[Course Overview](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live)

[Course Overview](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live)

[Hi, this is Scott Allen, and welcome to my course on Angular 1.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=0) [This course gives you the essential knowledge you'll need to start building applications using Angular and JavaScript.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=9) [In this course we'll start from scratch](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=15) [and I'll give you some pointers on common JavaScript design patterns that you will see when programming Angular applications.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=16) [We'll go on to learn about the core features of Angular, including controllers, templates, and services,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=23) [and we'll do this by building a real online application. We will even consume a public Web API from GitHub](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=28) [so you can see how to retrieve real data over HTTP and use that data to update the UI.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=34) [By the end of the course you'll be able to start using Angular in your own applications, and I think you'll](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=40) [see just how easy it is to build browser applications that are responsive and smooth,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=44) [and applications your users will enjoy. I do expect that you already have some experience](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=49) [with JavaScript and know the very basics. I also assume you've already done some work with HTML.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=54) [If not, we have plenty of courses on Pluralsight about HTML, JavaScript, and CSS.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=59) [And once you are done with this course, you might consider my course on using components in Angular 1.5.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=64) [Components make Angular even easier, and it's a good follow up course for you to enjoy.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m0&clip=0&mode=live&start=70)

[An Introduction](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live)

[Hello!](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live)

[Hi, this is Scott Allen, and this is a course designed to teach you the basics of AngularJS.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live&start=2) [AngularJS is a JavaScript framework you can use to build applications, but run in a web browser using HTML.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live&start=7.5) [I'm going to assume that you've never worked with AngularJS and that you know only a little bit](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live&start=14) [about HTML, CSS, and JavaScript, but I'll also assume that you have a desire to learn Angular](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live&start=19) [and are willing to learn by following along and writing some code.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live&start=24) [In this first module, I want to show you how to get started with AngularJS on a web page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live&start=27) [show you the development environment we'll be working in, and also cover some of the JavaScript coding styles](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live&start=32) [we'll be using throughout the rest of the course.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=0&mode=live&start=37)

[AngularJS](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live)

[The AngularJS framework started as a project inside of Google, but it's now an open source project](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=2.7613556) [so anyone can contribute to Angular or use Angular in their own applications.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=8) [The home for AngularJS is angularjs.org, and this is where you can find links to mailing lists,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=12.7613556) [you can find the documentation, you can find a Download button if you want to bring all of the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=19.7613556) [Angular libraries down and use them locally, and there's also a link to GitHub where the raw source code lives.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=23.7613556) [A related website you might be interested in is,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=29.7613556) [builtwith.angularjs.org.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=33.7613556) [This website includes pictures and links to other public websites that have been built with AngularJS.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=35.7613556) [The examples include everything from games and video players, to statistical reports with user customize queries,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=41.7613556) [and productivity applications that run on a mobile phone. You'll notice some popular sites on the list too;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=48.7613556) [sites like YouTube and the news site, MSNBC. In this course, we won't build anything quite as visually stimulating](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=53.7613556) [as some of the applications here; we're going to focus on the basics, but builtwith.angularjs](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=60.7613556) [can give you some ideas and inspiration for building your own Angular application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=65.7613556) [Another site linked from builtwith.angularjs is Plunker; that is plnkr.co, Plunker.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=70.7613556) [Plunker is built with Angular and it's interesting because it's a complete web development environment](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=77.7613556) [hosted in your browser. I can browse to Plunker and click on ‘Launch the Editor',](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=83.7613556) [and after a little bit of loading time, this will bring me to a page where I have my own web project,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=89.7613556) [including my own HTML file, my own script.js file, and a stylesheet.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=94.7613556) [And everything that appears in here can be rendered inside of a Live Preview window;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=100.7613556) [I just need to click on the eyeball over here. If I hover over it, it says Live Preview,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=104.7613556) [and now my HTML and JavaScript and CSS, it's all running inside of that far-right pane.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=110.7613556) [And I can come into a file, like the JavaScript file that's here, script.js, and I can actually type code in here](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=115.7613556) [and it will be executed immediately. So I could say, ‘Let's do a document.write below Angular'](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=122.7613556) [and that will appear in the window and show me how my code is behaving.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=130.7613556) [So Plunker is easy to use because there's nothing to install, and I like it so much, I think we'll use it in](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=134.7613556) [this course to work with Angular. So let's look at creating our first Angular application in the next clip.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=1&mode=live&start=139.7613556)

