

fractals.py

```
97 class FractalTree(Scene):
98     def construct(self):
99         # g1 contains the entire fractal
100        # g2 contains the pieces created in the preceding iterative step
101        # g3 contains all new pieces being created in the current step
102
103        d1 = Dot().move_to(DOWN*4)
104        d2 = d1.copy().shift(UP*1)
105        l1 = Line(start = d1, end = d2, color = WHITE)
106        g1 = VGroup(l1)
107        self.play(Write(l1))
108        t = 0.001
109        n = 8
110        g2 = g1.copy()
111
112        for i in range(n):
113            g3 = VGroup()
114            for mob in g2:
115
116                l2 = mob.copy().scale(9/10)
117                l3 = mob.copy().scale(9/10)
118
119
120                direction = mob.get_end() - mob.get_start()
121                shiftAmt = direction * 0.9
122
123                l2.shift(shiftAmt)
124                l3.shift(shiftAmt)
125
126                self.play(l2.animate.rotate(angle = PI/8, about_point = l2.get_start()),
run_time = t)
127                self.play(l3.animate.rotate(angle = -PI/8, about_point = l3.get_start()),
run_time = t)
128
129                g3.add(l2, l3)
130
131            g2 = g3
132            g1.add(g3)
```