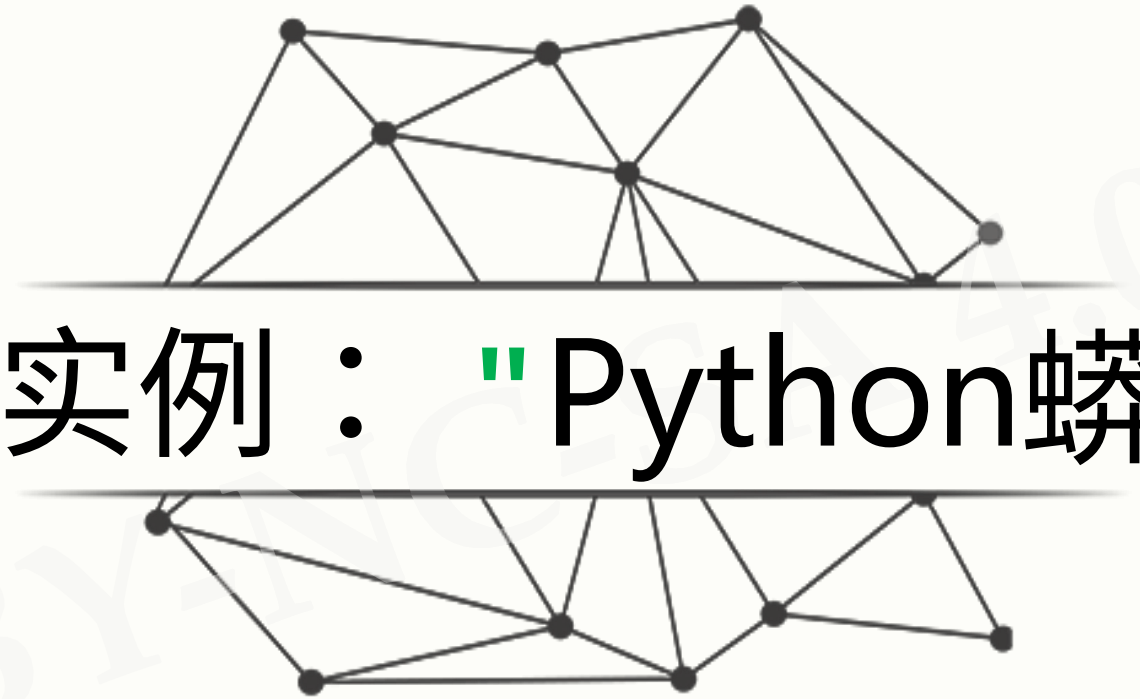


8.2 实例："Python蟒蛇绘制"

Python蟒蛇绘制

用程序绘制一条蟒蛇

- 貌似很有趣，可以来试试

- 先学会蟒蛇绘制，再绘朵玫瑰花送给TA

Python蟒蛇绘制

设计蟒蛇的基本形状

Python蟒蛇绘制

用程序绘制一条蟒蛇

- **问题1: 计算机绘图是什么原理?**

  一段程序为何能够产生窗体? 为何能在窗体上绘制图形?