[An Angular Application](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live)

[There are only two requirements for adding AngularJS to a web page.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=1.5) [First, you need to add a <script> tag pointing to angular.js. Angular.js is the only script file that you need](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=6.5) [for the core Angular features, because Angular has no other dependencies on other libraries.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=13.744989) [This is the only script file we need, except for the script files that we might write for ourselves.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=18.744989) [The second requirement is that you need to add an ng-app attribute somewhere in your HTML.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=23.744989) [ng-app, in Angular terminology, is called a directive, and it is just one of many directives that Angular provides.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=30.744989) [The ng prefix is short for Angular. So whenever you see ng in your code or in documentation,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=38.744989) [or in a website name, or a bumper sticker, think Angular. ng-app is what we call the application directive.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=44.744989) [It is a special directive that Angular looks for inside of your HTML, and if it finds it, Angular will bootstrap itself;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=51.744989) [so it initializes itself and it jumps into action to start managing the page. Let's try this.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=59.744989) [Now I'm back on the Plunker landing page, and do make sure that you go to plnkr.co, so the word Plunker](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=67.744989) [without any vowels, and a .co, not a .com. Now that I'm on the landing page, I'll click ‘Launch the Editor' again](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=75.744989) [and Plunker makes it very easy to get started with Angular, because here on the right-hand side is a list](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=83.744989) [of popular packages that I might want to use inside of the HTML that I'm building.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=88.744989) [And the most popular package is … angular.js. If for some unthinkable reason Angular doesn't appear here,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=94.744989) [I could always search the packages, and I'll be able to find angular.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=100.744989) [And I want to use the most current version of Angular so I'll just click on this icon right after angular.js](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=106.744989) [and what Plunker will do is add a <script> tag to my HTML file to reference Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=113.744989) [Let me close this external library's pane by clicking on the second icon,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=118.744989) [and formatting the source code a little bit so that you can see, yes here's a <script>tag with a source](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=124.744989) [that points ultimately to an angular.js file that is hosted on some other server, code.angularjs.org.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=129.744989) [And that's fine, that's going to work for us, and that's the only script I need.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=137.744989) [My other requirement, though, is to add an ng-app directive somewhere in my markup.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=141.744989) [Some people like to add that directly to the html element; I could also add it somewhere else inside of the page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=149.744989) [like on the body element, but you do only get one ng-app directive per page, and Angular's only going to take](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=156.744989) [control of the section of DOM where that ng-app directive applies.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=163.744989) [So in this case it will apply to everything in the body; I won't be able to use Angular expressions and features](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=167.744989) [outside of the body tag. But with the script in place and my ng-app directive in place,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=173.744989) [let me open up the Preview window and what we'll see is a web page that doesn't look any different](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=178.744989) [than it did before I added Angular. It still just displays "Hello Plunker!" and there's nothing that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=184.744989) [tells me that Angular is running, but what can we do now? Well the other night my oldest son comes to me](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=189.744989) [and says, ‘Dad, what's 843 divided by 42?' And although I could come up with a close approximation](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=194.744989) [in my head really quickly, it just so happened that I was working on an Angular application at the moment](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=201.744989) [and so I just went into the page I was working on and put in this expression, "843 / 42",](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=206.744989) [and I put that inside of double curly braces. And because I was working on an Angular application,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=213.744989) [Angular found that particular binding expression, that's what we call it, and an output into the web page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=218.744989) [the answer I was looking for, which was roughly 20.07. So these double curly braces are what some people](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=224.744989) [would call mustaches or handlebars, they are binding expressions in Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=231.744989) [Angular looks for these things and tries to evaluate the expression inside, and you might want to do simple](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=237.744989) [division or addition or subtraction, but later in the course we'll do much more interesting things,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=243.744989) [because you can also build binding expressions that look at data that you have retrieved or computed from](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=248.744989) [some web server, and that's what would allow us to build charts and tables of information for our users.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=253.744989) [But because this is showing up on the web page, it's a really good indication to me that Angular is up](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=260.744989) [and it's working. If, for example, I were to delete the script reference or if I were to take out](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=264.744989) [the ng-app directive, now I no longer see the result of that expression on my web page;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=270.744989) [I just see the literal text that I typed in, which is double curly braces and 843 / 42.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=275.744989) [Also, if I were to have another piece of markup, like another div, and the ng-app directive existed here,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=282.744989) [I would still see just the literal text that I typed in because Angular is not in charge of this section](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=291.744989) [of the DOM on line 13; it's only in charge of the div that starts on line 14 and closes on line 16.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=296.744989) [So if I move my expression inside of there, Angular is in control, Angular finds that binding expression](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=305.744989) [evaluates it and puts the result on the screen for me. So the <script> tag and the ng-app directive,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=311.744989) [those are the only two things that we need to get started with Angular, but if we're going to build](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=317.744989) [anything interesting, we're going to need to learn a few more things about Angular, also this environment](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=321.744989) [that we're operating in, Plunker, and a few JavaScript conventions that Angular follows.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=327.744989) [So let's continue our discussion of Angular by looking at a Plunker Editor.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=2&mode=live&start=332.744989)

