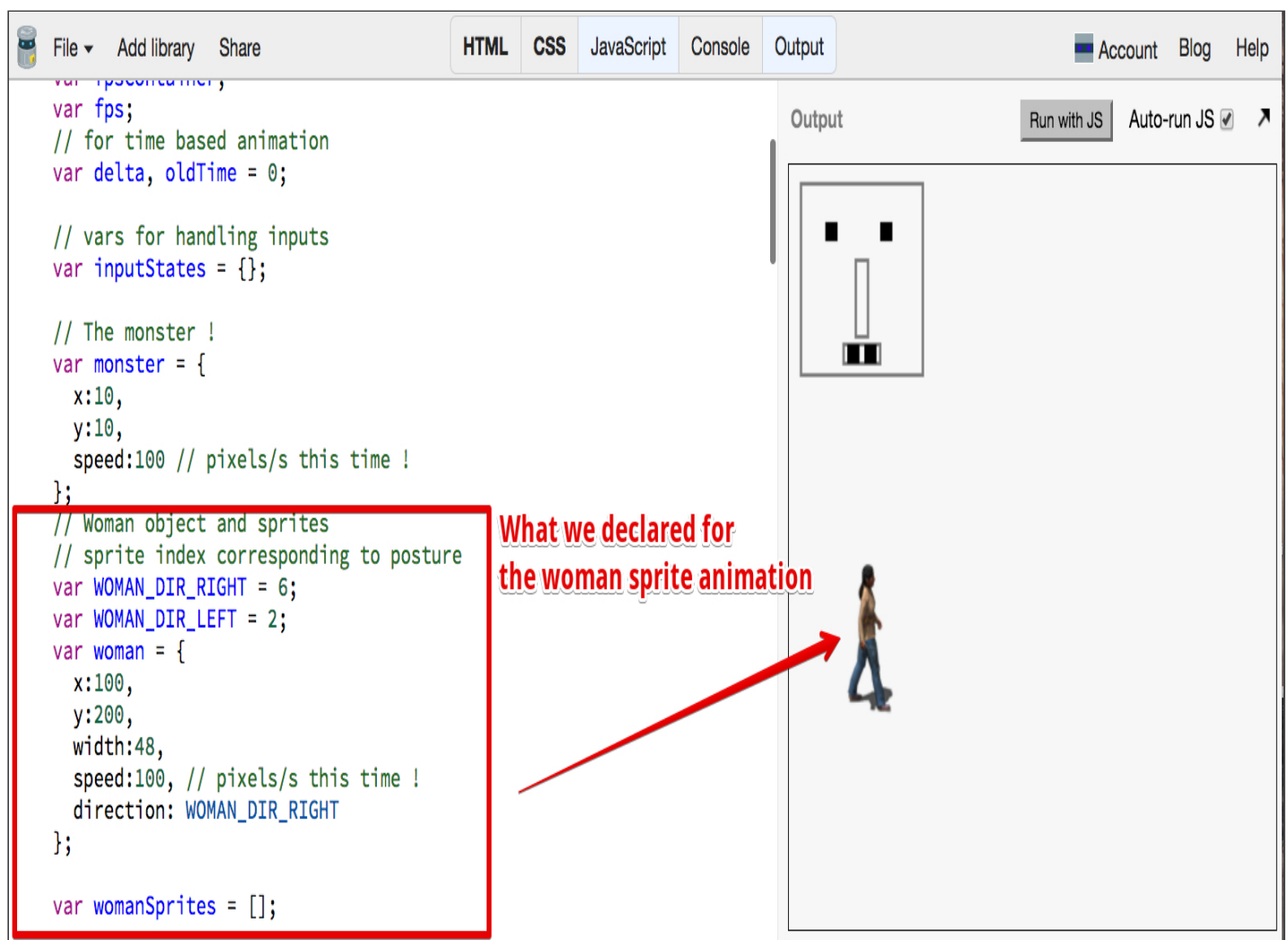# Adding sprites to the game framework

Starting with the animated woman example, we took the sprite utility functions and some predefined values, such as the sprite sheet URL, the size of the sprites, the number of postures, etc., and added it to one of the examples that used the game framework (the last one from the time based animation lesson (to keep things simple, we did not used the ones with gamepad, etc)).