- **问题2: Python蟒蛇绘制从哪里开始呢?**

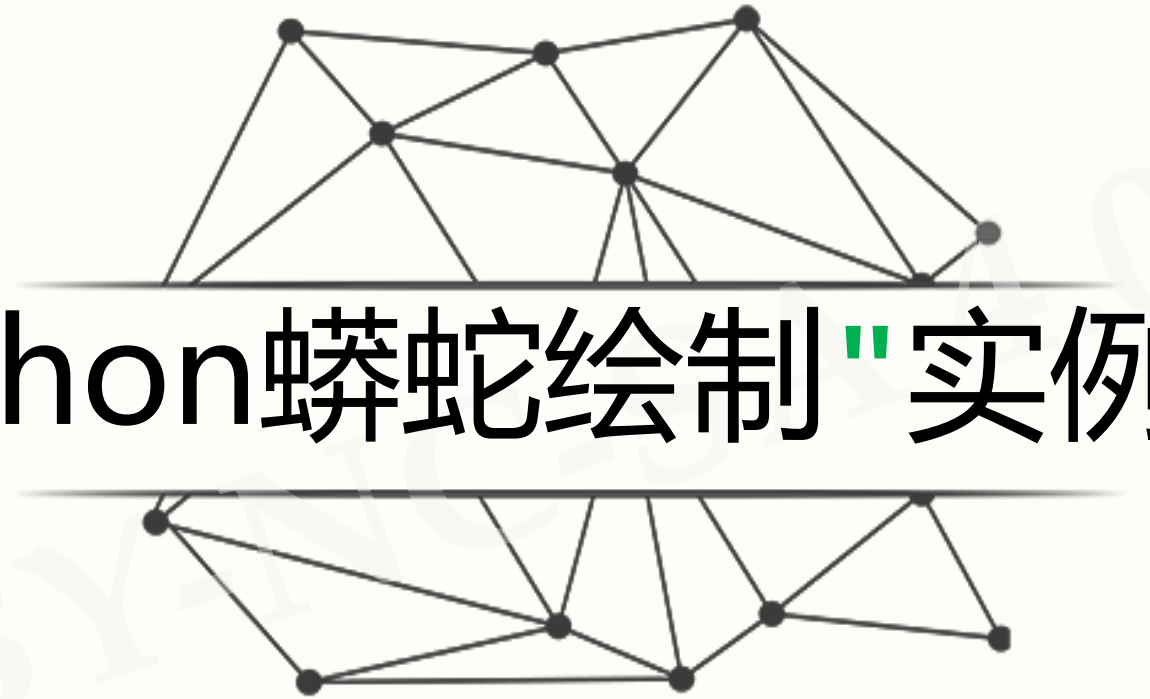
  如何绘制一条线? 如何绘制一个弧形? 如何绘制一个蟒蛇?

Python蟒蛇绘制

用程序绘制一条蟒蛇

实例1: 温度转换 → **Python蟒蛇绘制**

能否借鉴?



"Python蟒蛇绘制"实例编写

```python
#PythonDraw.py
import turtle
turtle.setup(650, 350, 200, 200)
turtle.penup()
turtle.fd(-250)
turtle.pendown()
turtle.pensize(25)
turtle.pencolor("purple")
turtle.seth(-40)
for i in range(4):
    turtle.circle(40, 80)
    turtle.circle(-40, 80)
turtle.circle(40, 80/2)
turtle.fd(40)
turtle.circle(16, 180)
turtle.fd(40 * 2/3)
turtle.done()
```

