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#ShowMondrian.py
""" Illustrates the recursive function Mondrian that produces
randomly colored, randomly tiled rectangles.
"""

from SimpleGraphics import *
from random import uniform as randu
from random import randint as randi

def RandomColor():
    """ Returns a randomly selected color
    """
    colorList = [RED,BLUE,CYAN,MAGENTA,YELLOW,GREEN,PINK,ORANGE]
    return colorList[randi(0,len(colorList)-1)]

def Mondrian(x,y,L,W,level):
    """ Draws an L-level Mondrian in an LxW rectangle
    with center (x,y).
    """
    quitProb = .3
    if level ==0 or (level<=2 and randu(0,1)<=quitProb):
        # Base case. Draw the rectangle with a random color.
        DrawRect(x,y,L,W,EdgeWidth=4,FillColor=RandomColor())
    else:
        # Compute the L's and W's and centers of the 4 subrectangles.
        xc = randu(x-L/4,x+L/4)
        L1 = xc-(x-L/2)
        L2 = L-L1
        yc = randu(y-W/4,y+W/4)
        W1 = yc-(y-W/2)
        W2 = W-W1
        # The "southwest" subrectangle:
        Mondrian(x-L/2+L1/2,y-W/2+W1/2 ,L1,W1,level-1)
        # The "northwest" subrectangle:
        Mondrian(x-L/2+L1/2,y+W/2-W2/2 ,L1,W2,level-1)
        # The "northeast" subrectangle:
        Mondrian(x+L/2-L2/2,y+W/2-W2/2 ,L2,W2,level-1)
        # The "Southeas" subrectabngle
        Mondrian(x+L/2-L2/2,y-W/2+W1/2 ,L2,W1,level-1)

if __name__ == '__main__':
        # Draws a 1-level, 2-level, 3-level, and 4-level Mondrians
        MakeWindow(2,labels=False)
        Mondrian(0,0,3.,3.,1)
        MakeWindow(2,labels=False)
        Mondrian(0,0,3.,3.,2)
        MakeWindow(2,labels=False)
        Mondrian(0,0,3.,3.,3)
        MakeWindow(2,labels=False)
        Mondrian(0,0,3.,3.,4)
        ShowWindow()
```