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from PIL import Image, ImageChops
import os

v = [0,0,0,0]
h = [0,0,0,0,0,0]
m = [2,2,2]

t = 4
w = 128
can = [( 0, 0, t*3+w*2, t*5+w*4),
       ( t, t, t*2+w*2, t*4+w*4)]

ver = [(t+w,t,t*2+w,t*2+w),
       (t+w,t+w,t*2+w,t*3+w*2),
       (t+w,t*2+w*2,t*2+w,t*4+w*3),
       (t+w,t*3+w*3,t*2+w,t*4+w*4)]

hor = [(t,t+w,t*2+w,t*2+w),
       (t+w,t+w,t*2+w*2,t*2+w),
       (t,t*2+w*2,t*2+w,t*3+w*2),
       (t+w,t*2+w*2,t*2+w*2,t*3+w*2),
       (t,t*3+w*3,t*2+w,t*4+w*3),
       (t+w,t*3+w*3,t*2+w*2,t*4+w*3)]

lookup = {2: ((0,0),(1,1)),
          3: ((0,1),(1,0),(1,1)),
          4: ((0,0),(0,1),(1,0),(1,1))}

bimg = Image.new("1", (can[0][2], can[0][3]))
wimg = bimg.crop(can[1])
wimg = ImageChops.invert(wimg)
bimg.paste(wimg,can[1])

for n in range(16):
    vert_str = bin(n)[2:]
    vert_str = "0"*(4-len(vert_str)) + vert_str
    for i, c in enumerate(vert_str):
        v[i] = int(c)

    for p in range(3):
        if (v[p],v[p+1]) == (0,0):
            m[p] = 2
        if (v[p],v[p+1]) in {(1,0),(0,1)}:
            m[p] = 3
        if (v[p],v[p+1]) == (1,1):
            m[p] = 4
```

```
    mx = [0,0,0]
    done = False
    while not done:

        h[0], h[1] = lookup[m[0]][mx[0]]
        h[2], h[3] = lookup[m[1]][mx[1]]
        h[4], h[5] = lookup[m[2]][mx[2]]

        oimg = bimg.copy()
        for vdex, v_line in enumerate(v):
            if v_line == 1:
                oimg.paste(0, ver[vdex])

        for hdex, h_line in enumerate(h):
            if h_line == 1:
                oimg.paste(0, hor[hdex])

        mx_str = ''.join([str(a) for a in mx])

        oimg.save(os.getcwd() + "\\Noah\\" + vert_str + "_" + mx_str +
".png")

        mx[0] += 1
        if mx[0] == m[0]:
            mx[0] = 0
            mx[1] += 1

        if mx[1] == m[1]:
            mx[1] = 0
            mx[2] += 1

        if mx[2] == m[2]:
            done = True
```