animation

in html, css, and javascript

ISBN-13: 978-1491064627

ISBN-10: 149106462

Dedicated to…

Bubble Tea ← My dentist thanks you!

Casterly Rock

Kyle Murray (Krilnon)
Trevor McCauley (Senocular)
Jesse Marangoni (TheCanadian)
Andreas Renberg (IQAndreas)

We should totally start a band!

My Parents

Merlin

Leslie, Ben, April, Jerry, Donna, Chris, Ann, Ron, Tom, and Andy

Don Draper

Heisenberg

Flash ← This book was meant for you all along :(

Table of Contents

Chapter 1

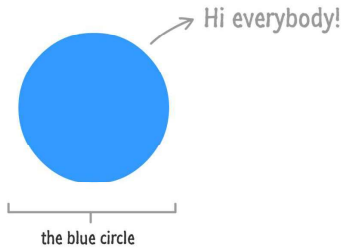
What is an Animation?

I've mentioned the word animation quite a number of times so far (39 times to be precise), and it is one of those words where everybody you meet has their own version of what it means. To throw one more version into the mix, at its most basic level, **an animation is nothing more than a visualization of change**.

Let's look at that in more detail.

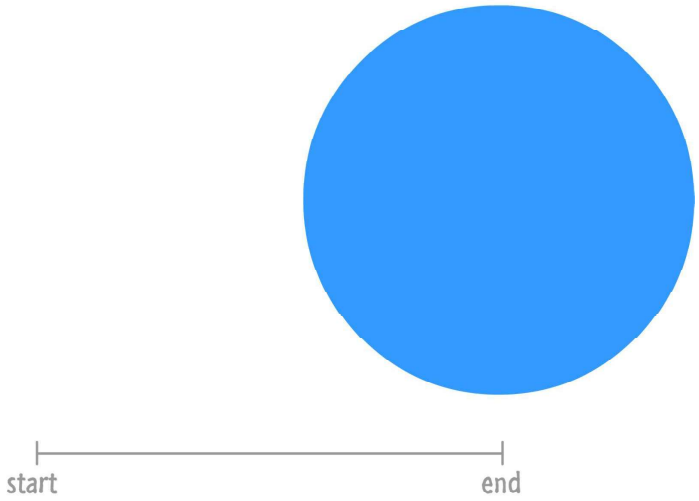
The Start and End States

If visualizing change is an important part of an animation, we need to create some reference points so that we can compare what has changed. Let's call these reference points the **start** state and the **end** state. To help visualize this, I'm going to introduce you to my lovely assistant - the very talented blue circle:



Let's say our start state looks as follows:

Our blue circle is just sitting around and probably up to no good. You look away and come back a few moments later, the blue circle is now in its end state and looking a bit different:



Based just on the information you have on what the blue circle looks like in the start and end states, what can you tell is different?

One change is the position. Our blue circle starts off on the left side of the page. In the end, it is located on the right hand side. Another change is the size. The blue circle became several times larger in the end state compared to its initial size at the beginning. There may be a few other minor things that are different, but we captured the big ones.

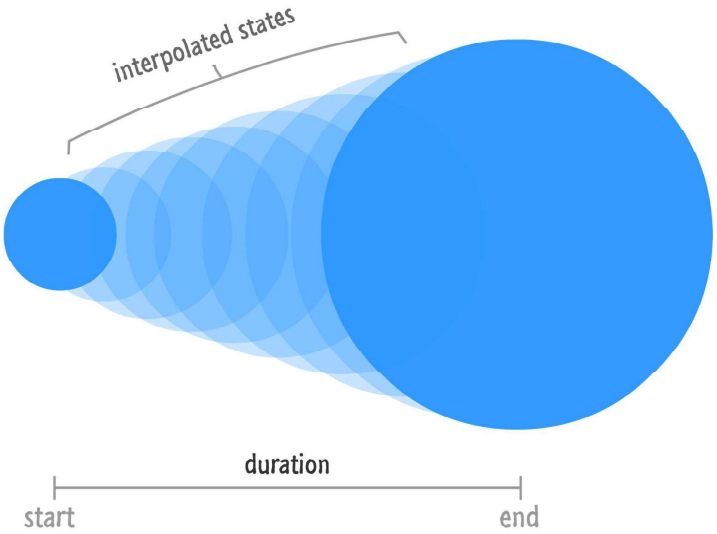
Now that we have identified the changes between our end state and start state, we are one step closer to having an animation. If we pretended for a moment that we actually have an animation, what would you see if you just played the start and end states repeatedly? What you would see is something that just bounces from left to right repeatedly. It would not be pretty. In fact, it would be turrible. Just turrible.[1] To create an animation using what we have, we also need a way to

[1] Frank Caliendo's impression of Charles Barkley: http://youtu.be/jKTb5Nfyh1o?t=38s

smooth things out between the start and end states. What we need is a healthy dose of something known as **interpolation**.

