

PART 4

## Introduction

Transitions

Transformations

Timeline Animation

# Quick revision

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What are some limitations of web fonts?

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- Reduced selection of fonts

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- No hyphenation for justified text
- Lack of kerning support
- No control over size of text elements (orphans)
- Browser text vertical alignment

# Quick revision

Why is using images as text bad?

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- Search engines can't read it
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- Can't copy / paste

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Why is using images as text bad?

- Search engines can't read it
- Screen readers can't read it
- Can't copy / paste
- Doesn't scale

# Quick revision

How does HTML use to capture input?

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How does HTML use to capture input?

- Form elements, e.g.

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How does HTML use to capture input?

- Form elements, e.g.

```
<input type="text">  
<select>  
  <option>My Option</option>  
</select>
```

# A brief history - animation on the web

## A brief history - animation on the web

- Until c.2011 most browsers did not support CSS animation

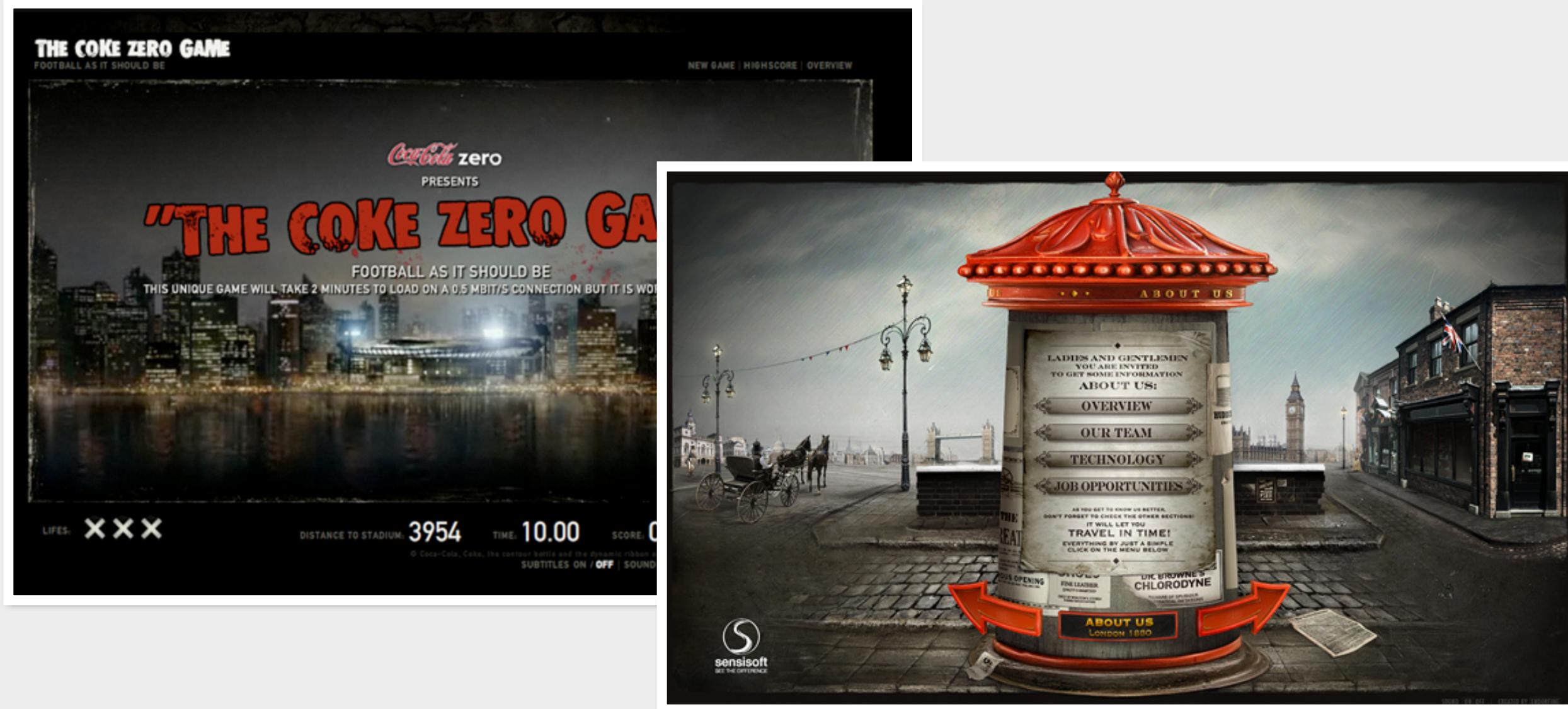
## A brief history - animation on the web

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## A brief history - animation on the web

- Until c.2011 most browsers did not support CSS animation
- Adobe Flash had mostly filled the void
- Javascript also used for animation

# Flash sites



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# Why not Flash?