First, try this example at JsBin

HOW TO ADD THIS TO THE GAME FRAMEWORK...

1. We declared a `woman` object, similar to the `monster` object, with `x`, `y`, `speed`, `width` properties. We added a `direction` property that corresponds to the sprite index corresponding to a posture: direction = 2 corresponds to the sprite animation for the woman moving to the left, direction = 6 corresponds to the sprite animation of the woman moving to the right...

2. We added the `Sprite` and `SpriteImage` utility functions to the game framework,

3. We wrote a `loadAssets(callback)` function that: a) loads the sprite sheet, b) extracts all the woman sprites and builds the `womanSprites` array, and c) calls the `callback` function passed as a parameter once finished,

4. We called the `loadAssets` function from the game framework `start` function, and we start the animation loop only when the `loadAssets` function has completed loading and extracting the sprites. In a real game in the `loadAssets` function you would also load the sounds, and perhaps other sprite sheets or resources etc. In this function you would probably use the `BufferLoader` utility discussed during week 1, for loading multiple resources asynchronously.

Source code extract:

```
// Inits
window.onload = function init() {
  var game = new GF();
game.start();
};

// GAME FRAMEWORK STARTS HERE
var GF = function(){
  ...
    // Woman object and sprites
    // sprite index corresponding to posture
    var WOMAN_DIR_RIGHT = 6;
    var WOMAN_DIR_LEFT = 2;
    var woman = {
       x:100,
       y:200,
       width:48,
       speed:100, // pixels/s this time!
```

```
19.          direction: WOMAN_DIR_RIGHT
         };

      var womanSprites = [];

      var mainLoop = function(time){
        ...
         // Draw a woman moving left and right
        womanSprites[woman.direction].draw(ctx,woman.x, woman.y);
        updateWomanPosition(delta);
29.        ...
      };
      function updateWomanPosition(delta) {
        // check collision on left or right

        if(((woman.x+woman.width) > canvas.width)|| (woman.x < 0)) {
           // inverse speed
           woman.speed = -woman.speed;
        }
38.
        // change sprite direction
        if(woman.speed >= 0) {
           woman.direction = WOMAN_DIR_RIGHT;
        } else {
           woman.direction = WOMAN_DIR_LEFT;
        }
        woman.x += calcDistanceToMove(delta,woman.speed);
      }

48.   /*----------------------------------------*/
      /* SPRITE UTILITY FUNCTIONS              */
      /*----------------------------------------*/
      function SpriteImage(img, x, y, width,height) {
        ...
        this.draw = function(ctx, xPos, yPos,scale) {...};
      }

      function Sprite() {
        ...
58.      this.extractSprites = function(...){...};
```

```javascript
        this.drawStopped = function(ctx, x, y){...};
        this.draw = function(ctx, x, y) {...};
        this.setNbImagesPerSecond = function(nb){...};
    }
  /*----------------------------------------*/
   /* EN OF SPRITE UTILITY FUNCTIONS        */
  /*----------------------------------------*/
 var loadAssets = function(callback) {
    var SPRITESHEET_URL ="http://i.imgur.com/3VesWqx.png";
    var SPRITE_WIDTH = 48;
    var SPRITE_HEIGHT = 92;
    var NB_POSTURES=8;
    var NB_FRAMES_PER_POSTURE = 13;
    // load the spritesheet
    var spritesheet = new Image();
    spritesheet.src = SPRITESHEET_URL;
    // Called when the spritesheet has been loaded
    spritesheet.onload = function() {
      // Create woman sprites
      for(var i = 0; i < NB_POSTURES; i++) {
        var sprite = new Sprite();
        sprite.extractSprites(spritesheet,NB_POSTURES, (i+1),
                              NB_FRAMES_PER_POSTURE,
                              SPRITE_WIDTH,SPRITE_HEIGHT);
        sprite.setNbImagesPerSecond(20);
        womanSprites[i] = sprite;
      }
      // call the callback function passed as a parameter,
      // we're done with loading assets and building the
sprites
      callback();
    };
  };
  var start = function(){
    ...
    // Load sounds and images, then when this is done, start
the mainLoop
    loadAssets(function() {
        // We enter here only when all assets have been loaded
        requestAnimationFrame(mainLoop);
```

Line markers: 68. / 78. / 87. / 97.

```
        });
    };
    ...
};
```

106.