Interpolation

Interpolation is the fancy name given to the intermediate states are generated between your start and end states. This interpolation, which occurs over a **period of time that you specify**, would look something like the following diagram:



You may be wondering who specifies the interpolated states. The answer, which is probably good news, is that it depends. For certain kinds of animations, your browser or HTML rendering engine will take care of the messy details. All you need to specify is the **starting state**, the **ending state**, and the **duration** over which the transition between the two states needs to occur. For certain other kinds of animations that you create in JavaScript, you will specify all of the messy details yourself.

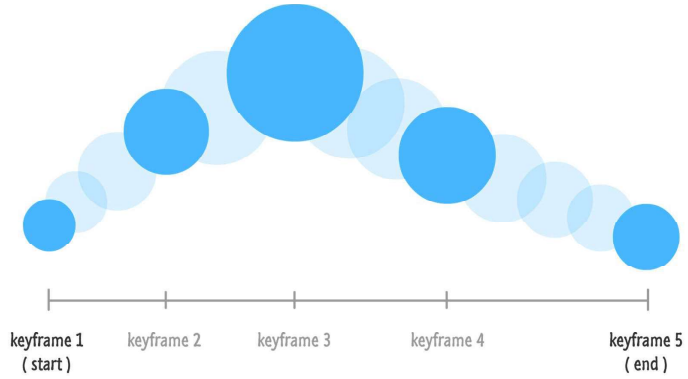
What I just presented is a very simplified view of reality. There are a few other ingredients like timing functions (aka easing functions), keyframes, and other things that are missing from our explanation so far, but that's ok. For now, just revel in this simplified generalization of what makes up an animation. After you are done reveling, put on your best party clothes, and get ready to meet the three flavors of animation that you will end up using and learning more about in the subsequent chapters.

Animations in HTML

In HTML, there isn't just a single animation approach that you can use. That would be too easy. You actually have three flavors of animations to choose from, and each one is specialized for certain kinds of tasks. Let's take a quick look at all three of them and see how they relate to the animation generalization you saw in the previous section.

CSS Animations (aka Keyframe Animations)

CSS Animations are your traditional animations that are on some sort of performance enhancing substance that makes them more awesome. With these kinds of animations, you can define not only the beginning and the end state but also any intermediate states commonly (and affectionately!) known as **keyframes**:

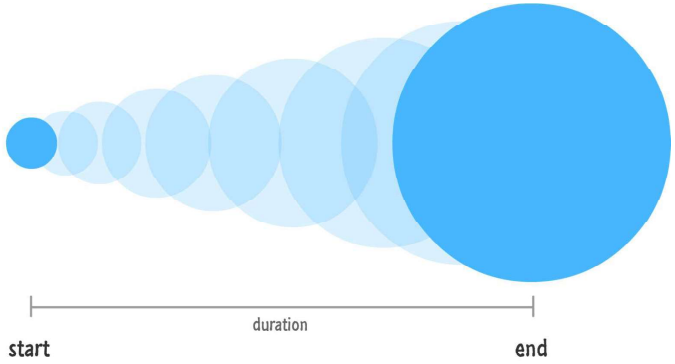


These intermediate states, if you choose to use them, allow you to have greater control over the things you are animating. In the above example, the blue circle isn't simply sliding to the right and getting larger. The individual keyframes adjust the circle's size and vertical position in ways that you wouldn't see if you simply interpolated between the start and end states.

Remember, even though you are specifying the intermediate states, your browser will still interpolate what it can between each state. Think of a keyframe animation as many little animations daisy chained together.

CSS Transitions

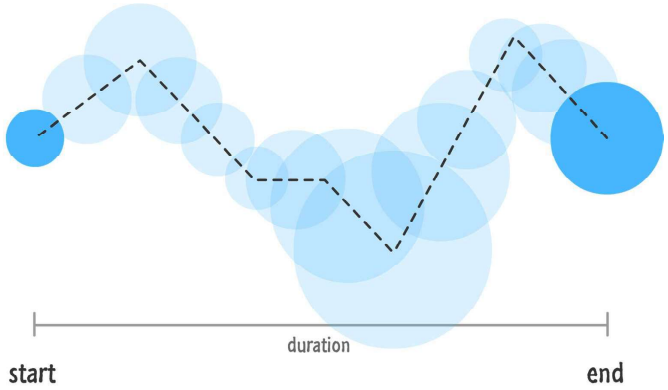
Transitions make up a class of animations where you only define the start state, end state, and duration. The rest such as interpolating between the two states is taken care of automatically for you:



While transitions seem like a watered down, simplified keyframe animation, don't let that trick you. They are extremely powerful and probably my favorite animation technique to use in projects.

JavaScript Animations

If you want full control over what your animation does right down to how it interpolates between two states, you can use JavaScript:



There are a lot of cool things you can do when you opt-out of the interpolation the browser does for you, and you'll get a good dose of that in the later chapters that look at JavaScript Animations in greater detail.