[Plunker Tips](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live)

[There are a few key features of Plunker that I want you to know about to save you some time.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=2.1407668) [First off is the Save button. I can save my Plunkers and then bookmark them, or share them with other people](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=7.1407668) [if I want to show them something I've done or have them help troubleshoot an issue, and so once this](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=14.1407668) [Plunker is saved, I can take this URL and hand it out or save it or copy it into a bookmark.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=19.1407668) [I could even take it to another browser, open the same Plunker; now it's running in Internet Explorer.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=25.1407668) [I can also click on this button that is close to the Sign-in button to download my code.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=31.1407668) [This will download a zip file with all of my files inside, and then I could run the application locally](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=36.1407668) [on my own web server or I could add this work to an existing web application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=43.1407668) [If you have a GitHub account, you might also consider signing in to Plunker.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=47.1407668) [This will make it easier to track your plunks and also collaborate and share your work with others.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=54.1407668) [The left-hand pane is a list of the current files in the project.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=59.1407668) [I can click an X on the far right to delete a file, so I no longer need README.md, I'll delete that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=63.1407668) [I can also double-click a file to rename it, so I could type the new name here inside of this dialog box.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=71.1407668) [And at the bottom of the list is a link to add a new file, I can add new HTML files, JavaScript files,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=78.1407668) [CSS files, really any type of textual file that I want. In the middle is my Editor, and I can switch between](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=84.1407668) [the different files just by clicking on them here. And on the right is the Preview window.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=93.1407668) [If you have more screen real-estate and you want the Preview window to be a little bit larger,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=98.1407668) [you can click the little blue button here in the toolbar in the Preview window.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=102.1407668) [That will open up your preview in a separate window that you can size to full screen, if you want.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=107.1407668) [This comes in handy in a number of scenarios, including debugging, which we'll look at a bit later.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=111.1407668) [And finally a few useful features in this far right toolbar. The top button shows the Preview window,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=119.1407668) [that's what we're using now, the second button allows me to go out and find other libraries](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=125.1407668) [and third-party files that I want to add to my application. The icon with the checkmark is a code linter.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=130.1407668) [This can tell me about any errors or potential problems in my code.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=137.1407668) [And the last button are some settings that we can configure. For example, I want to make the Font size](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=141.1407668) [a little bit larger for the rest of this course, and I also might want to try a different Theme,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=147.1407668) [something like monokai, I find the vibrant colors very pleasing. I can also change the Refresh interval.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=152.1407668) [This is the number of milliseconds after you finish typing in the Editor when the Preview window will](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=159.1407668) [automatically refresh and render your work. If you find this feature annoying because of the constant updates,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=164.1407668) [you can always turn off auto refresh, and then in the Preview window, there is a manual refresh button here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=169.1407668) [So just click the manual refresh and you'll see how your code is behaving.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=178.1407668) [And now that we know a little more about Plunker, let me also talk about just a few tips for the browser itself.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=3&mode=live&start=181.5)

