

Lab 10

Goals

The goals for this lab are:

1. Read and understand a p5.js code example
2. See an example of javascript code that uses objects to define data and functionality
3. Practice using and modifying a particle system

Modality

This is an individual assignment, but you are encouraged to talk with one another!

Details

Tasks: This lab involves playing with existing particle system code. In general, particle systems are used to create "fuzzy" effects with many small elements that respond to forces (fire, fireworks, water, dust, etc.). The base code only draws one particle system, roughly simulating a firework. The base code, defines a particle and a particle system (composed of many particles). The particles are moved based on forces (a starting initial velocity and a constant gravity force, acceleration). This code is mostly intended to give you an example of 'objects' (data and functionally defined together). Both particle systems and objects are more complex topics but this code is provided just for you to play with. Your goal is to improve the code to make it more like real fireworks.

To complete this assignment, please follow these steps

- modify the particle to include variables to include a representation of the red and green (right now it only stores blue) - modify the code so that each particle is drawn mostly the same color (but with variance)
- add code so that the fire work explodes where the mouse clicks
- modify the code to support more then one firework (so that now where-ever the user clicks a new firework is drawn)
- add code in order to have the shading/transparency and or shape of the particle change over time or depending on velocity or lifetime

I encourage you to continue to play with this code and try to get it to look or behave significantly differently.

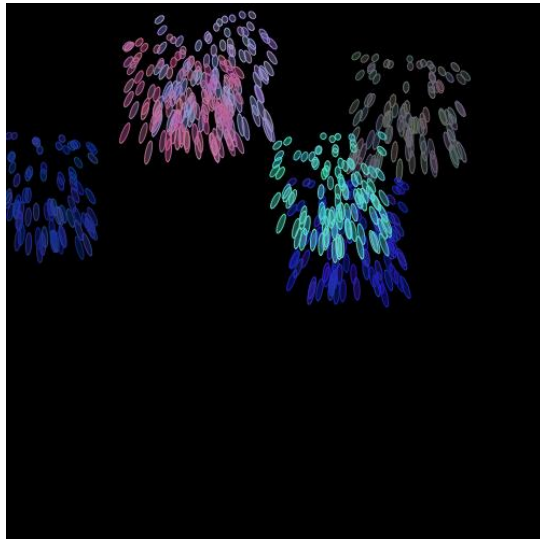


Figure 1: Example of what your final code might look like when complete.

Demo:

In order to receive credit for this lab, you must demo your sketch to your instructor or TA. For every lab, your score will be broken down 75% for meeting the technical requirements and 25% for aesthetics. Be sure to add your sketch to your webpage!

- 30 points: each firework's coloring varies, but is consistent for each individual firework
- 45 points: fireworks explore where the mouse is clicked (location and multiple)
- 25 points: sketch is interesting and marvelous

Resources:

Base code and link about particle systems. To read more about the real mathematics behind this kind of physically based modeling, please consider looking at the excellent Siggraph course notes from Baraff and Witkin. <https://www.cs.cmu.edu/~baraff/sigcourse/>.

https://en.wikipedia.org/wiki/Particle_system
and
<https://www.cs.cmu.edu/~baraff/sigcourse/>