TL;DR / What You've Learned

An animation is nothing more than a visualization of something changing over a period of time. In HTML, you have not one, not two, but THREE different ways of bringing animations to life: CSS Animations, CSS Transitions, and Animations Created in JavaScript.

This book will cover all three of these ways in great detail starting with the next chapter.

Part I

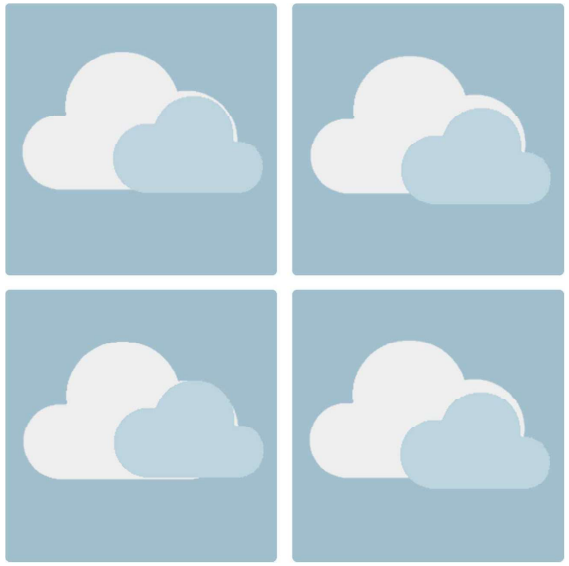
CSS Animations and Transitions

Chapter 2

All About CSS Animations

As mentioned in the previous chapter, one of the three ways you have for animating content in HTML is by using something known as **CSS animations**. What CSS animations do is pretty simple. They allow you to animate CSS properties on the elements they affect. This allows you to create all sorts of cool things like making things move, having things fade in and out, seeing things change color, etc.

First, let's look at an example. Given that this is a book, this requires a certain amount of imagination on your part. The animation you need to imagine is one where two clouds are bouncing up and down. In the following page, I have placed four still images of what such an animation would look like:



If you still have difficulty visualizing an animation printed on paper but have access to a device with an internet connection, you can see it live at the following location: http://www.kirupa.com/html5/examples/bouncing_clouds2.htm

In this chapter, you will learn all about CSS animations to not only create something similar to the moving clouds but also (hopefully) something much cooler / useful / etc. You will also learn how to define a CSS animation using the `animation` property, how to work with keyframes, and how to tweak the various animation-related properties to have your animation do exactly what you want. Not a bad way to start off, ehh?

Onwards!

Creating a Simple Animation

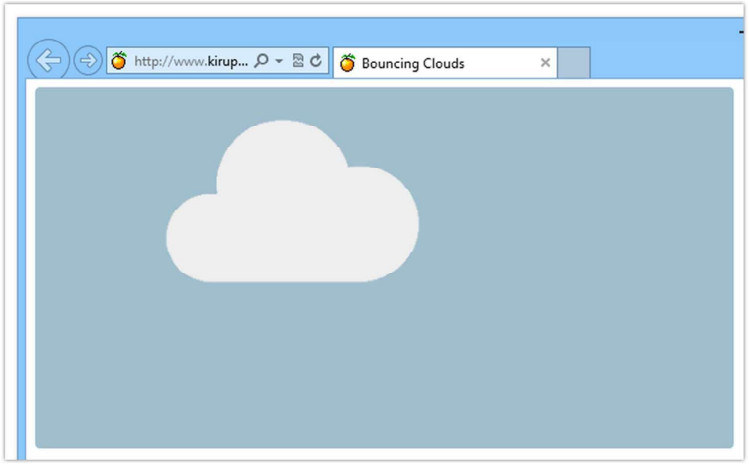
The easiest (and most fun!) way to learn about CSS animations is to simply get your hands messy with using them and then learning about why they work the way they do afterwards. Go ahead and create a new HTML document and add the following HTML and CSS into it:

```
<!DOCTYPE html>
<html lang="en-us">

<head>
    <meta charset="utf-8">
    <title>Bouncing Clouds</title>
    <script src="http://www.kirupa.com/js/prefixfree.min.js"></script>

    <style>
        #mainContent {
            background-color: #A2BFCE;
            border-radius: 4px;
            padding: 10px;
            width: 600px;
            height: 300px;
            overflow: hidden;
        }
        .cloud {
            position: absolute;
        }
        #bigcloud {
            margin-left: 100px;
            margin-top: 15px;
        }
    </style>
</head>

<body>
```



```
    <div id="mainContent">
        <img id="bigcloud" alt="#"
             class="cloud" height="154"
             src="http://www.kirupa.com/images/bigCloud.png"
             width="238">
    </div>
</body>

</html>
```

If you preview all of this, you will see a slightly less exciting version of the example I presented earlier. You will see a single, off-center cloud standing perfectly still:



The reason is that no animation has been defined yet, so let's go ahead and add an animation to fix the boredom. Adding a CSS animation is made up of two steps. The first step is to set the `animation` property, and the second step is to define the keyframes that specify exactly what gets animated.

