

COMP4021
Internet Computing

Web Animations Using CSS Transitions

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What We Know So Far

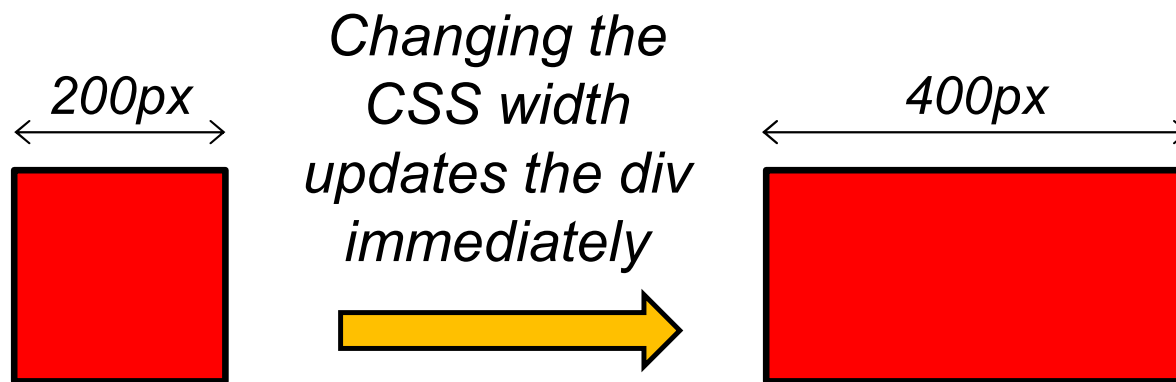
- From our previous discussion, you know how to create web animations using one of the following approaches:
 - Using the jQuery `animate()` function
 - Using the SVG `<animate>` tag
 - Using CSS animations
- In this presentation we will look at another useful animation technique using CSS

CSS Transitions

- In the CSS animations which you saw before, a two stage process is used for animation:
 1. Setting up the keyframes
 2. Applying the keyframes to the target elements
- CSS *transitions* (this presentation) are simpler
- Alter: • Only the transition property is needed for an animation

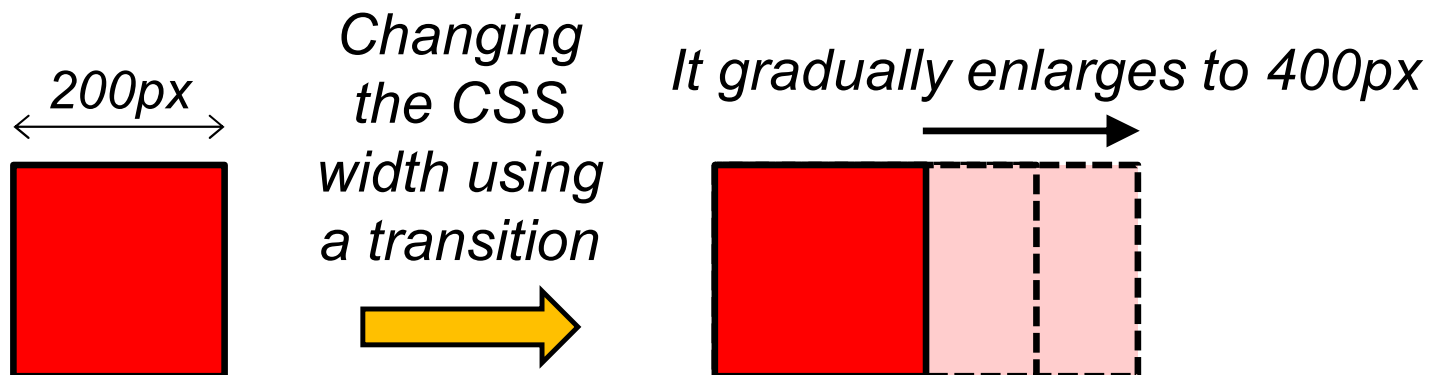
Without CSS Transitions

- If you change the value of a CSS property of an element, the display of the element will be updated immediately
- For example, changing a div from a width of 200px to a width of 400px:



With CSS Transitions

- If you add a CSS transition, changing the property will update the display of the element *gradually*
- For example, changing a div from a width of 200px to a width of 400px using a transition:



Using the Transition Property

- For example, the following rule tells the browser that whenever the width of a div called red is changed, the change will take 2 seconds

```
div#red { transition: width 2s; }
```

This CSS rule applies to a div which has the id “red”
- see next slide

```
<style>
```

```
#red {
```

```
  width: 200px;
```

```
  height: 200px;
```

```
  background-color: red;
```

```
  border: 4px solid black;
```

```
  transition: width 2s;
```

```
}
```

```
#red:hover {
```

```
  width: 400px;
```

```
} you need another instruction  
to specify the actual change.
```

```
</style>
```

```
...
```

```
<div id="red"></div>
```

```
...
```

An Example

this instruction

does not change

anything by itself.

← The
transition

Move the mouse
over the thing
which has id 'red'
to change the width

'hover' means the
user moves the
mouse over it

Move your mouse over the div to change its size.