[Developer Tool Tips](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live)

[As we are working with AngularJS, there's always a chance that you might run into some problems](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=2.0498335) [and something might not work. I want to point out some of the features of the Developer Tools in my browser,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=7.0498335) [and I'm using Chrome, but you can also use the Developer Tools in Firefox, Safari or Internet Explorer,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=11.0498335) [because in all of these browsers, the Developer Tools help you track down errors and see what your program is doing.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=18.0498335) [I'm going to show you some examples with Chrome;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=23.0498335) [how to see errors in your scripts, how to open them for debugging, and to set breakpoints.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=26.0498335) [For the point that we're working on, let me go in and turn on the auto refresh again.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=33.0498335) [And now what I want to do is come into script.js and I want to just type some gibberish.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=39.0498335) [Now, the Preview window is still going to update and display the same result I had before.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=45.0498335) [There's no visual indication that something is wrong here, but it is true that, in fact,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=49.0498335) [I do have an error in my JavaScript code; I just don't know that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=54.0498335) [And it's always a good idea when you're developing to have the Developer Tools window open,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=57.0498335) [because it will tell you about errors and you can save many minutes of scratching your head and wondering](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=61.0498335) [why something's not behaving correctly on the page just because there's an error you don't know about.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=66.0498335) [With Chrome on Windows, the easiest way to open the Developer Tools is to press F12.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=70.0498335) [You can also get to the Developer Tools through this menu under Tools, Developer Tools,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=76.0498335) [and that works on any platform. And when you open the Developer Tools, the most important place to watch](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=81.0498335) [is this area at the top of the window, because any time you see the red circle with an X inside](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=87.0498335) [and a number beside it, that means that there is an error somewhere on this page.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=93.0498335) [And the best way to see those errors is to come into the Console tab.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=97.0498335) [So the Developer Tools might open up on any of these tabs that are available, but you typically want to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=101.0498335) [keep open the Console tab. And one of the challenges with the Console tab is it's going to collect](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=106.0498335) [all of the log messages, warnings and errors, from everything that is running on this Plunker webpage,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=112.0498335) [and that includes things like the Plunker Editor, as well as the scripts that I'm writing for my own plunk.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=119.0498335) [And you can see there's a number of entries in here from editor.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=125.0498335) [Those I'm not concerned about because I have no control over them. That's the Editor that Plunker delivers.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=129.0498335) [I'm worried about the errors that are in my scripts and I can see that script.js, that is the script that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=134.0498335) [is in this project and in fact does have an error. The number over here is even telling me the line of code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=139.0498335) [where this is occurring, and so on script.js it's on line 3. And if I come into the Editor,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=144.0498335) [I can see, yes, that's the cat walking across the keyboard or something like that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=149.0498335) [So I remove that, the Preview window refreshes, but the error is still going to stay down here in the Console,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=154.0498335) [because this Console just collects messages from the beginning of time, where the beginning of time](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=161.0498335) [is when you come to the webpage. So you will find it occasionally useful to right-click inside of the Console](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=165.0498335) [and say let's clear it; that way I can see errors as they occur now.