From the markup you added, find the `#bigCloud` style rule and add the following highlighted line:

```
#bigcloud {
    animation: bobble 2s infinite;
    margin-left: 100px;
    margin-top: 15px;
}
```

The details of what this line says aren't important for now, for we'll have time to get acquainted with it later. In the meantime, let's add the keyframes. Go ahead and add the following `@keyframes` style rule below where you have your `#bigCloud` style block:

```
@keyframes bobble {
    0% {
        transform: translate3d(50px, 40px, 0px);
        animation-timing-function: ease-in;
    }

    50% {
        transform: translate3d(50px, 50px, 0px);
        animation-timing-function: ease-out;
    }

    100% {
        transform: translate3d(50px, 40px, 0px);
    }
}
```

Once you've added this style rule, go ahead and preview your page now. You should see your cloud bobbling around happily as if it has no care in the world. Awww!

What Just Happened

What you just did was add a CSS animation that causes your cloud to bobble around. Now, what a CSS animation does is pretty straightforward. It allows you to specify the start state, any intermediate states (aka keyframes), and the end state of the properties on the element (or elements) you are wishing to animate. Our cloud's movement is pretty simple, so learning how it animates is a great starting point!

The first thing we will look at is the `animation` property itself:

```
animation: bobble 2s infinite;
```

The `animation` property is responsible for setting your animation up. In the shorthand variant that is shown here (and a variant you will commonly use), you will specify three things at a minimum:

1. The name of your animation
2. The duration
3. The number of times your animation will loop

Our `animation` declaration is no different. The name of our animation is called **bobble**, the duration of the animation is **2 seconds**, and it is set to loop an **infinite** number of times.

> ## What About Vendor Prefixes?
>
> The `animation` property is still pretty new, so a lot of browsers require it to be vendor prefixed in order to have it work. Do not clutter up your markup with them. Instead, use something like the -prefix-free library that this example uses to keep your markup simple while still allowing older browsers to be able to view your animation.

> You can learn more about vendor prefixing and the –prefix-free library from the following link: http://www.kirupa.com/html5/avoid_using_vendor_prefixes.htm

As you can see, the `animation` declaration doesn't really contain much in terms of details on what gets animated. It sets the high-level definition of what your animation will do, but the actual substance of a CSS animation actually resides in its `@keyframes` rule.

Let's look at our `@keyframes` rule to learn more:

```
@keyframes bobble {
    0% {
        transform: translate3d(50px, 40px, 0px);
        animation-timing-function: ease-in;
    }

    50% {
        transform: translate3d(50px, 50px, 0px);
        animation-timing-function: ease-out;
    }

    100% {
        transform: translate3d(50px, 40px, 0px);
    }
}
```

The first thing to notice when you look at our `@keyframes` rule is how it looks. On the outside, it contains the `@keyframes` declaration followed by a name:

```
@keyframes bobble {
    0% {
        transform: translate3d(50px, 40px, 0px);
        animation-timing-function: ease-in;
```



```
    }
    50% {
        transform: translate3d(50px, 50px, 0px);
        animation-timing-function: ease-out;
    }
    100% {
        transform: translate3d(50px, 40px, 0px);
    }
}
```

On the inside, it contains style rules (aka the actual keyframes) whose selectors are either **percentage values** or the keywords `from` and `to`:

```
@keyframes bobble {
    0% {
        transform: translate3d(50px, 40px, 0px);
        animation-timing-function: ease-in;
    }
    50% {
        transform: translate3d(50px, 50px, 0px);
        animation-timing-function: ease-out;
    }
    100% {
        transform: translate3d(50px, 40px, 0px);
    }
}
```

These keyframe style rules are pretty much what you would expect. They just contain CSS properties such as `transform` and `animation-timing-function` whose value will get applied when the rule becomes active. We'll come back to this shortly, for there is an important detail about the keyframe style rules you need to be aware of.

Now, what I have just explained is the part that easily makes sense. Here is where things could get a little bit confusing. Despite the `animation` property being declared in another style rule and your keyframes being declared in their own `@keyframes` rule, they are very much tied to the hip and don't really function without each other being present. It would be quite romantic if it wasn't so complicated and messy, but it is our job to unravel the mess, figure out what is going on, and...ultimately be able to create a messier mess in more complicated ways.

Let's start by first looking at how the `animation` property and the `@keyframes` rule are tied together.

The Name

The name you give your `@keyframes` rule acts an identifier the `animation` property uses to know where the keyframes are:

```
#bigcloud {
    animation: bobble 2s infinite;
    margin-left: 100px;
    margin-top: 15px;
}
@keyframes bobble {
    0% {
        transform: translate3d(50px, 40px, 0px);
        animation-timing-function: ease-in;
    }

    50% {
        transform: translate3d(50px, 50px, 0px);
        animation-timing-function: ease-out;
    }

    100% {
        transform: translate3d(50px, 40px, 0px);
    }
```



```
}
```

It isn't a coincidence that our `animation` property refers to **bobble**, and the name of our `@keyframes` rule is also **bobble**. If there is ever an inconsistency in the names, your animation will not work since the keyframes that make up the substance of your animation won't get applied.