使用IDLE的文件方式

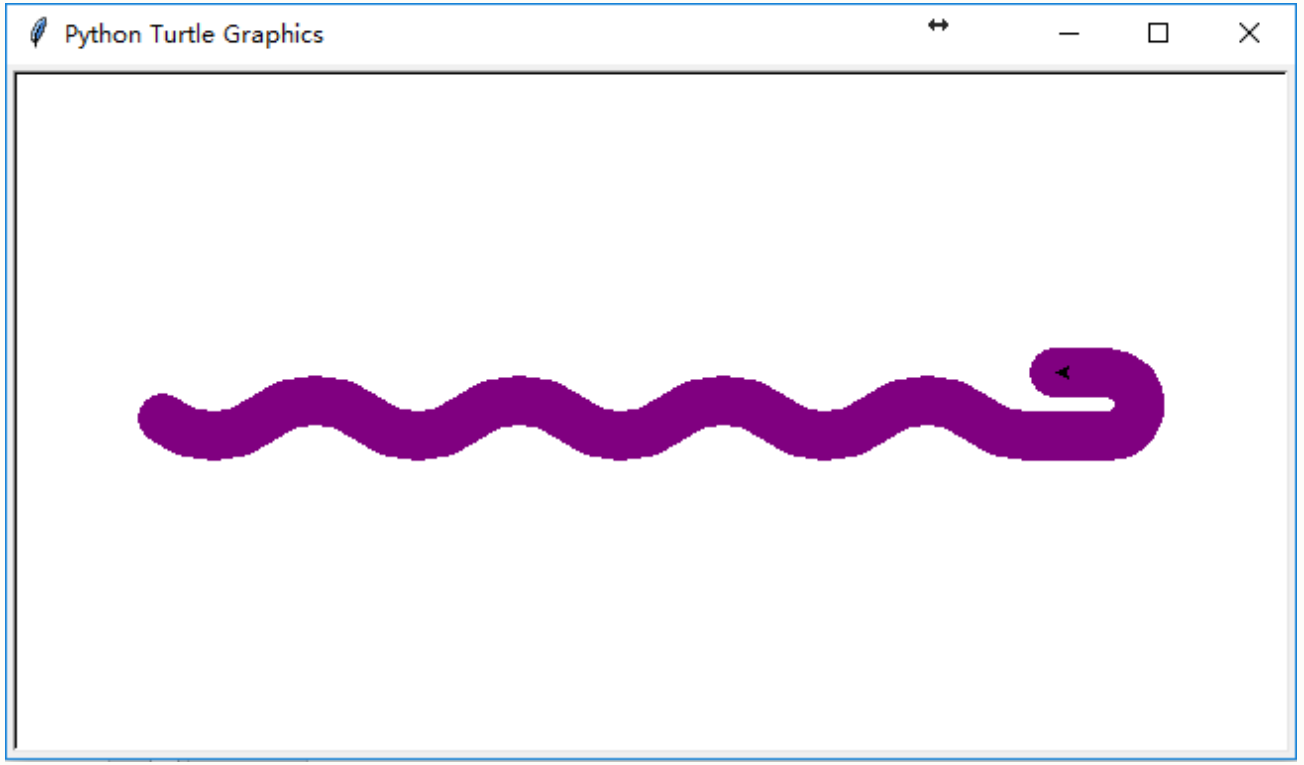
编写代码

并保存为

PythonDraw.py 文件

运行效果

IDLE打开文件，按F5运行



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turtle.done()
```

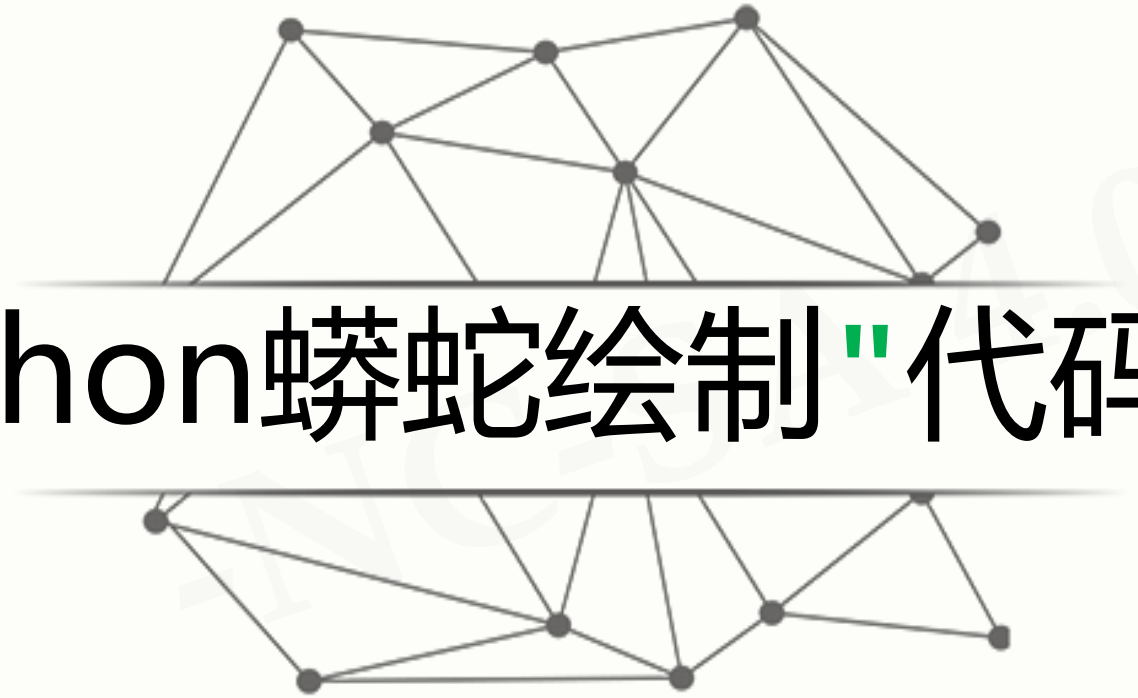
程序关键

import 保留字

引入了一个绘图库

名字叫：turtle

没错，就是 海龟



"Python蟒蛇绘制"代码分析