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=170.0498335) [When I type something ridiculous, it pops up as an error in the Console, so now I can remove that,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=174.0498335) [clear the Console, and I know I'm in much better shape now. Something else that you'll probably find](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=183.0498335) [extremely useful over time is the ability to debug some of your scripts and be able to inspect variables](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=188.0498335) [inside of your scripts to see what values they hold. So let me give you a quick demonstration of that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=193.0498335) [Let's say inside of my script I'm going to compute some result, "result = 2 + 2".](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=198.0498335) [And I expect that answer to be 4, but perhaps something is showing a 5 on the screen and I cannot figure out why.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=204.0498335) [For right now, let me just do an alert with that result that will actually pop it up in a dialog box.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=210.0498335) [That's not something that I suggest you do when you're working with Angular, there's much better ways to do this,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=216.0498335) [but this is what we're going to use for now, just so I can show you some debugging techniques.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=222.0498335) [So let's say that that dialog box pops open and shows the #5 and I don't expect the #5.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=226.0498335) [I want to find out what's in that variable. Why is it being computed that way?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=231.0498335) [If that's the case, I will want to come into Sources, and inside of Sources, if this particular tab here](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=235.0498335) [is open, there'll be a list of dozens and dozens of JavaScript files, some of which are mine that I'm writing,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=242.0498335) [like script.js, and some of which belong to Plunker in order to build the Editor and the Preview window](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=248.0498335) [and things like that. If I just want to find my file, script.js, then I want to hit Ctrl + 0,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=253.0498335) [and now I can just search for it. So I can say, ‘Let's find script.js, there it is, let me open it.'](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=260.0498335) [And now what I want to do is set a breakpoint. So over here in the numbered columns, if I click there,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=266.0498335) [there'll be a little visual indication that I have a breakpoint here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=273.0498335) [And the next time this script runs, Chrome will stop execution on this line and I can inspect some things.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=276.0498335) [So now if I change something on my page, like just add a space, now Chrome is re-executing all this JavaScript,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=282.0498335) [you can see that I have stopped on this breakpoint because the whole line is highlighted.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=287.0498335) [If I hover over the results, the #4 pops out, so I can say, ‘aah yes, well there was a 4 inside of result,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=292.0498335) [where did that come from?' I can go and inspect some other variables inside of this source code.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=299.0498335) [And then once I think I've found the problem, I can always clear this breakpoint by clicking on it again.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=305.0498335) [And then coming over to this toolbar on the right, and say ‘resume script execution on Windows'.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=310.0498335) [I could also press F8 to resume, and now my page continues execution. I can see that a 4 pops up.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=316.0498335) [And based on the code that I saw, that is the expected result. So just to review the couple tips that we covered,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=323.0498335) [you probably want to keep your Developer Tools open as you're working on the code throughout this course,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=329.0498335) [just to see if any errors pop up. You'll occasionally want to clear the Console to get rid of the clutter](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=334.0498335) [and be able to see your errors clearly. And when things go really wrong, you can always open a file](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=339.0498335) [by coming to this Sources tab, hitting Ctrl + O, typing in the name of your file,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=344.0498335) [and then you can set breakpoints, you can inspect variables, and you can generally go through the process](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=348.0498335) [of debugging to figure out what is wrong with your program.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=4&mode=live&start=353.0498335)

