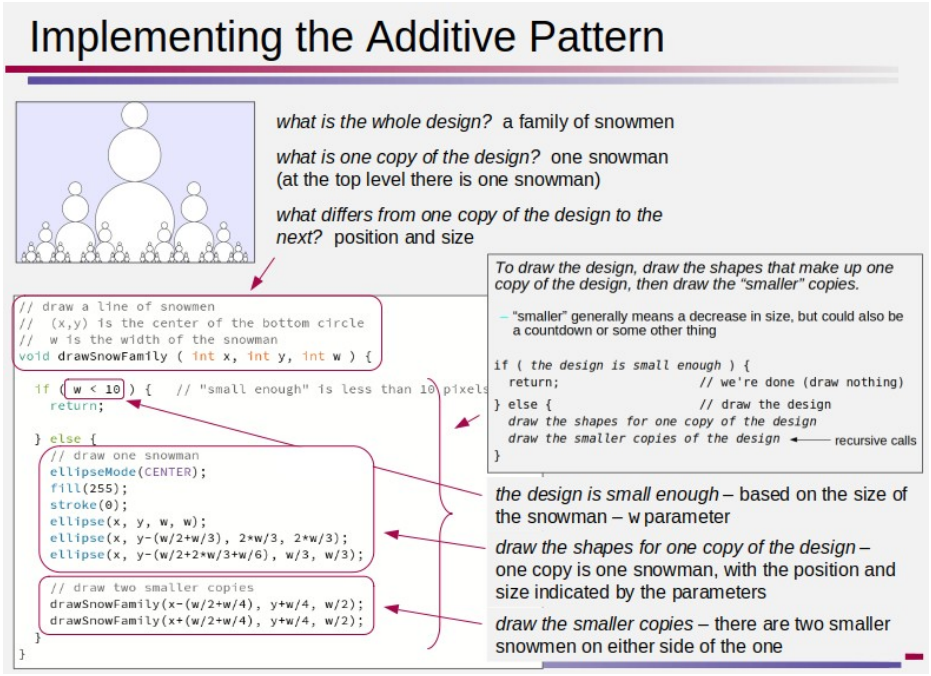
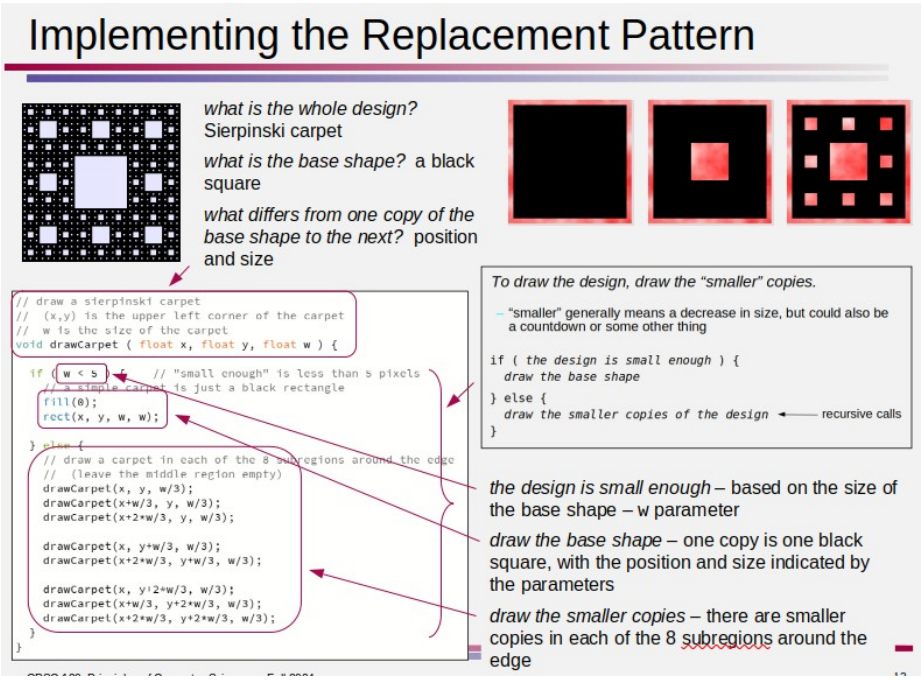
Recursive Drawing Functions

- additive pattern – each level adds more to the design
- replacement pattern – each level replaces the previous level





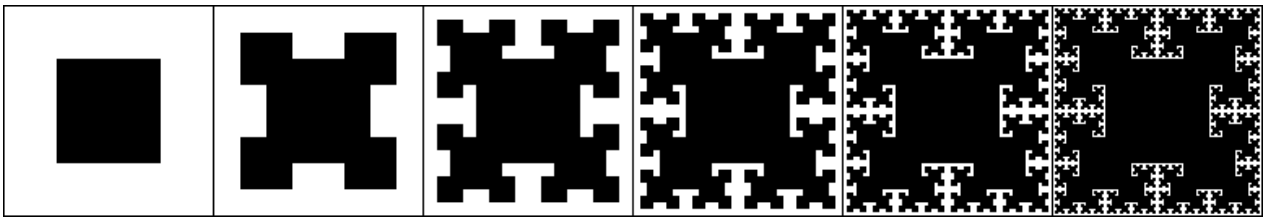
At the End of Class

Hand in whatever you have done during class, even if a sketch is incomplete.

- Make sure each sketch is named as directed and has a comment with the names of your group. Also be sure to save your sketches! (in Linux, this should be in your sketchbook **~/cs120/sketchbook**)
- Copy the entire directory for each sketch (not only the .pde file) into your handin directory (**/classes/cs120/handin/*username***). You only need to hand in one copy for the group. (If you are running Processing on your computer instead of using the Linux virtual desktop, you will need to use FileZilla to copy the sketches.)

Exercises

1. Create a new sketch called **sketch_241011a** which draws a T-square fractal.



This follows the additive pattern.

- One copy of the design is a black square.
- There are four smaller copies of the pattern, each half the size and centered at the four corners of the square.

What differs from one copy of the design to the next? The position and size of the black square.

2. Create a new sketch called **sketch_241011b** which draws a Sierpinski gasket.

This follows the replacement pattern.

- The base shape is a black triangle.
- There are three smaller copies of the pattern, each half the size and arranged in the corners of the current region.

What differs from one copy of the base shape to the next? The position and size of the triangle. Hint: you could make the parameters to the drawing function be the three points of the triangle, but a simpler representation is to imagine the rectangle that just contains the triangle and to have its position (upper left corner) and size be the parameters.

3. Modify the sketch from #1 so that the squares get progressively lighter-colored with each level.

If you have time, create new sketches **sketch_241011c** and **sketch_241011d** which draw the designs shown. (The one on the left is known as the Koch snowflake, shown after three levels.) Hint: first identify the applicable pattern (additive or replacement).