

Coder Dojo

2012-02-11

HTML5 - Javascript
Sprite Animation

Lost and found

We have a number of items in lost and found

Pens/Pencils/Paper not collected for a month will be used for the idea jar.

Technology not collected for a month will be used in projects. Worryingly, there is a pair of uncollected glasses for almost a month now...

Interesting stuff this week

Paul Bakaus of Zynga Germany is converting their existing games to HTML5.

"I believe that the tech is ready to build those games. I think that the tech is not yet ready to build great 3D games since it's just about browser share penetration. But for 2D games and isometric games, it's the right time."

Paul Bakaus



And above all...

be cool

Thank you to ..

Val Head

@VLH from whom I stole so many ideas

<http://creativejs.com/2012/01/day-11-sprite-sheets/>
and

Erica Gorman (wave please)
for putting together the artwork

To begin... get the sprite sheet

<http://GitHub.com/WillKnott>

Its in the repository

[CoderDojo-HTML5-CanvasSpriteAnimation](#) take the [cdsprite.png](#) file

Fire up your editors...

Apple - Text Wrangler

Windows - Notepad ++

Linux - Komodo Edit

There is a reason... file
handling

Lets start with a standard template

```
<!doctype html>
<html>
  <head>
    <meta charset="utf-8">
  </head>
  <body>
    <script src=sani.js>
    </script>
  </body>
</html>
```


And...

move the downloaded image to the same place as the html file

sami.js init part 1

```
// screen size variables
```

```
var SCREEN_WIDTH = window.innerWidth,  
    SCREEN_HEIGHT = window.innerHeight;
```

```
var canvas = document.createElement('canvas');  
var c = canvas.getContext('2d');
```

```
canvas.width = SCREEN_WIDTH;  
canvas.height = SCREEN_HEIGHT;
```

```
// Add our drawing canvas  
document.body.appendChild(canvas);
```

part 2

```
//load the image  
image = new Image();  
image.src = "cdsprite.png";  
  
c.drawImage(image,0,0,250,250,0,0,250,250);
```

To explain...

```
var SCREEN_WIDTH = window.innerWidth,  
    SCREEN_HEIGHT = window.innerHeight;
```

Figure out the size of the screen

To explain

```
var canvas = document.createElement('canvas');  
var c = canvas.getContext('2d');
```

Set up the canvas on which we will draw our images

To explain

```
canvas.width = SCREEN_WIDTH;  
canvas.height = SCREEN_HEIGHT;
```

Set the canvas to be the size of the screen

To explain

```
// Add our drawing canvas  
document.body.appendChild(canvas);
```

And put the canvas on the screen

To explain

```
//load the image  
image = new Image();  
image.src = "cdsprite.png";
```

Create an image object
Explain Objects Will...

And define the src (source) part of the image object to be our
sprite sheet

And the nasty one

```
c.drawImage(image,0,0,250,250,0,0,250,250);
```

Three parts.

- 1) The Sprite Sheet image
- 2) The part of the sheet we are copying from
- 3) The location on the screen we are pasting to

Of course, these numbers will have to change...

And if its working

You should be just displaying an image...

So lets change a few things...

```
// screen size variables
var SCREEN_WIDTH = window.innerWidth,
    SCREEN_HEIGHT = window.innerHeight;
var canvas = document.createElement('canvas');
var c = canvas.getContext('2d');
```

```
canvas.width = SCREEN_WIDTH;
canvas.height = SCREEN_HEIGHT;
```

```
var initX = 0;
var initY = 0;
var xpos = initX;
var ypos = initY;
var index=0;
var numFrames = 30;
var frameSizeX= 253;
var frameSizeY= 280;
```

no more numbers (except 0)

```
// Add our drawing canvas  
document.body.appendChild(canvas);
```

```
//load the image  
image = new Image();  
image.src = "cdsprite.png";
```

```
    c.drawImage(image,  
xpos,ypos,frameSizeX,frameSizeY,  
0,0,frameSizeX, frameSizeY);
```

So now..

We are displaying the same image, but we are using variables to do it.

Variables change....

make things move 1

```
// Add our drawing canvas  
document.body.appendChild(canvas);
```

```
//load the image  
image = new Image();  
image.src = "cdsprite.png";
```

```
image.onload = function() {  
  //The animation loop. Call loop so as  
  //to complete the animation once a second  
  setInterval(loop, 1000 / numFrames);  
}
```

/This is the same timer that we used for the slideshow last time

And make a loop

```
function loop() {  
    //clear the canvas!  
    c.clearRect(0,0, SCREEN_HEIGHT,  
SCREEN_WIDTH);  
    c.drawImage(image,xpos,ypos,frameSizeX,frameSizeY,0,0,frameSizeX,  
frameSizeY);  
    xpos += frameSizeX;  
    //increase the index so you know which  
frame of the animation comes next  
    index += 1;  
}
```

Why clear the canvas?