```
import turtle
turtle.setup(650, 350, 200, 200)
turtle.penup()
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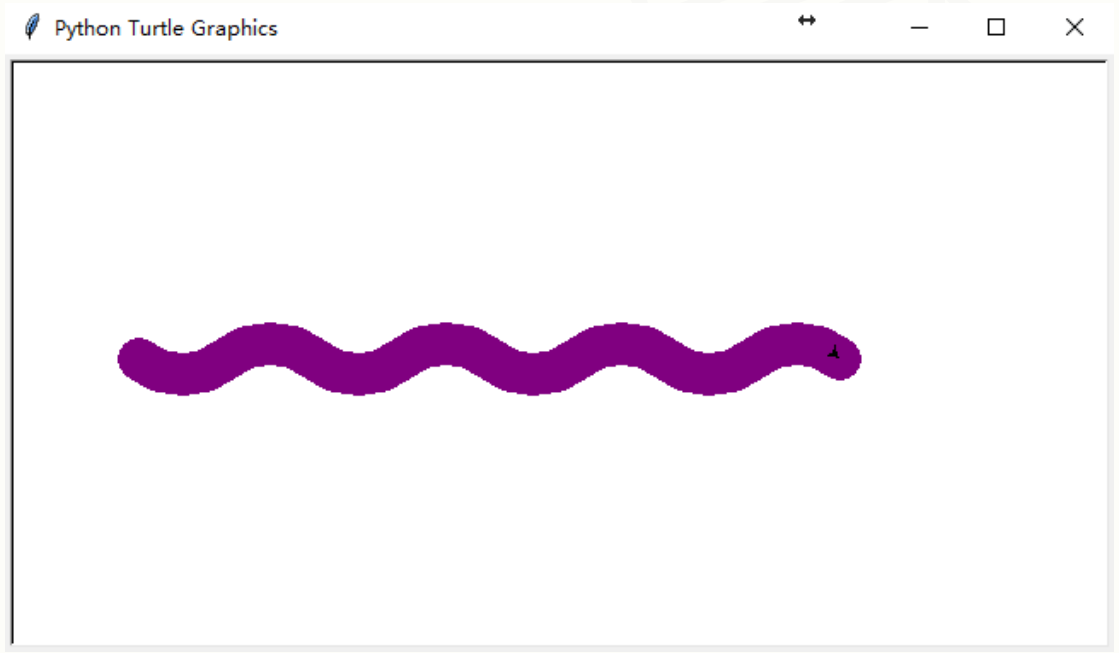

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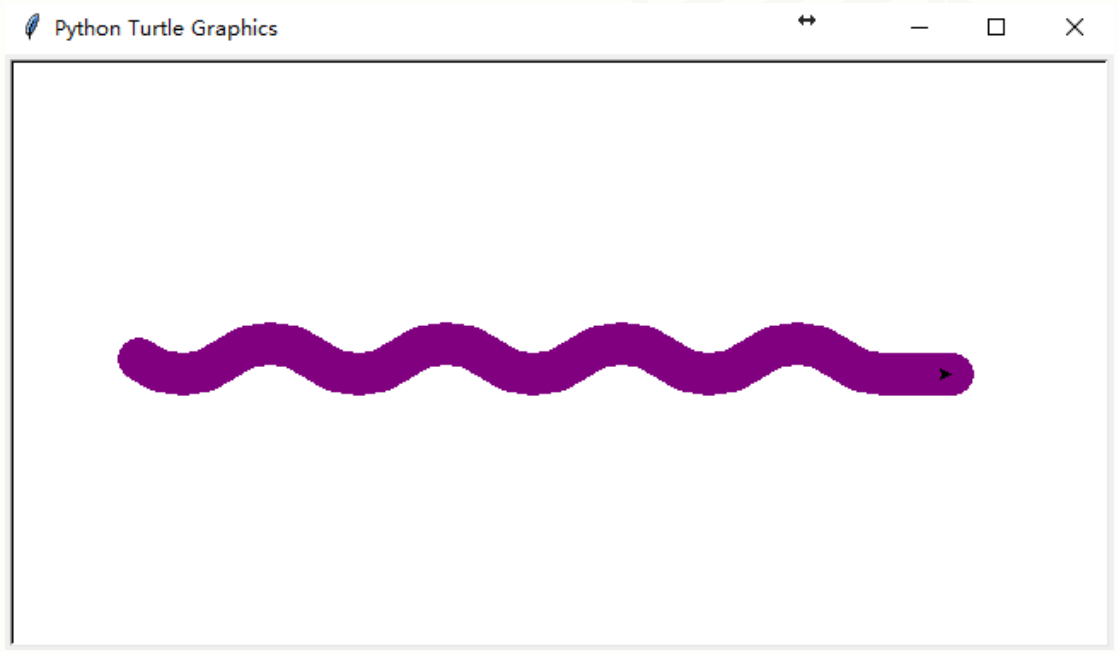

