Unit 5: Lists, Graphics, and Dynamic Programs

In this Unit you learned how to develop a project to play the 'Chaos Game' that generates the Sierpinski Gasket, a famous fractal.

Objectives:

- Try these additional tasks to practice what you learned in Unit 5.

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1. **Shuffle:** Write a program *or function* (which is better?) to shuffle the numbers from 1 to 25. Start with the list **list:=seq(x,x,1,25)**. Then write a routine to mix up the number in the list. Suggestion: use a For loop to swap each element in the list with another *random element*. Is this sufficient?

2. **Sort:** Write a program to *sort* the elements in a list. Start with **list:=seq(randint(1,10), 1,25)**. Do not use the built-in Sort function. One method: find the smallest element in the list and place it in the first position. Then find the smallest element in the remaining list and place it second, and so on…

3. **FizzBuzz**: Generate a list of 100 random integers, each between 1 and 25 using **list:=seq(randint(1,25), 1, 100)**. For each element:

    a. If it is divisible by 3, print "Fizz"

    b. If it is divisible by 5, print "Buzz"

    c. If it is divisible by both 3 and 5, print "FizzBuzz"

    d. If it is none of the above, print "Rats!"

Use a **Wait** statement to slow the display down a bit. You might want to display the numbers as well as the words to make sure things are working properly.