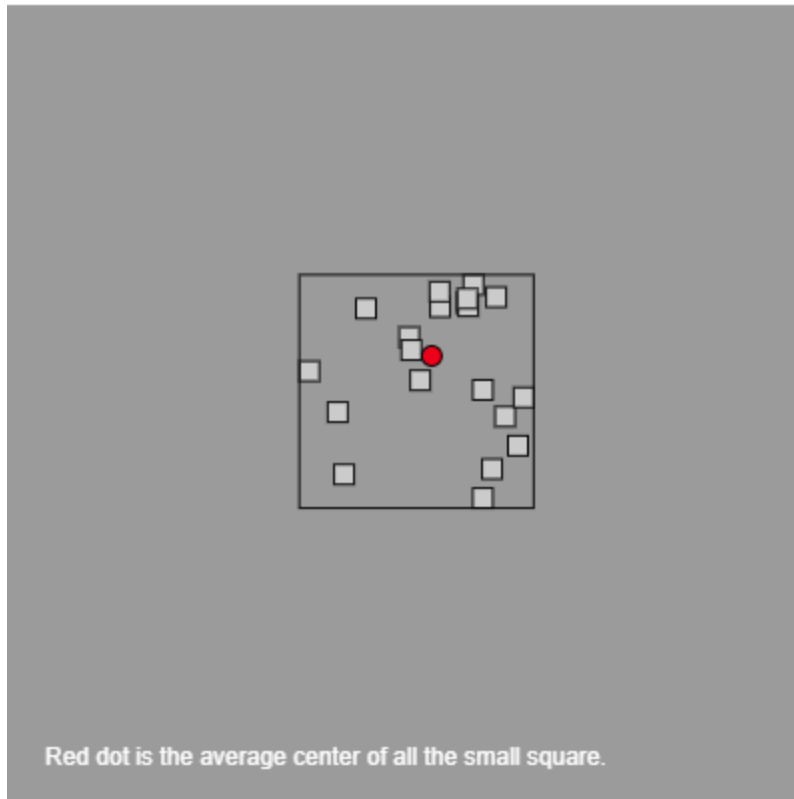


SM 1103A Week 8

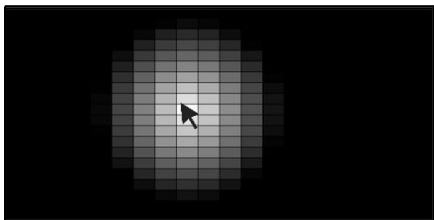
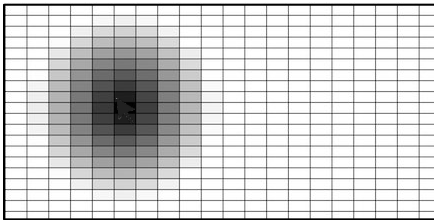
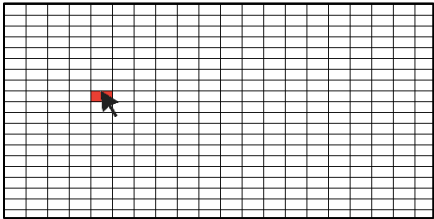
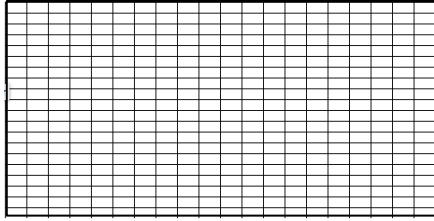
Review Exercises

Exercise 1



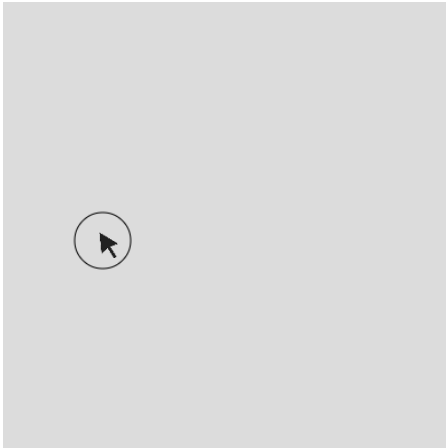
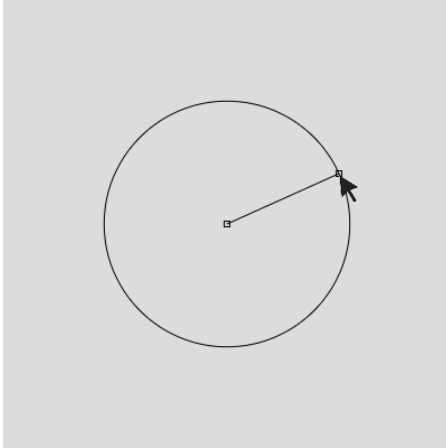
- A. Use a **for** loop to generate 20 randomly placed squares of the same size.
- B. Now create the smallest rectangle that encloses all the squares. Hint: find the **smallest** x and y for all the squares, as well as the **largest** x and y for all the squares.
- C. **Challenge:** Mark the average center position for all the squares with a red circle.