Because sometimes...
you can't overwrite cleanly

So clean the sheet first.

And now...

The animation will run once...

So when you reach the end

Start again...

```
function loop() {  
    c.clearRect(0,0, SCREEN_HEIGHT,SCREEN_WIDTH);  
    c.drawImage(image,xpos,ypos,frameSizeX,frameSizeY,0,0,frameSizeX, frameSizeY);  
    xpos += frameSizeX;  
    index += 1;  
  
    if (index >= numFrames) {  
        xpos = initX;  
        ypos = initY;  
        index=0;  
    }  
}
```


So now...

You have an animation loop

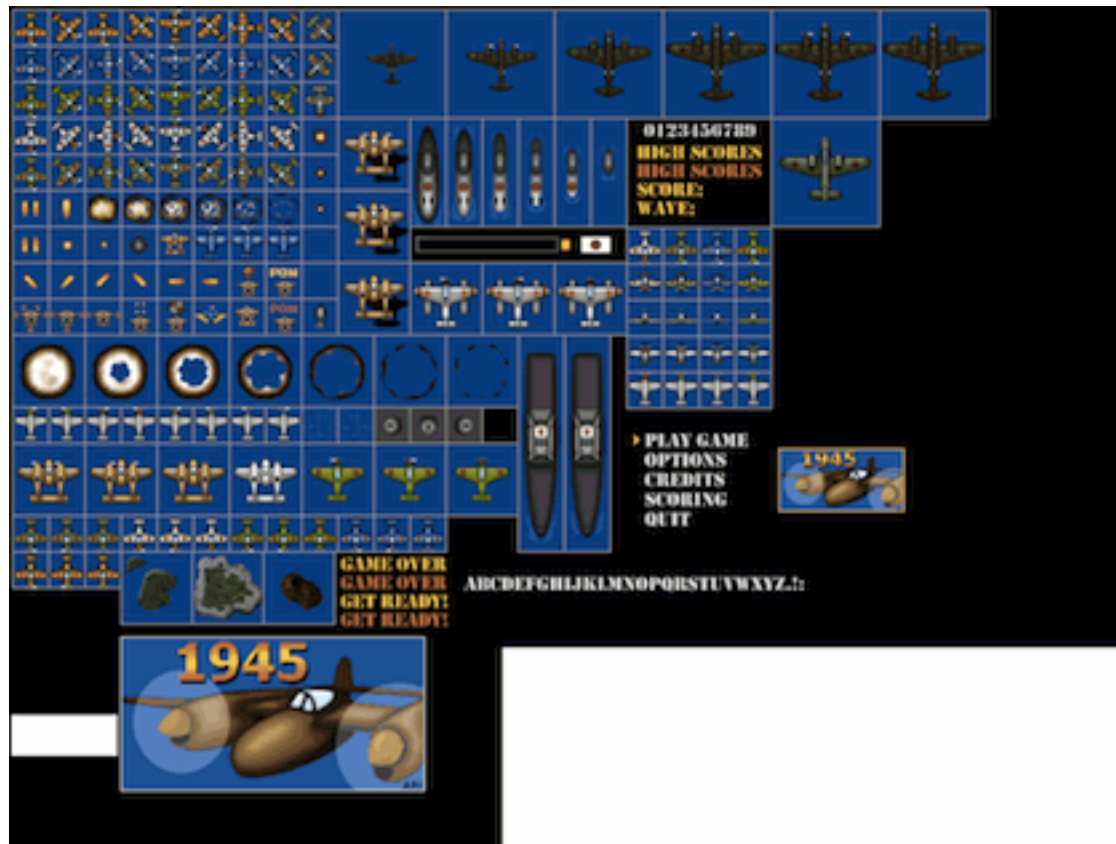
Why is this important?

<http://www.widgetworx.com/>

Free to use sprite sheets for use in
games

Now you know..

How to animate more



To do

Make your own sheets

Take the WidgetWorx ones

Make your own animations...

You don't have to ask for permission

<http://www.gamesbrief.com/2012/02/time-to-stop-asking-for-permission/>

You don't need to ask for permission to make a game.

You don't need to ask for a publisher anymore

You don't need to make a huge €60 game

Here you've learned

How to make a single building block

You can put those block together according to someone else's instructions



Or you can take those blocks

And do something else



Above all

Go be cool