(ogpic)/6.5), int(getHeight(ogpic)/6.5)) #Prepare the head!
    scale(ogpic,smallerpic,6.5)
    pic = makeEmptyPicture(208,255)
    cropy(smallerpic,pic,96,304,71,326,0,0)
    bgRemove(pic)
    bgcolor = makeColor(20,0,51)
    canvas = makeEmptyPicture(1000,736,bgcolor) #The stage is set...
    tinypic = makeEmptyPicture(int(getWidth(pic)/12), int(getHeight(pic)/12))
    retroDanPic = makeEmptyPicture(int(getWidth(tinypic))*12, int(getHeight(tinypic)*12))
    scale(pic,tinypic,12)
    #First appears Retro Danny, a painful reminder of simpler days long past, fond memories now obscured by the fog of time...
    scale(tinypic,retroDanPic,1.0/12)
    prideDanPic = duplicatePicture(pic)
    #Next comes forth Pride Danny, a representation of Mr. DeVito's repressed homosexuality...
    prideDan(prideDanPic)
    eyeOfDanPic = duplicatePicture(pic)
    #Soon after materializes the Eye of Dan, symbolizing Danny DeVito's paranoia and suspicions, always watching him...
poignantDanPic = duplicatePicture(pic)  # Danny takes a moment to reflect. Poignantly.
chainedDanPic = duplicatePicture(pic)  # Finally, Dan in Chains emerges...Danny DeVito locked up internally and eternally by his personal demons...
cropy(poignantDanPic,canvas,0,getWidth(poignantDanPic),0,getHeight(poignantDanPic),4, getHeight(canvas)-getHeight(poignantDanPic))
cropy(eyeOfDanPic,canvas,0,getWidth(eyeOfDanPic),0,getHeight(eyeOfDanPic),555,134)
cropyOverlap(retroDanPic,canvas,0,getWidth(retroDanPic),0,getHeight(retroDanPic),315,171)
cropyOverlap(pic,canvas,0,getWidth(pic),0,getHeight(pic),436,220)
# Will Danny DeVito ever break free of his personal demons...
cropyOverlap(chainedDanPic,canvas,0,getWidth(chainedDanPic),0,getHeight(chainedDanPic),586,339)
#...Probably not, but it's nice to dream.
cropyOverlap(prideDanPic,canvas,0,getWidth(prideDanPic),0,getHeight(prideDanPic),347,393)
signature(canvas,bgcolor) # Maybe the five of them can become best friends!
removeWhite(canvas,bgcolor) # Maybe they can get over their differences...
#...they can all move on from their sordid past and look forward to a brighter future!
starrySky(canvas,bgcolor)
explore(canvas) #...Nah, probably not.

def scale(picture_in,picture_out,scaleFactor):
    sourceX = 0
    for targetX in range(0,getWidth(picture_out)):
        sourceY = 0
        for targetY in range(0,getHeight(picture_out)):
            color = getColor(getPixel(picture_in,int(sourceX),int(sourceY)))
            setColor(getPixel(picture_out,int(targetX),int(targetY)),color)
            sourceY = sourceY + scaleFactor
            sourceX = sourceX + scaleFactor

def cropy(source,target,startX,endX,startY,endY,targX,targY):
    targetX = targX
    for sourceX in range(startX,endX):
        targetY = targY
        for sourceY in range(startY,endY):
            color = getColor(getPixel(source,sourceX,sourceY))
            setColor(getPixel(target,targetX,targetY),color)
            targetY = targetY + 1
            targetX = targetX + 1
return(target)

# it's cropping, but now the pictures can overlap! ooh, layers!
def cropyOverlap(source, target, startX, endX, startY, endY, targX, targY):
    targetX = targX
    for sourceX in range(startX, endX):
        targetY = targY
        for sourceY in range(startY, endY):
            px = getPixel(source, sourceX, sourceY)
            if getColor(px) != white:
                color = getColor(getPixel(source, sourceX, sourceY))
                setColor(getPixel(target, targetX, targetY), color)
            else:
                color = getColor(getPixel(source, sourceX, sourceY))
                setColor(getPixel(target, sourceX, sourceY), color)
        targetY = targetY + 1
    targetX = targetX + 1
return(target)

# gotta get rid of that pesky background somehow. but first, we have to find out what a background is!
def bgRemove(pic):
    bgmain = makeColor(225, 235, 247)
    bgyellow = makeColor(197, 168, 74)
    bgcleanup = makeColor(198, 200, 187)
    blankbg(pic, 0, 0, 207, 201, bgmain)
    blankbg(pic, 0, 0, 207, 6, bgyellow)
    blankbg(pic, 0, 0, 207, 6, bgcleanup)