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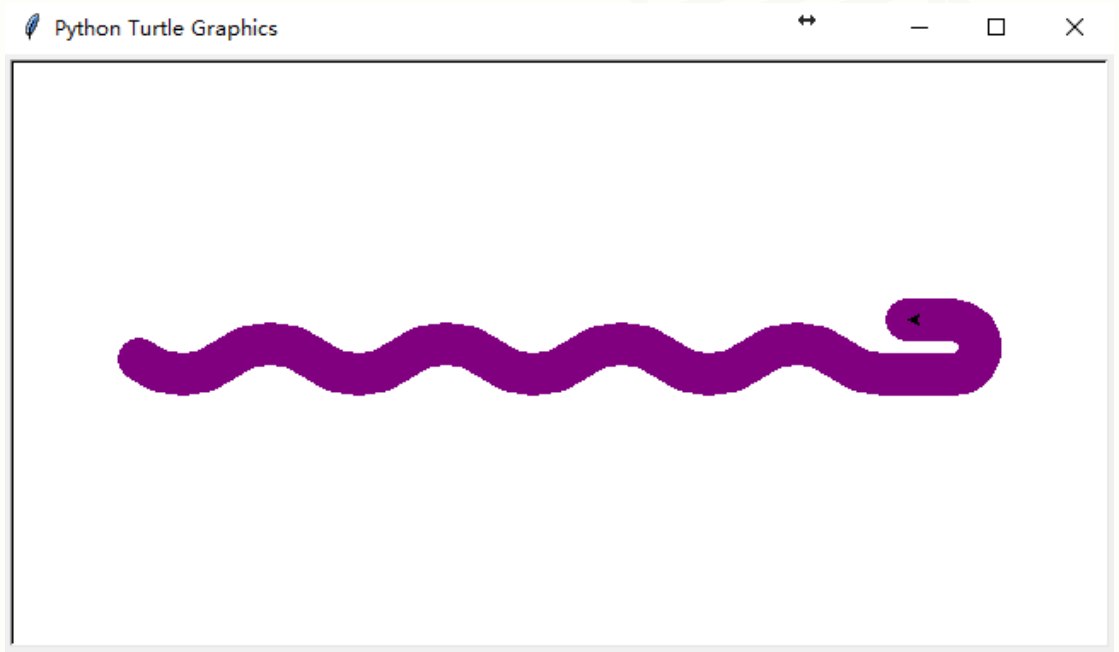

