

HTML5 Canvas Fundamentals

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Contact Info



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Related Pluralsight Courses

- **Building ASP.NET MVC Apps with EF Code First, HTML5, and jQuery**
- **jQuery Fundamentals**
- **Structuring JavaScript Code**

Prereqs

- It's recommended that you understand the following technologies to get the most out of this course:
 - HTML
 - JavaScript

Getting Started with the HTML5 Canvas

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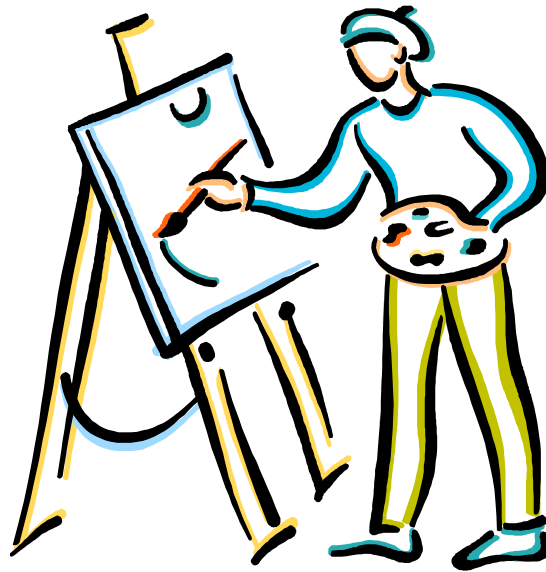
Agenda

- **HTML5 Canvas Usage Scenarios**
- **HTML5 Canvas Fundamentals**
- **Hello World Example**
- **Overview of the Canvas API**

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Canvas = Drawing



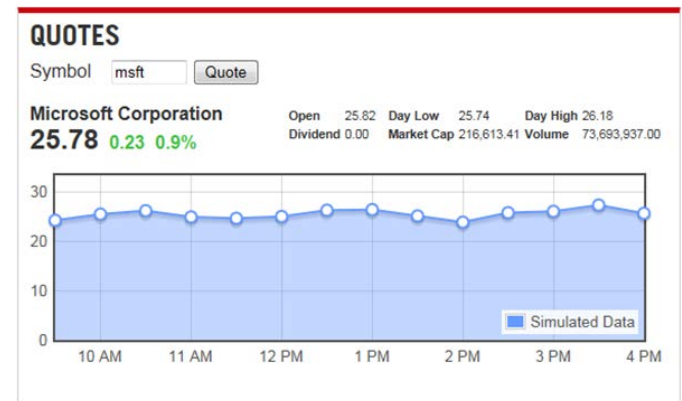
Canvas Usage Scenarios

Multimedia Apps

Games



Charting



Supported Browsers



Safari



Chrome



Firefox



Opera



Internet
Explorer

Detecting Canvas Support

- **Modernizr can be used to detect canvas support**
 - Single script
 - Uses feature detection rather than browser sniffing
 - <http://modernizr.com>

```
if (Modernizr.canvas) {  
    //canvas code  
}  
else {  
    //fallback code  
}
```

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Canvas Features

- **Key canvas features:**

- Provides a drawing surface
- Pixel-based rendering
- Draw shapes, lines, gradients, and images
- Built-in support for transformations
- No built-in support for animations



```
<canvas id="myCanvas" width="400" height="200" />
```

Steps to use the Canvas

1. Define a `<canvas>` element
2. Locate the `<canvas>` ID
3. Access the 2d context
4. Draw shapes



Step 1: Define a <canvas> Element

```
<canvas id="myCanvas" width="400" height="200">  
    Canvas not supported!  
</canvas>
```

Step 2: Locate the <canvas> ID

```
<script>  
    window.onload = function () {  
        var canvas = document.getElementById('myCanvas');  
    };  
</script>
```


Step 3: Access the 2d Context

```
<script>
    window.onload = function () {
        var canvas = document.getElementById('myCanvas');
        var ctx = canvas.getContext('2d');
    };
</script>
```

Step 4: Draw Shapes

```
<script>
  window.onload = function () {
    var canvas = document.getElementById('myCanvas');
    var ctx = canvas.getContext('2d');
    ctx.fillStyle = 'red';
    ctx.fillRect(0,0,200,100);
  };
</script>
```

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Canvas API Functions

addColorStop	drawImage	restore
arc	fill	rotate
arcTo	fillRect	save
beginPath	fillText	scale
bezierCurveTo	getImageData	setTransform
clearRect	isPointInPath	stroke
clip	lineTo	strokeRect
closePath	measureText	strokeText
createImageData	moveTo	transform
createLinearGradient	putImageData	translate
createPattern	quadraticCurveTo	
createRadialGradient	rect	

Canvas API Properties

data

fillStyle

font

globalAlpha

globalCompositeOperation

height

lineCap

lineJoin

lineWidth

miterLimit

shadowBlur

shadowColor

shadowOffsetX

shadowOffsetY

strokeStyle

textAlign

textBaseline

width

Line and Shape Functions

addColorStop

arc

arcTo

beginPath

bezierCurveTo

clearRect

clip

closePath

createImageData

createLinearGradient

createPattern

createRadialGradient

drawImage

fill

fillRect

fillText

getImageData

isPointInPath

lineTo

measureText

moveTo

putImageData

quadraticCurveTo

rect

restore

rotate

save

scale

setTransform

stroke

strokeRect

strokeText

transform

translate

Text Functions

addColorStop

arc

arcTo

beginPath

bezierCurveTo

clearRect

clip

closePath

createImageData

createLinearGradient

createPattern

createRadialGradient

drawImage

fill

fillRect

fillText

getImageData

isPointInPath

lineTo

measureText

moveTo

putImageData

quadraticCurveTo

rect

restore

rotate

save

scale

setTransform

stroke

strokeRect

strokeText

transform

translate

Transform Functions

addColorStop

arc

arcTo

beginPath

bezierCurveTo

clearRect

clip

closePath

createImageData

createLinearGradient

createPattern

createRadialGradient

drawImage

fill

fillRect

fillText

getImageData

isPointInPath

lineTo

measureText

moveTo

putImageData

quadraticCurveTo

rect

restore

rotate

save

scale

setTransform

stroke

strokeRect

strokeText

transform

translate

Summary

- The HTML5 canvas provides a way to render graphics without requiring plugins such as Flash or Silverlight
- JavaScript plays an important role
- Drawing is accomplished using a 2D context
- Shapes, gradients, images, and more are rendered using JavaScript functions