    #we found out what a background is! now time to get rid of it!
def blankbg(pic, startX, startY, endX, endY, color):
        for px in getPixels(pic):
            x = getX(px)
            y = getY(px)
            if (startX <= x <= endX) and (startY <= y <= endY):
                if (distance(color, getColor(px)) < 70):
                    setColor(px, white)
        return(pic)

def prideDan(pic):
    prideDanSub(pic, 0, getHeight(pic)*1.0/7, 255, 0, 0)
    prideDanSub(pic, getHeight(pic)*1.0/7, getHeight(pic)*2.0/7, 255, 127, 0)
    prideDanSub(pic, getHeight(pic)*2.0/7, getHeight(pic)*3.0/7, 0, 255, 0)
    prideDanSub(pic, getHeight(pic)*3.0/7, getHeight(pic)*4.0/7, 0, 255, 0)
def prideDanSub(pic, startY, endY, newr, newg, newb):
    for x in range(0, getWidth(pic)):
        for y in range(startY, endY):
            px = getPixel(pic, x, y)
            if getColor(px) != white:
                ogr = getRed(px)
                ogg = getGreen(px)
                ogb = getBlue(px)
                newColor = makeColor((ogr + newr) / 2, (ogg + newg) / 2, (ogb + newb) / 2)
                setColor(px, newColor)

def chainedDan(pic):
    for x in range(0, 10):
        lines(pic, x, 0)
        lines(pic, x, 1)
        lines(pic, x, 2)
    for y in range(1, 50):
        lines(pic, 0, y)
        lines(pic, 1, y)
        lines(pic, 2, y)

def lines(pic, startX, startY):
    width = getWidth(pic)
    height = getHeight(pic)
    g = makeColor(105, 105, 105)
    for x in range(startX, width, 10):
        for y in range(startY, height, 50):
            px = getPixel(pic, x, y)
            if getColor(px) != white:
                setColor(px, g)

def eyeOfDan(pic):
    eye = makeEmptyPicture(30, 36)
    cropy(pic, eye, 113, 143, 90, 126, 0, 0)
    bigeye = makeEmptyPicture(int(getWidth(eye) * 7.1), int(getHeight(eye) * 7.1))
    scale(eye, bigeye, 1.0 / 7.1)
    targetX = 0
    for sourceX in range(0, 207):
        targetY = 0
for sourceY in range(0, 254):
    px = getPixel(pic, sourceX, sourceY)
    if getColor(px) != white:
        color = getColor(getPixel(bigeye, sourceX, sourceY))
        setColor(getPixel(pic, targetX, targetY), color)
    targetY = targetY + 1
    targetX = targetX + 1

def poignantDan(pic):
    danPeek = makeEmptyPicture(getWidth(pic), 120)
    cropy(pic, danPeek, 0, getWidth(pic), 0, 120, 0, 0)
    bigDanPeek = makeEmptyPicture(int(getWidth(danPeek)*1.5), int(getHeight(danPeek)*1.5))
    scale(danPeek, bigDanPeek, 1.0/1.5)
    prideDanSub(bigDanPeek, 0, getHeight(bigDanPeek), 20, 0, 51)
    return(bigDanPeek)

def removeWhite(canvas, bgcolor): # the background is white, but the sky isn't white!
    for x in range(0, getWidth(canvas)):
        for y in range(0, getHeight(canvas)):
            px = getPixel(canvas, x, y)
            if getColor(px) == white:
                setColor(px, bgcolor)

def starrySky(pic, bgcolor): # what's a night sky without stars? a very sad night sky, that's what.
    width = getWidth(pic)
    height = getHeight(pic)
    for x in range(4, width, 50):
        for y in range(4, height, 50):
            px = getPixel(pic, x, y)
            if getColor(px) == bgcolor:
                setColor(px, white)
    for x in range(29, width, 50):
        for y in range(29, height, 50):
            px = getPixel(pic, x, y)
            if getColor(px) == bgcolor:
                setColor(px, white)

# for some reason, i decided to put my name on this. was it a mistake? we'll see.
def signature(canvas, bgcolor):
    sign = makePicture(getMediaPath("signature.jpg"))
    width = getWidth(sign)
    height = getHeight(sign)
    for px in getPixels(sign):
        for sourceY in range(0, 254):
            px = getPixel(pic, sourceX, sourceY)
            if getColor(px) != white:
                color = getColor(getPixel(bigeye, sourceX, sourceY))
                setColor(getPixel(pic, targetX, targetY), color)
            targetY = targetY + 1
            targetX = targetX + 1
if distance(getColor(px), white) > 20:
    setColor(px, white)
else:
    setColor(px, bgcolor)
cropy(sign, canvas, 0, width, 0, height, getWidth(canvas) - width, getHeight(canvas) - height)

def shootingStar(canvas): # a little spot of hope in the sad, sad life of danny devito.
    star = makeEmptyPicture(26, 12)
    color = makeColor(168, 239, 255)
    addLine(star, 17, 0, 17, 0, color)
    addLine(star, 3, 1, 18, 1, color)
    addLine(star, 15, 2, 19, 2, color)
    addLine(star, 10, 3, 24, 3, color)
    addLine(star, 12, 4, 22, 4, color)
    addLine(star, 1, 5, 20, 5, color)
    addLine(star, 14, 6, 20, 6, color)
    addLine(star, 14, 7, 20, 7, color)
    addLine(star, 0, 8, 15, 8, color)
    addLine(star, 19, 8, 21, 8, color)
    addLine(star, 13, 9, 14, 9, color)
    addLine(star, 20, 9, 21, 9, color)
    addLine(star, 12, 10, 13, 10, color)
    addLine(star, 21, 10, 22, 10, color)
    bigstar = makeEmptyPicture(getWidth(star) * 8, getHeight(star) * 8)
    scale(star, bigstar, 1.0 / 8)
    cropy(bigstar, canvas, 0, getWidth(bigstar), 0, getHeight(bigstar), 50, 100)

    # means the line is continued on the next line.