# Programming Challenges – Week One

Attempt each of the programming challenges below in Processing (or your preferred language). You will most likely encounter many important and useful ideas and tools along the way that you can use in your own projects.

**PLEASE** deviate from these instructions if you have some ideas you want to try out! Creativity is encouraged and a good way to learn new things.

## The Initial Program

* Draw a 20 x 20 square in the top left corner of a 400 x 400 window,
* Make a copy of the square to the right of the existing square, but change the colour, brightness, or transparency.
* Repeat this process until you run out of room – then begin again at the left hand side.

## The Improved Program

* Continue on the next row, starting from the left hand side.
* Repeat this until the window is filled – then begin again in the top left corner.

## Bending the program:

* Instead of starting the new row at the left hand side, make the direction of filling reverse when it hits an edge.
* Make the colour/brightness/transparency of the square depend on how close it is to an edge, or on whether the mouse button is pressed.
* Use a **for loop** to fill a row with squares each time the draw() loop is run.
* Use another **for loop** to fill the entire window each time the draw() loop is run.
* Use this to make the colour of the squares depend on the position of the mouse pointer – for example, you could make squares far away from the mouse dark, and those near to the mouse bright.

## Extra challenge

* Make a ‘TV static’ effect that becomes weaker when the mouse is pressed.
* Incorporate a background image to make the effect more convincing!