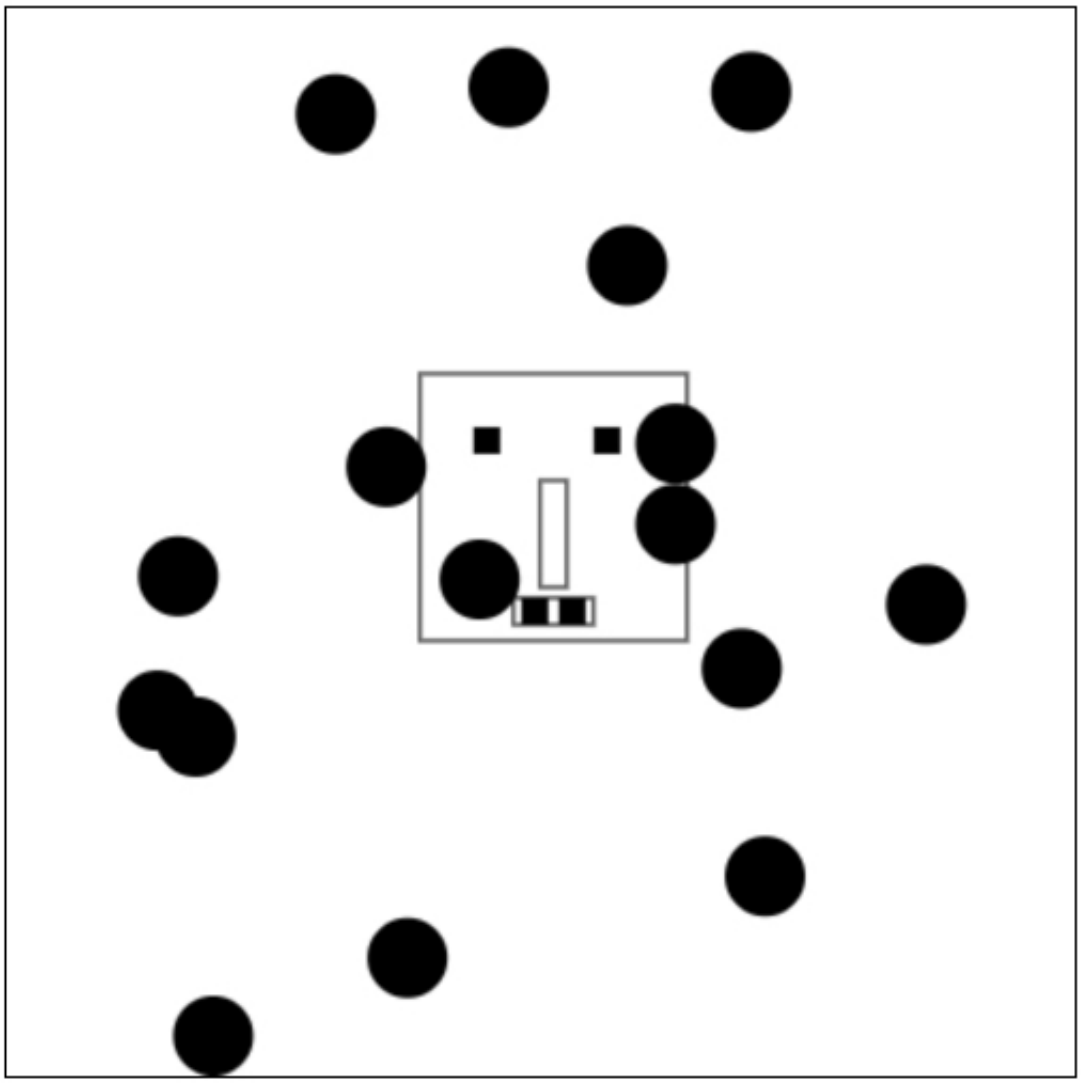
Let's add parts of the previous example to the game framework

This time, we have just extracted the parts of the source code that we used to create the balls, and included them in our game framework. We have also used time-based animation. The distance that the player and each ball should move is computed and may vary between animation frames, depending on the delta of time elapsed since the last frame.

Online example at JSBin.

Try to move the monster with arrow keys and use the mouse button while moving to change the monster's speed. Look at the source code and change the parameters during the creation of the balls: number, speed, radius, etc. Also try changing the monster's default speed. See the results.



FPS: 60

For this version, we copied and pasted some code from the previous example and we also modified the mainLoop to make it more readable. In a next lesson, we will split the game engine into different files and clean the whole code to make it more manageable. But for the moment, jsbin.com is a good playground to try and test things...

The new mainLoop :

```
var mainLoop = function(time){
  //main function, called each frame
  measureFPS(time);
  // number of ms since last frame draw
  delta = timer(time);
  // Clear the canvas
```

```
    clearCanvas();

    // Draw the monster
    drawMyMonster(monster.x, monster.y);
    // Check inputs and move the monster
    updateMonsterPosition(delta);
    // Update and draw balls
    updateBalls(delta);
    // Call the animation loop every 1/60th of second
    requestAnimationFrame(mainLoop);
  };
```

As you can see, we draw the player/monster, we update its position, and we call an `updateBalls` function that will do the same thing, this time for the balls: draw and update their position.

```
function updateMonsterPosition(delta) {
  monster.speedX = monster.speedY = 0;
  // check inputStates
  if (inputStates.left) {
    monster.speedX = -monster.speed;
  }
  if (inputStates.up) {
    monster.speedY = -monster.speed;
  }
  ...
  // Compute the incX and incY in pixels depending
  // on the time elapsed since last redraw
  monster.x += calcDistanceToMove(delta,monster.speedX);
  monster.y += calcDistanceToMove(delta,monster.speedY);
}
function updateBalls(delta) {
  // for each ball in the array
  for(var i=0; i < ballArray.length; i++) {
   var ball = ballArray[i];
   // 1) move the ball
   ball.move();
   // 2) test if the ball collides with a wall
```

```
        testCollisionWithWalls(ball);
        // 3) draw the ball
30.     ball.draw();
      }
    }
```

Now, in order to turn this into a game, we need to create some interactions between the player (the monster) and the obstacles/enemies (balls, walls)... It's time to take a look at collision detection.