Duration and the Keyframes

From the previous section you learned how our `animation` property is made aware of its keyframes. That solves one mystery. The bigger mystery that we are going to look at now is the one between the animation's duration and when a particular keyframe style rule actually becomes active.

As you recall, when you define the keyframe style rules inside your `@keyframes` rule, your selector isn't an actual time value. It is either a percentage value or the `from`/`to` keyword:

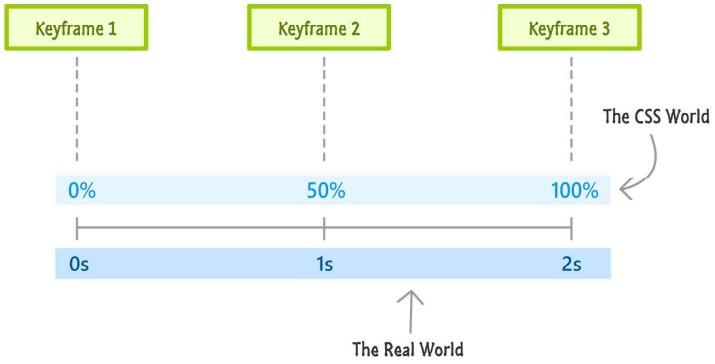
```
#bigcloud {
    animation: bobble 2s infinite;
    margin-left: 100px;
    margin-top: 15px;
}
@keyframes bobble {
    0% {
        transform: translate3d(50px, 40px, 0px);
        animation-timing-function: ease-in;
    }

    50% {
        transform: translate3d(50px, 50px, 0px);
        animation-timing-function: ease-out;
    }

    100% {
        transform: translate3d(50px, 40px, 0px);
```

```
    }
}
```

In our example, the percentage values for our keyframe selectors are 0%, 50%, and 100%. What they represent is the percentage of the animation that has completed. When your animation is just starting, you have completed 0% of your animation. The 0% keyframe will become active. When your animation is half-way done, the 50% keyframe becomes active. At the end of your animation, the 100% keyframe becomes active.

The duration value you specify all the way over there on the `animation` property, besides setting the total time your animation runs, helps you to rationalize the percentage values with actual units of time. You know, the way things are normally done.

Below is how our percentage values map to units of time for our 2 second animation:



This, to me is the confusing part. Once you understand how duration is mapped to the individual keyframes, you jumped a major hurdle in being able to visualize these animations in your mind.

Anyway, I think we've looked at how a simple CSS animation works in sufficient detail. You learned all about how to declare an animation using the `animation` property and how the `@keyframes`

rule with its keyframe style rules look. We also took some time to understand how everything comes together to work the way it does. We are by no means done yet, though. In the next section, we'll go off the beaten path a bit and look at all of the extra beautiful scenery the `animation` property has to offer.

> ### About the `from` / `to` Selector
>
> Instead of specifying 0% as your starting selector, you can use the equivalent `from` keyword. For 100%, you have the `to` keyword you can use as the selector. I don't quite know why anybody would want to use this, but it exists and it's good for you to know about its existence in case you run into it in the wild.
>
> In this tutorial, I will not explicitly pay homage to the `from` and `to` keywords. With this sentence, they are officially dead to me and their existence will no longer be acknowledged further. (Actually, due to intense lobbying from the `from`/`to` PAC supporters, you will see them appear in an example in Act II.)

Detailed Look at the CSS Animation Property

The `animation` property is a whole lot more feature-filled than what we've just seen. Now that you got your feet wet with creating an animation, let's do something less exciting and learn about all that the `animation` property brings to the table. To help with learning more about it, let's first expand our shorthand property and look at the properties in their expanded form. Our shorthand version, as you've seen many times already, looks as follows:

```
animation: bobble 2s infinite;
```

Its expanded, longhand version will look like this:

```
animation-name: bobble;
animation-duration: 2s;
```

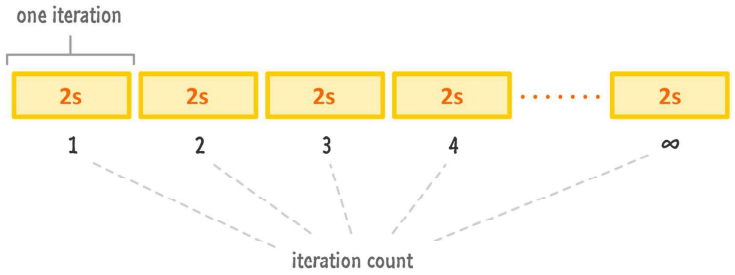
```
animation-iteration-count: infinite;
```

The three properties our shorthand version expands to are `animation-name`, `animation-duration`, and `animation-iteration-count`. What these properties do should be ingrained in your mind by now, so let's just move on to tasks that use the properties we haven't seen yet - properties such as: `animation-play-state`, `animation-delay`, `animation-direction`, `animation-fill-mode`, and `animation-timing-function`.