Exercise 2



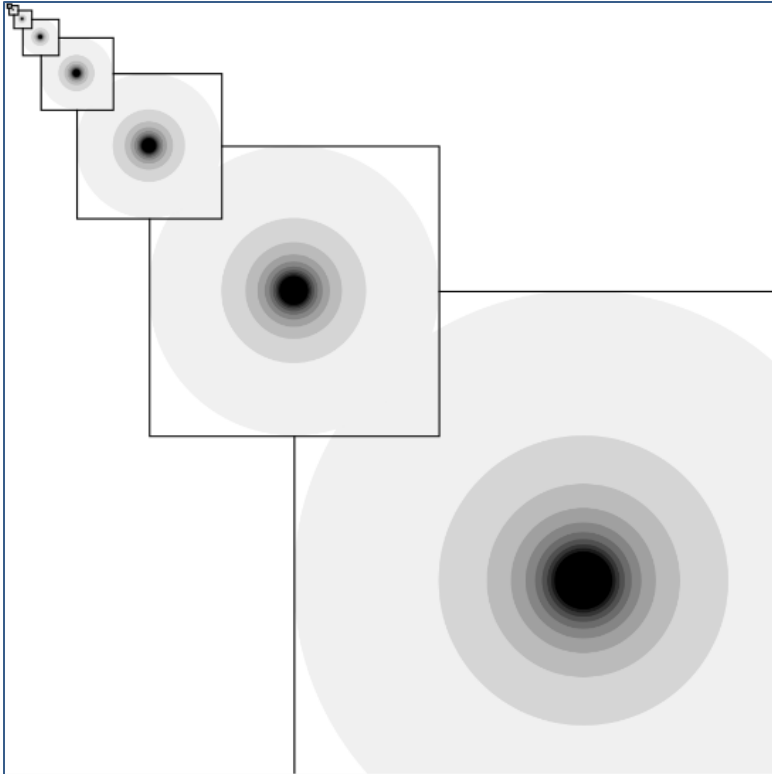
- A. Perfectly fill a 400x200 canvas with a 20x10 grid of rectangles (20 across, 10 down).
- B. Highlight the cell under the mouse pointer in **red**.
- C. Now color the pixels around the mouse as shown to the left.
- D. Now invert the colors

Exercise 3



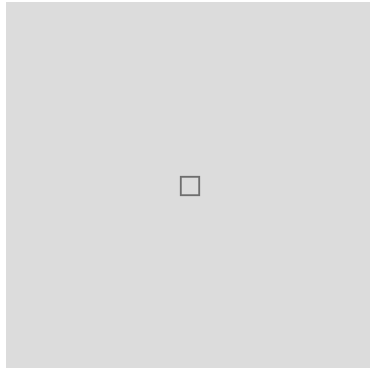
- A. Draw a circle at the center and the size of the circle is equal to the distance between center of canvas to the **location** of the mouse.
- B. Draw a circle with a size of 50 pixels and the **center** of the circle moves with your mouse.
- C. Combines the previous two code so that:
 - 1. when the (left) mouse button is **NOT** pressed, the circle will move with the mouse.
 - 2. When the (left) mouse button IS pressed and dragged, the circle will enlarge to the amount of the distance dragged.
 - 3. After the mouse button is released, the **enlarged** circle will again move with the mouse.

Exercise 4

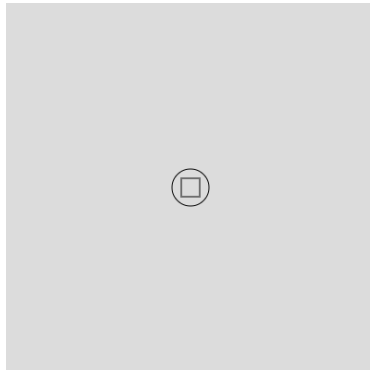


- A. Use 2 **for** loops (each of size 10) to create the image on the left.
- **Hint:** Use one for loop to do the rectangles first. Once, they are correct, then add the circles in a second (nested) loop.

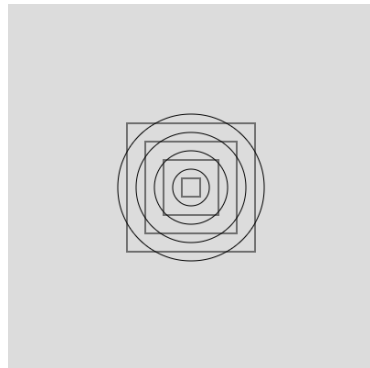
Exercise 5



Start.