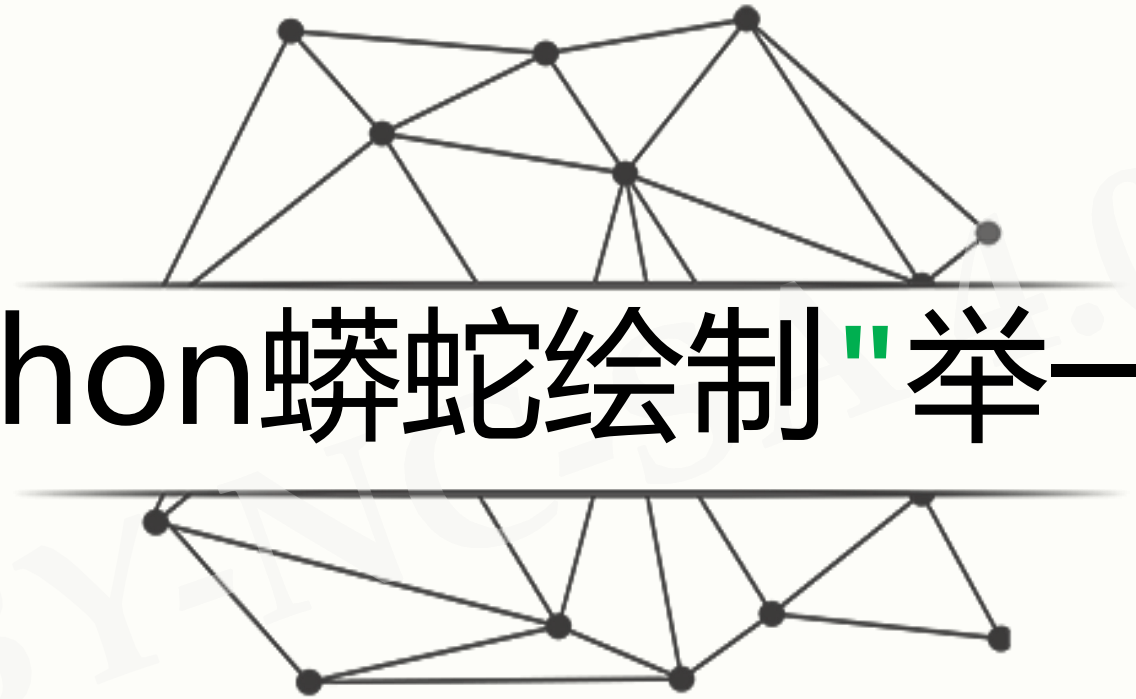

"Python蟒蛇绘制"举一反三

```
#PythonDraw.py
import turtle
turtle.setup(650, 350, 200, 200)
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turtle.done()
```