Pausing and Resuming an Animation

By default, your animation will start once the style rule containing your `animation` property becomes active. For our simple case, this basically means the moment the page loads and the CSS is parsed.

First, let's loosely visualize a 2 second long animation that is set to loop infinitely as follows:



Each yellow rectangle represents one iteration of your animation. If you put each iteration of the animation side by side, you get something that looks like what I've shown above.

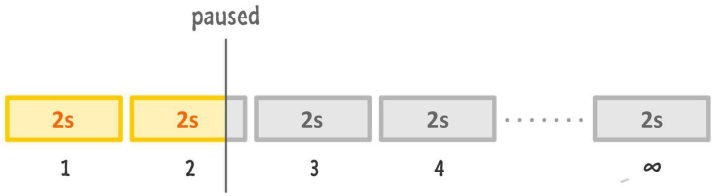
Once an animation starts, it won't stop until it reaches the last keyframe. If your animation is set to loop, it will just keep running by starting over from the first keyframe once the last keyframe is hit. This animation will never end. It will just restart from the beginning over and over and over again.

You have control over changing this default play behavior. If you want your animation to not play immediately once the style rule containing your animation definition becomes active or if you want to pause your animation in the middle, you can fiddle with the `animation-play-state` property. This property allows you to toggle whether your animation plays or not by reacting to the **running** value or the **paused** value.

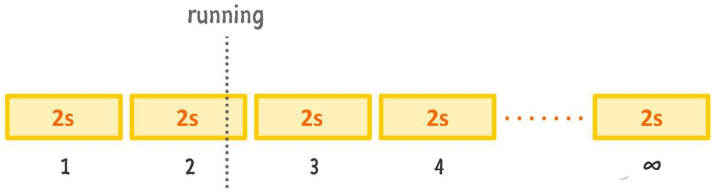
By default, the `animation-play-state` property is set to **running**. You can set the value to **paused** to stop your animation dead in its tracks:

```
animation-play-state: paused;
```

When the animation is paused, it retains whatever the last computed value the animation had:



It is almost as if time just stood still. You can resume it by setting the `animation-play-state` property back to **running**. There is no sudden restart where the animation goes back to the 0% mark before resuming:



Your animation smoothly picks up from where it left off just like what you would expect if you used the Play and Pause functionality on a media player.

Delaying and Offsetting the Animation

If you want your animation to play but not really do anything for a period of time, you will want to meet the `animation-delay` property. This property allows you to specify the number of seconds of time will elapse before your animation starts to run.

```
animation-delay: 5s;
```

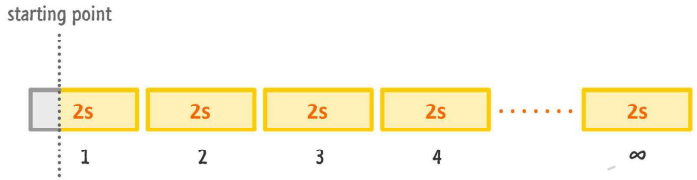
A delay isn't a case where the 0% keyframe gets hit and then you wait for 5 seconds. The delay occurs before the 0% keyframe from your first iteration is even hit:

Once your animation starts running, the delay value never comes into play again. Every subsequent iteration (if there are any left) of your animation just flows seamlessly from the end of one to the beginning of the other.

Now, here is something else you can do with this property. Instead of specifying a positive time value for `animation-delay`, you can actually specify a negative time value as well:

```
animation-delay: -.25s;
```

When you specify a negative value, your animation starts immediately but offset by the duration that you specified. Here is what an `animation-delay` of -.25s would look like:



The negative sign acts as a signal to tell your browser to treat this value as an offset instead of a delay. Yes, that is a little strange, especially given that this property is still called `animation-delay`, but I am merely the messenger here. Something less strange - if you specify an offset that is greater than the duration of a single iteration of your animation, that isn't a problem at all. Your animation will just start at whatever point in whichever iteration the starting point falls at. Just make sure you have enough iterations to account for the starting point in a future iteration. If you don't have enough iterations and you specify a large offset, your animation simply won't run.

Hold My Keyframe Properties, Please!

If you don't tell your animation to loop, you will notice that once your animation ends, any properties the keyframes set are removed and your elements return to a pre-animation state. This is **because the properties applied by your keyframes are transient**. They exist while the keyframes are active, but at any time outside that window, those property values are not maintained. If you didn't intend for that behavior, your animation may seem to suddenly jump into position at the start or suddenly reset after it has run to completion. Let's examine these two cases with a little more specificity and then look at how to change the default behavior.