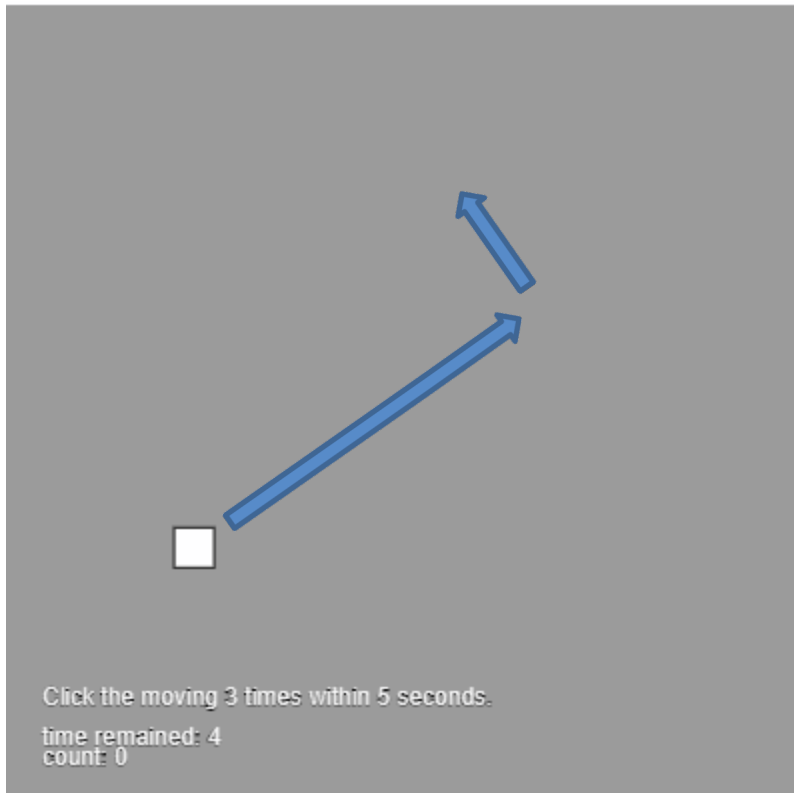
1 second later.



8 second later.

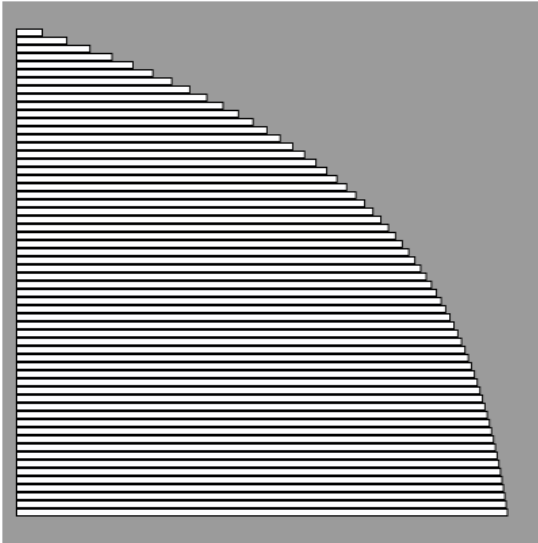
- Draw alternative shapes of **rectangle** and **circle** on **1 second** timer:
 - It starts with a rectangle.
 - 1 second later. It draws a larger circle.
 - Another second later. It then draw a even larger rectangle.
 - When 10 rectangles and 10 circles have drawn, reset everything and start all over again.

Exercise 6

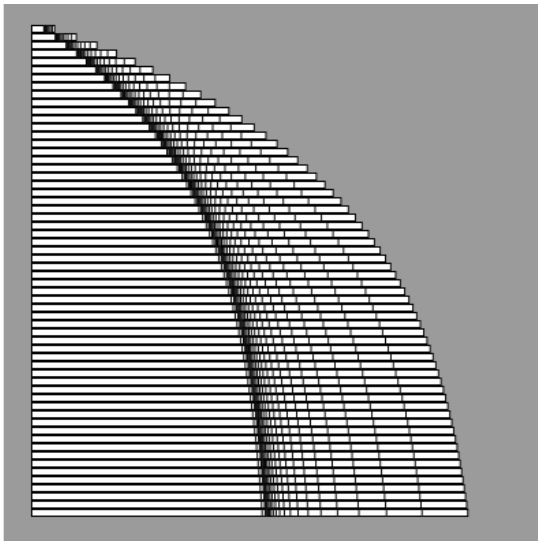


- A. Game: the small white square moves randomly across the canvas (use `lerp()` to make the motion smooth). The goal: click it 3 times within 5 seconds.
- B. If you succeed, you continue, but now the small square moves faster.
- C. During each turn, display the number of clicks needed, and the time remaining.

Exercise 7



- Create the pattern shown in the top picture on the left. **Hint:** Use a **for** loop and **lerp()**.



- Now create a pattern similar to the bottom picture. **Hint:** Use **nested for** loops.