# Computer Science “Matter.js Collage/Playground”

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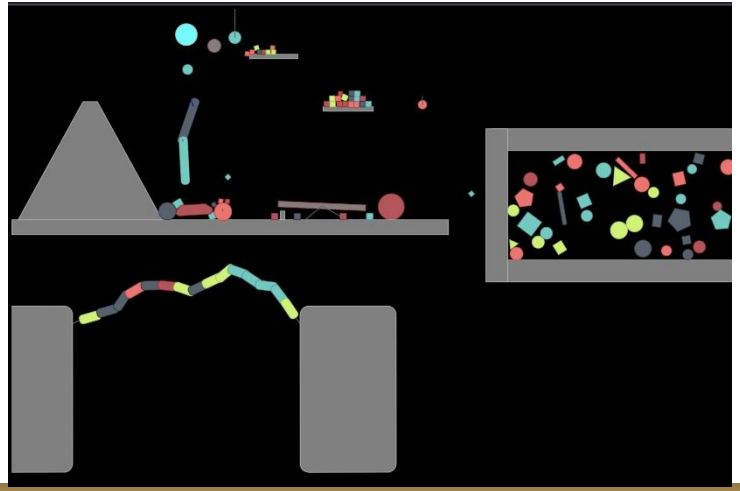
# Codepen: Matter.js Collage project

The main premise of this project is a collection of all the matter.js builds and commands I learned throughout this semester and combined it into one project. It is also one of my projects where it has the most views because the guy who created the matter.js engine(Liabru)added it to one of his collections on codepen.



```
    Render = Matter.Render,
    Runner = Matter.Runner,
    Composites = Matter.Composites,
    Bodies = Matter.Bodies,
    World = Matter.World,
    Events = Matter.Events,
    Body = Matter.Body,
    Mouse = Matter.Mouse,
    MouseConstraint = Matter.MouseConstraint,
    Constraint = Matter.Constraint,
    Composite = Matter.Composite,
    Common = Matter.Common,
    Vector = Matter.Vector,
    Constraint = Matter.Constraint,
    Bounds = Matter.Bounds;


Events.on(engine, 'afterUpdate', function(){
  if(firing && Math.abs(projectile.position.x-940) < 5 &&
Math.abs(projectile.position.y-200) < 10) {
    projectile = Bodies.circle(940, 200, 10,{restitution:
1.4})
    World.add(engine.world, projectile)
    sling.bodyB = projectile
    firing = false
  }
})


World.add(engine.world, [ground, mountain, wreckit, floor1,
stack, floor2, pyramid, car, planet, planet2, pendulum,
```

```
var render = Render.create({
  element: document.body,
  engine: engine,
  options: {
    wireframes: false,
    width: 2100,
    height: 1200,
    showAngleIndicator: false,
    hasBounds: true,
    background: 'black'
  }
});

var mouse = Mouse.create(render.canvas),
    mouseConstraint = MouseConstraint.create(engine,{
      mouse: mouse,
var runner = Runner.create();
Runner.run(runner, engine)

let ground = Bodies.rectangle(500, 500, 999, 34, {isStatic:
true, render: {fillStyle: 'gray'}});
let mountain = Bodies.trapezoid(180, 385, 330, 270, .9,
{isStatic: true, render: {fillStyle: 'gray'}});
let wreckit = Composites.newtonsCradle(511, 1, 1, 14, 65,
230);
let floor1 = Bodies.rectangle(600, 110, 110, 10, {isStatic:
true, render: {fillStyle: 'gray'}});
let stack = Composites.stack(545, 40, 2, 7, 0, 0,
function(x, y){
  return Bodies.rectangle(x, y, 10, 10)
});
let floor2 = Bodies.rectangle(770, 230, 115, 10, {isStatic:
```

# Learn code

Step 1. Installing https://cdnjs.cloudflare.com/ajax/libs/matter-js/0.10.0/matter.min.js into JS as a library so it can run the matter.js engine

Step 2. Create and import:

“Matter.Engine”: The matter.engine is a controller where it helps update the simulation of the world

“Matter.Render”: The matter.render is a simple canvas where it helps draw and render visuals of the simulation

“Matter.Runner”: The matter.runner is a module where it creates a game loop

“Matter.Mouse”: The matter.mouse is a module where it can manipulate mouse inputs

“Matter.MouseConstraint”: The matter.mouseconstraint is a module where it allows the player to interact with objects

“Matter.Bodies”: The matter.bodies is a module where it creates objects like circles, rectangles, and polygons

“Matter.Composites”: The matter.composites is a module where it adds objects like chains, cars, stacks, pendulums, and etc.

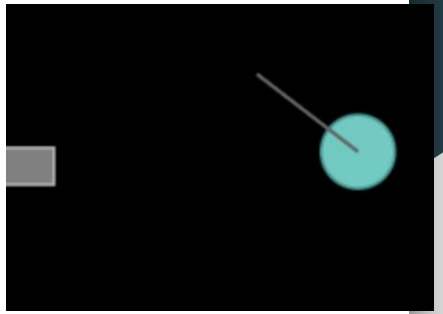
“Matter.Constraint””: The matter.constraint is a module where it creates a fixed distance between an object and a point

“Matter.World”: The matter.world is a module where you just add all the composites and objects into an array

Step 3: You have been able to completely learn the basics of the matter.js engine!

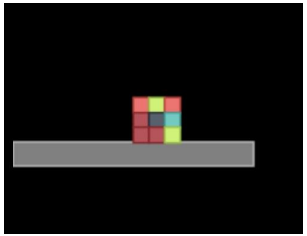
```
  stiffness: 0.05
});

// create ground

var ground = Bodies.rectangle(100, 150, 200, 20, {isStatic:
true, render: {fillStyle: 'gray'}});

// create stack

var stack = Composites.stack(100, 100, 3, 3, 0, 0,
function(x, y,){
  return Bodies.rectangle(x, y, 13, 13)
})

World.add(engine.world, [ball, constraint, ground, stack])

// mouse control
```

```
const Engine = Matter.Engine,
      Render = Matter.Render,
      Runner = Matter.Runner,
      Mouse = Matter.Mouse,
      MouseConstraint = Matter.MouseConstraint,
      Bodies = Matter.Bodies,
      Composites = Matter.Composites,
      Constraint = Matter.Constraint,
      World = Matter.World;

var engine = Engine.create();
var world = engine.world;

var render = Render.create({
  element: document.body,
  engine: engine,
  options: {
    width: 800,
```



```
});

Render.run(render);

var runner = Runner.create();
Runner.run(runner, engine);

// create ball and constraint

var ball = Bodies.circle(310, 100, 20);

var constraint = Constraint.create({
  pointA: {x: 310, y: 100},
  bodyB: ball,
  stiffness: 0.05
});

// create ground
```

```
// mouse control

var mouse = Mouse.create(render.canvas),
    mouseConstraint = MouseConstraint.create(engine, {
      mouse: mouse,
      constraint: {
        stiffness: 0.2,
        render: {
          visible: false
        }
      }
    });
World.add(world, mouseConstraint)
```



# Sources

https://brm.io/matter-js/docs/

https://docs.google.com/document/d/1dQWR5pUPidX5PPKcphDJ2VgtGU7Ip7DKzxTrpCjA4Vs/edit


# THE END