举一反三

PY01B07 无为

Python语法元素理解

- Python蟒蛇绘制共17行代码，但很多行类似
- 清楚理解这17行代码能够掌握Python基本绘图方法
- 参考框架结构、逐行分析、逐词理解

举一反三

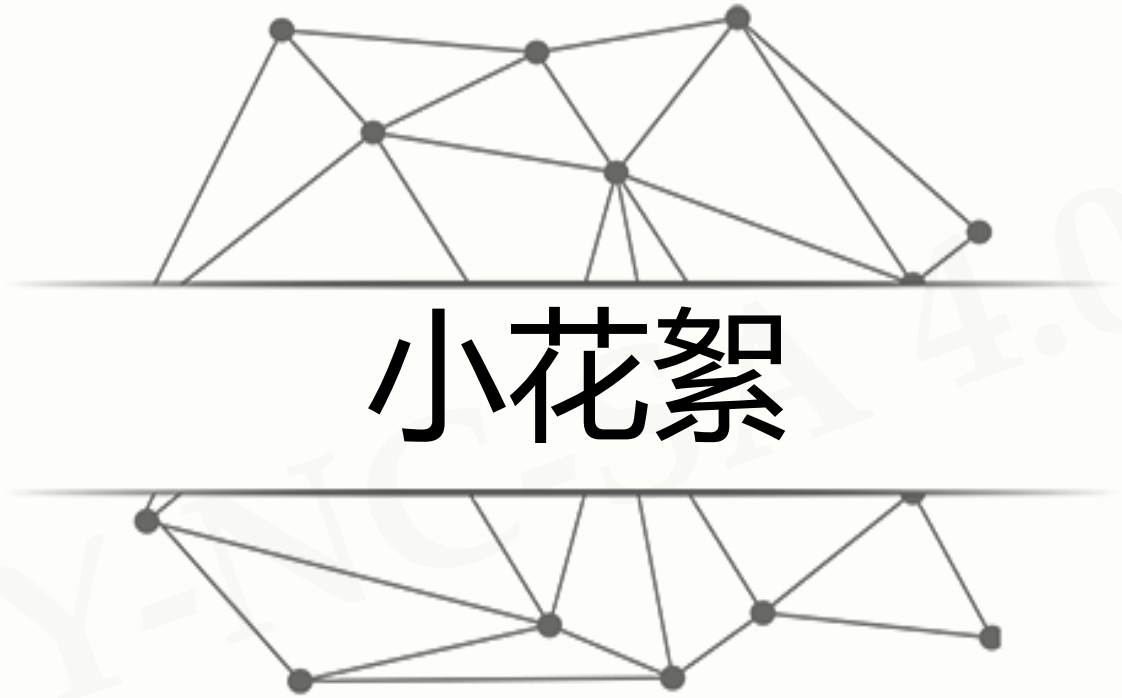
程序参数的改变

- Python蟒蛇的颜色：黑色、白色、七彩色...
- Python蟒蛇的长度：1节、3节、10节...
- Python蟒蛇的方向：向左走、斜着走...

举一反三

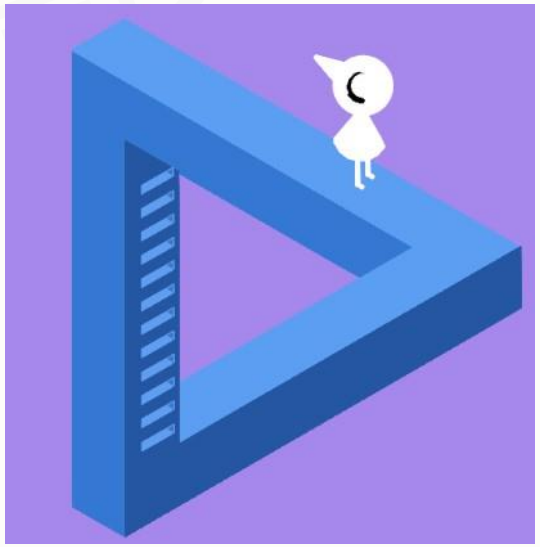
计算问题的扩展

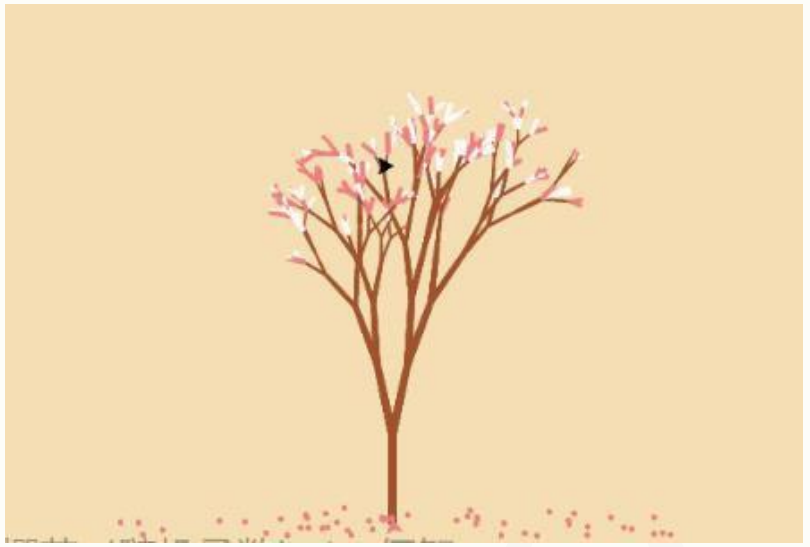
- Python蟒蛇绘制问题是各类图像绘制问题的代表
- 圆形绘制、五角星绘制、国旗绘制、机器猫绘制...
- 掌握绘制一条线的方法，就可以绘制整个世界



小花絮

小惊喜：这些图像都是Python海龟的作品





更多作品请参考：https://python123.io/index/turtle_drawing

单元小结

turtle程序语法元素分析

- **库引用: import、from…import、import…as…**
- **penup()、pendown()、pensize()、pencolor()**
- **fd()、circle()、seth()**
- **循环语句：for和in、range()函数**