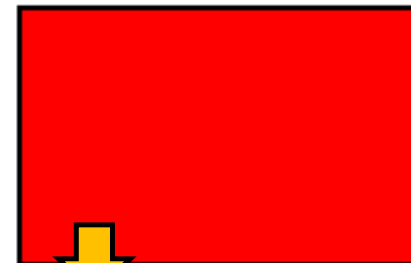


Mouse
over!



...increasing width...

Move your mouse over the div to change its size.



...more increasing width...

Move your mouse over the div to change its size.



Using Different Transitions

- The `transition` property is quite flexible

- For example, you can use different durations for different properties:

```
div#red { transition: width 1s, height 2s; }
```

- You can use different easing: *easing was discussed before*

```
div#red { transition: width 1s linear; }
```

- You can apply `transition` to every property:

```
div#red { transition: all 1s; }
```


Changing of CSS Properties

- With CSS transitions, it does not matter the way in which the change in CSS property is triggered
- For example, it works when:
 - you change the CSS properties using JQuery
 - you change the CSS property using JavaScript
 - you change the CSS property using something like `:hover` (which is called a pseudo-class)

Delay of Transitions

- You can also use a delay to make the transition begin later
- For example, the following rule changes the width of a div gradually, starting 1 second after the width is updated:

```
div#red { transition: width 2s 1s; }
```

duration delay



Begin after 1 second

Making an Animation Sequence

- With some clever use of the delay, you can make an animation sequence of transitions, like this:

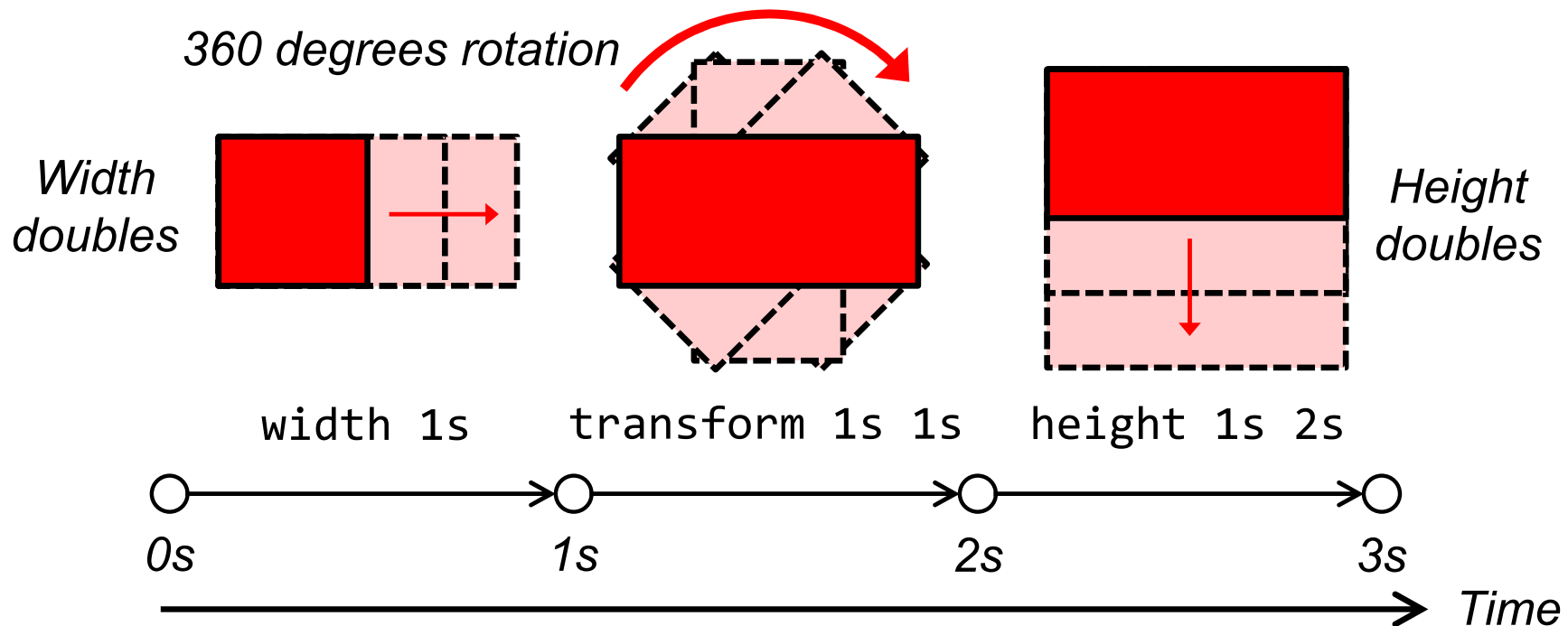
```
div#red {  
  transition: width 1s,  
              transform 1s 1s,  
              height 1s 2s;  
}
```

First change width over 1s,
then transform over 1s,
then change height over 1s

```
div#red {
  transition: width 1s,
              transform 1s 1s,
              height 1s 2s;
}
```

- Let's say the div has got its width and height doubled, and it is transformed with a rotate(360deg)

- Then the transition sequence will work over time like this:



把鼠标移开后 would 回复原状，依旧按照指定的顺序，即：width 缩回去，旋转，height 缩回去