**sketch05.js**

// Seeking the target (mouse position)

// attempts to build in random size and its effect

// on acceleration based on size = mass.

// al 12 November 2016

var gThingWorld = [];

var gPop = 100;

function setup() {

createCanvas(1000,600);

background("#fefefe")

for (var i = 0; i < gPop; i++) {

gThingWorld[i] = new Thing;

}

}

function draw() {

background("#fefefe");

for (var i = 0; i < gThingWorld.length; i++) {

gThingWorld[i].update();

gThingWorld[i].render();

}

}

function Thing() { // thing constructor

this.d = random(5,30);

//this.qFactor = p5.Vector.random2D();

//print(this.qFactor);

this.force = 0.1/this.d;

//print(this.d);

this.maxSpeed = random(1,10);

// euclidean velocity - start in centre of canvas with a random velocity

this.pos = createVector(20,20);

this.vel = createVector(0,0);

this.acc = createVector(0,0);

this.update = function() {

// calculate vector to mouse

this.seekTarget();

this.acc.add(this.qFactor);

if (this.acc.mag()<this.d\*0.10) {

this.acc.mult(0);

this.vel.mult(0);

}

this.acc.mult(1/(this.d));

this.vel.add(this.acc);

this.vel.normalize();

this.vel.mult(this.maxSpeed);

this.pos.add(this.vel);

} // update

this.render = function() {

noStroke();

fill(255,0,0,50);

ellipse(this.pos.x,this.pos.y,this.d);

} // show

this.seekTarget = function() {

this.mouseNow = createVector(mouseX,mouseY);

this.acc = this.mouseNow.sub(this.pos);

}

} // Thing