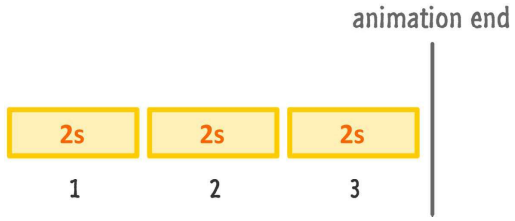
Waiting to Start

The first case occurs when you are dealing with an `animation-delay` set. For example, to reuse what you saw a few moments earlier, let's say you have a 5s delay specified:

For the five seconds your animation is waiting, your keyframes are not active yet. Any properties the first keyframe contains **will not get applied** while the delay is active.

Animation is Done

The second case is when your animation has run to completion. Let's say you specified your animation to loop three times:



At the end, any properties specified by the last keyframe on the 3rd iteration will disappear. Your animated elements will return to a state where there was no evidence of an animation ever having existed.

Meet animation-fill-mode

If you want your starting keyframe's properties to apply during a delay or your last keyframe's properties to be retained after your animation has ended, you can set the `animation-fill-mode` property. You can set its value to be:

1. **none**
   There is no faking the property values here. If you want the keyframe's property values to apply, your keyframe must be active.

2. **forwards**
   After your animation has run to completion, any property values the animation had at the end will be maintained.

3. **backwards**
   The animation will apply the property values from the starting keyframe even if that keyframe is not active yet.

4. **both**
   This is the ultimate solution. Your animation will apply the property values of the first keyframe at the beginning and maintain the property values of the last keyframe at the end.

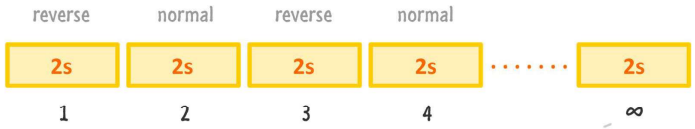
The animations I tend to create loop forever and don't have delays at the beginning. Many animations I have created also do not have a significant difference in property values between the starting keyframe, the ending keyframe, and the animated elements in their un-animated state. Because of that, I've never really had to stay up at night worrying, so don't feel pressured by your peers to declare the `animation-fill-mode` property if you don't want to.

Reversing an Animation (or Alternating Directions)

Now, let's look at a slightly trippy property. Your animations play sequentially from 0% to 100% by default. You have the ability to change this behavior by setting the `animation-direction` property to either **normal**, **reverse**, **alternate**, or **alternate-reverse**. Both **normal** and **reverse** should be straightforward to figure out what they do, so let's look at the more interesting values: **alternate** and **alternate-reverse**.

When you set the `animation-direction` to **alternate-reverse**, your animation starts off normal. Starting with the second iteration, it plays in reverse and alternates between normal and reverse from there on out:

Setting your `animation-direction` to just **alternate** has a similar but slightly different behavior:



Your animation starts off in reverse and alternates between normal and reverse from that point on.

At Easing, Soldier!

The last animation-related property we have to cover is `animation-timing-function`. This property allows you to specify an easing function that changes how your animation interpolates the property values between the beginning and the end. I cover easing functions in much greater detail in **Chapter 6**, but if you need to know now, feel free to jump ahead. I'll just patiently be waiting here.

The Animation Shorthand

What we have primarily looked at in the past few sections are the longhand properties for declaring your animation:

```
#somethingSomethingDarkSide {
    animation-name: deathstar;
    animation-duration: 25s;
    animation-iteration-count: 1;
    animation-play-state: paused;
    animation-delay: 0s;
    animation-direction: normal;
    animation-fill-mode: both;
    animation-timing-function: ease-out;
}
```

Some of you may prefer using shorthand properties where all of the properties and their values are specified inside the `animation` property itself. In fact, as you know, our very own bobble animation is represented in its shorthand variant:


```
animation: bobble 2s infinite;
```

All of the longhand properties you see above can be represented in their shorthand form - just good luck in remembering it all. If you don't doubt me, here is what the mapping looks like:

```
animation: <animation-name> <animation-duration> <animation-timing-
           function> <animation-delay> <animation-iteration-count>
           <animation-direction> <animation-fill-mode>;
```

Simply substitute the appropriate value for the property that is displayed inside the angled brackets. Note that the `animation-play-state` property is not something that can be represented in shorthand. You will have to explicitly spell out that property and its value.

Anyway, to put our longhand example into shorthand, here is how everything would look:

```
#somethingSomethingDarkSide {
    animation: deathstar 25s ease-out 0s 1 normal both;
    animation-play-state: paused;
}
```

Is the shorthand version more compact than the equivalent longhand version? Absolutely! Is it more understandable? That's a tough one to answer and entirely based on your (or your team's) preference.

I generally like to use the shorthand version for specifying the animation-name, animation-duration, and animation-timing-function because that is easy for me to remember. Once I go beyond three property values, I have to start searching through the documentation on what the additional values refer to.

Your mileage may vary with regards to your views on longhand vs. shorthand properties, so use whatever you feel most comfortable with. And...with that brilliant piece of insight, it's time to bid

adieu to this detailed look at the `animation` property and focus on other sights on our never-ending scenic trip through animation country.