- Proprietary plugin (not open source)
- Could not be read by search engines
- Poor for touch / battery life on mobile  
(See Steve Jobs' famous letter to Adobe)

# Why animate?

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- For experiential purposes



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- For accessibility purposes, especially communicating changes in state

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Demo time



# Why not animate?

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- Can be obtrusive

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- Browser performance varies a lot

# Why not animate?

- Can be obtrusive
- Browser performance varies a lot
- No animation is better than poor animation

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# CSS transitions



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# CSS transitions

- Transitions are a way of a style property changing state progressively, e.g. **red** to **blue**

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- Transitions are a way of a style property changing state progressively, e.g. red to blue
- Not all properties can be transitioned
- Transitions are applied by selectors

Demo time

# Limitations

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- Not everything can be animated

# Limitations

- Not everything can be animated
- Performance may vary

Demo time

# Tweening

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- Specifies the transition frame sequence

# Tweening

- Specifies the transition frame sequence
- Can be customised

# Tweening

- Specifies the transition frame sequence
- Can be customised
- Defaults to `ease-out`

Demo time

# Performance and the DOM

When an element is animated and this animation affects position the whole page must be redrawn. This incurs performance penalties.

# Performance and the DOM

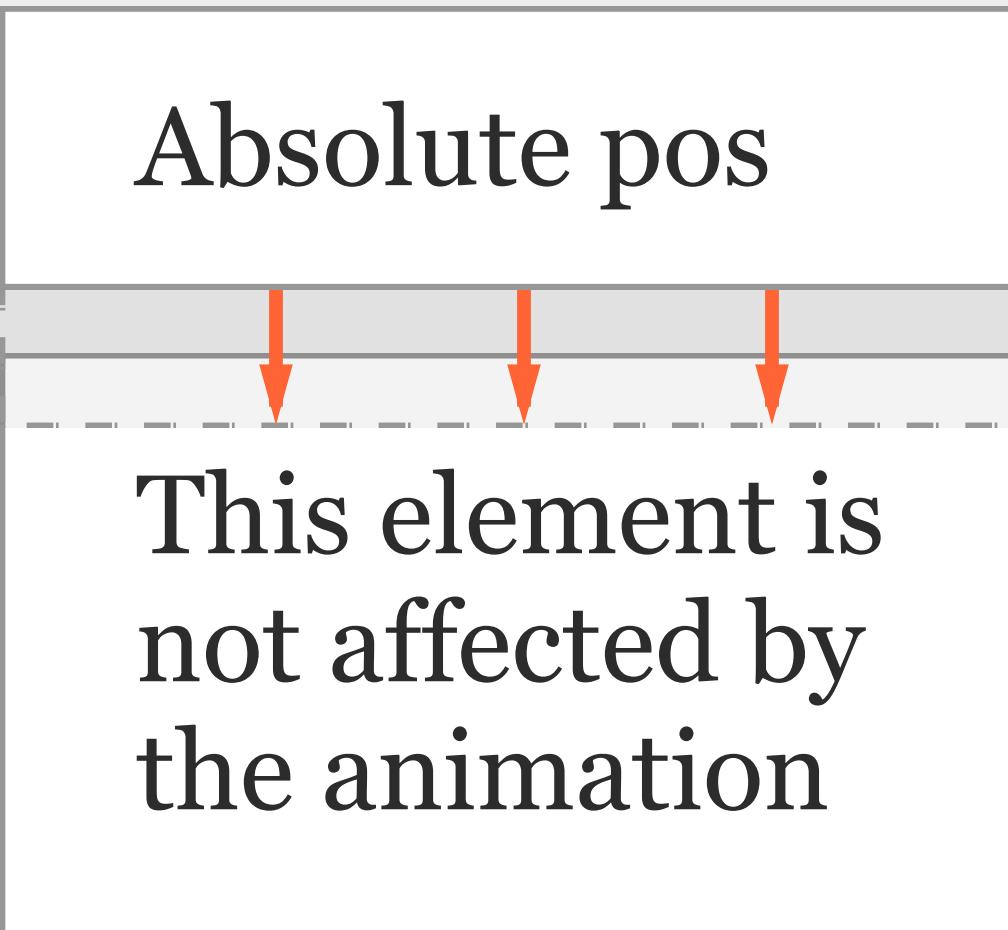
Relative pos



This element is affected by the animation

Animations that impact other elements cause a performance hit.

# Performance and the DOM



Animations that don't affect other elements are more performant.

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# Introducing transforms



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Demo time

# Three dimensional transforms

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- Also supports 3d transforms
- 3d transformations are not as well supported
- 3d transformations are often buggy

Demo time

PART 4

# Introduction Transitions Transformations Timeline Animation

# Why timelines?

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- Enables more complex animation scenes

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- Enables looping

# Why timelines?

- Enables more complex animation scenes
- Enables looping
- Can be paused / resumed

# Syntax

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- Animations are defined using `@keyframes`

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- Progress is defined in percentiles

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# Syntax

- Animations are defined using @keyframes
- Progress is defined in percentiles
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```
@keyframes my-anim {  
  0% { opacity: 0; }  
  50% { opacity: 1; }  
 100% { opacity: 1; }  
}  
  
.my-element {  
  animation-name: my-anim;  
  animation-duration: 1s;  
  animation-iteration-count: infinite;  
}
```

# Syntax

Demo time



Thank you.