Reusing Keyframes

The last thing I want to talk about is using the same keyframes for another animation declaration. I lamented earlier how the disconnected nature of the `animation` property declaration from the actual `@keyframes` rule makes working with animations a bit clunky. Even in clunky things, there are some nice things you could do if you try hard enough.

One such thing is being able to reuse the same keyframes for another declaration of the `animation` property. It may be hard to see what I mean by this, so let's just extend our current example to highlight what I am talking about.

In your current HTML document that contains only a single cloud that is bouncing, go ahead and add **ONLY** the following highlighted lines:

```
<!DOCTYPE html>
<html lang="en-us">

<head>
    <meta charset="utf-8">
    <title>Bouncing Clouds</title>
    <script src="http://www.kirupa.com/js/prefixfree.min.js"></script>

    <style>
        #mainContent {
            background-color: #A2BFCE;
            border-radius: 4px;
            padding: 10px;
            width: 600px;
            height: 300px;
            overflow: hidden;
        }
```



```
        .cloud {
            position: absolute;
        }

        #bigcloud {
            animation: bobble 2s infinite;
            margin-left: 100px;
            margin-top: 15px;
        }

        #smallcloud {
            animation: bobble 4s infinite;
            margin-top: 65px;
            margin-left: 200px;
        }

        @keyframes bobble {
            0% {
                transform: translate3d(50px, 40px, 0px);
                animation-timing-function: ease-in;
            }

            50% {
                transform: translate3d(50px, 50px, 0px);
                animation-timing-function: ease-out;
            }

            100% {
                transform: translate3d(50px, 40px, 0px);
            }
        }
    </style>
</head>
```

```
<body>
    <div id="mainContent">
        <img id="bigcloud" alt="#" class="cloud" height="154"
src="http://www.kirupa.com/images/bigCloud.png" width="238">
        <img id="smallcloud" alt="#" class="cloud" height="103"
src="http://www.kirupa.com/images/smallCloud.png" width="158">
    </div>
</body>

</html>
```

Once you have added both the highlighted `#smallCloud` style rule and the second `img` element, go ahead and preview your page. If everything was done correctly, you will now see two clouds happily bouncing away...just like what you saw from the working example at the beginning of this chapter.

Now that your example works, let's look at how we were able to do this. The trick lies in the `animation` declaration in your `#smallCloud` style rule:

```
#smallcloud {
    animation: bobble 4s infinite;
    margin-top: 65px;
    margin-left: 200px;
}
```

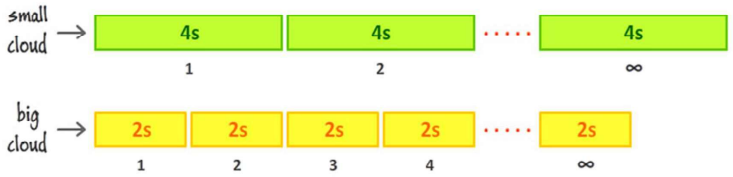
Notice that we are referencing the exact same `@keyframes` rule whose name is **bobble**. The only difference between this `animation` declaration and the `animation` declaration in the **#bigCloud** style rule that we have been looking at is the duration. The duration of the animation that applies to your small cloud is 4 seconds - twice as long as the duration of the animation that applies to your large cloud:

```
#bigcloud {
```



```
    animation: bobble 2s infinite;
    margin-left: 100px;
    margin-top: 15px;
}
```

What this means is that the properties you defined in your bobble keyframes apply just the same for both our clouds. The only difference is that in one animation these keyframes run through in 2 seconds, and in the other animation, these keyframes run through at 4 seconds:



This independence between the keyframes and the animation declaration allows you to get away with doing something like this. Any alterations you make in the declaration of your animation property will affect your keyframes on a superficial level - just like you saw here with the duration. Every animation property I explained a few sections ago can be set to alter how your keyframes behave without having to directly touch your keyframes.

You have to admit, that is pretty cool.

Declaring Multiple Animations

The last thing (ok, for real this time) we will quickly look at is how to declare multiple animations in the same `animation` property. In your shorthand declaration, simply comma separate each of your animations as shown below:

```
#oppaGangnamStyle {
    animation: hey 2s infinite, sexy 1s infinite, lady 5s infinite;
```

```
}
```

Notice that each animation is pointing to a different `@keyframes` rule. If for whatever reason you decide to point to the same `@keyframes` rule from within the same `animation` property declaration, based on CSS order precedence, the last one you declared will win.

When declaring your animations in longhand, you would do something that looks as follows:

```
#oppaGangnamStyle {
    animation-name: hey, sexy, lady;
    animation-duration: 2s, 1s, 5s;
    animation-iteration-count: infinite;
}
```

Again, this should be pretty straightforward as well. Everything is comma separated in CSS, so when in doubt about how to declare multiple values for a property that supports multiple values, just add a comma.

Wrap-up

The `animation` property in CSS is a pretty important property to befriend and know more about - especially if you want to make your content livelier. Now that you've learned the basics of how to work with animations, we're going to jump to the next station and meet the even more awesome **CSS transitions**.