[JavaScript Patterns](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live)

[There are some common patterns that you're going to see in JavaScript code when we start working with Angular,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=2.3603558) [and I want to spend some time, before we go further with Angular, to walk you through some of these common](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=7.3603558) [JavaScript coding patterns. Maybe you haven't seen JavaScript use this way before or you just need a refresher,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=12.3603558) [but I want to show you how JavaScript can be used as a functional language and how we can use functions](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=18.3603558) [to create abstractions. Abstractions are useful because they typically provide some sort of encapsulation](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=23.3603558) [to make other code easier to write, and Angular relies heavily on the functional nature of JavaScript](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=29.3603558) [to build abstractions. So all this knowledge will come in useful later when we get to the other modules.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=35.3603558) [So let's start by talking about using functions as abstractions.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=40.3603558) [Inside of my plunk, I've deleted the code that we had previously in script.js, so there's no more call](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=46.3603558) [to raise an alert here, and I also want to go in and I want to turn off the auto refresh,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=51.3603558) [just so it doesn't confuse us. The code that I want to write in here is, first of all,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=57.3603558) [I want to create a variable called work and I want that variable to immediately point to a function.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=62.3603558) [The purpose of this function is to abstract away some sort of operation that needs to be performed.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=68.3603558) [We need to do some work, we want to wrap all that work up inside of this function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=73.3603558) [and assign it to a variable called work. And the only work that we'll actually do in here is something](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=77.3603558) [very simple, which is I'll just do a console.log that will say "working hard!"](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=82.3603558) [So that should appear in the Console down here when I actually run this program.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=88.3603558) [Currently, if I were to refresh the page, nothing would appear in the Console because we're not invoking work,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=92.3603558) [we're just defining work, but I could invoke work, refresh my preview, and in the Console we should see](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=98.3603558) ["working hard!" Very good! But let's raise the level of abstraction, because quite commonly](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=105.3603558) [when you're programming with Angular, you're going to need to define a function that executes some work](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=110.3603558) [or an algorithm or creates some data structure, and you're going to need to take that function and pass it to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=116.3603558) [Angular because Angular needs that function and that abstraction to execute something on your behalf.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=121.3603558) [And to simulate that kind of scenario, let me create another variable called doWork.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=127.3603558) [doWork is going to be a function, and this function takes a parameter, I'm going to call it (f).](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=133.3603558) [And this function expects that (f) will be another function, that is something it can invoke by applying parentheses.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=140.3603558) [And so now, if I call doWork and I pass in my work variable that happens to point to a function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=149.3603558) [all of this should still work and we should still see "working hard!" when I refresh.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=157.3603558) [because I'm passing that work function in to doWork, which is actually where the work is executed.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=163.3603558) [And just to be clear, I'm not invoking work. What that would do is invoke work and pass the result,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=169.3603558) [or something that is returned from work, into doWork. That's not what I want to do, work doesn't even](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=176.3603558) [return any value, so that would be passing an undefined into doWork.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=182.3603558) [What I want to do is pass the variable work into that function so that doWork can execute the function](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=186.3603558) [that I'm passing in. And you might say, ‘Well why is that useful, why not just invoke work instead of](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=193.3603558) [creating some other function to invoke work?' And again, the whole idea here is to provide some abstraction,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=198.3603558) [so maybe doWork represents some routine that can add retry logic, or some routine that can add value,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=203.3603558) [perhaps by logging when work is going to start and logging when work is going to end,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=209.3603558) [and perhaps the work that needs to be performed is some sort of dangerous operation.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=217.3603558) [So we could even wrap that work inside of a try catch block, and then if something goes wrong,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=222.3603558) [we could tell people that there has been an error, in this case I'll just log a message to the console,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=228.3603558) [but you could certainly raise some sort of actual alert box in the browser to let the user know something went wrong.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=235.3603558) [And this is just a common pattern when programming with Angular and really a number of JavaScript frameworks,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=241.3603558) [which is, we're going to use the function as the basis for an abstraction.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=247.3603558) [So, functions that do work, functions that execute work, passing functions to other functions so they](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=252.3603558) [know what job has to be done instead of embedding that code directly in that other function.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=258.3603558) [Because what I have now with doWork is a generic function that can tell me when something is starting,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=264.3603558) [when it's ended, and also provides some error handling. So, perhaps I could reuse that to perform](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=268.3603558) [different types of work, but this isn't the only way that we use functions in JavaScript and with Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=273.3603558) [Sometimes we also use functions to simulate modules. Let's look at that next.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=5&mode=live&start=279.3603558)

[Modules](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live)

[Functions are a useful abstraction in JavaScript, but sometimes I need more than just a function.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=2.6063003) [Sometimes I need an object, and that object has data and it has methods attached to it,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=7.6063003) [and that's the type of abstraction that I need. And let me show you what I'm talking about from a client perspective.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=12.6063003) [In other words, as a client, someone who is going to use an object that exposes methods and data,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=18.6063003) [I want to be able to say that I need a worker object and I can get that worker object by invoking a function](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=24.6063003) [called createWorker. Once I have the worker, I want to be able to do things like - worker.(perform)job1](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=32.6063003) [and worker.(perform)job2. And it's really not important what those specific jobs are.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=39.6063003) [job1 could be call a web server, job2 could be massage the data that came back from the web server.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=46.6063003) [We're not really concerned with those details at this point; what we're really focused on is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=52.6063003) [how do I create this worker object that has two methods on it, job1 and job2.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=56.6063003) [There's several ways to do that in JavaScript, but let me show you the common approach that we use](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=61.6063003) [with Angular. Right now I know I need something called createWorker that points to a function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=67.6063003) [and that function has to return an object that has job1 and job2 on it and they have to be functions that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=75.6063003) [themselves can be invoked. So I know ultimately I need to return an object.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=80.6063003) [This is the JavaScript literal syntax where I can just define an object and I can say ‘yes, it has something](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=86.6063003) [called job1', and job1 is a function and I can just have an inline function defined right here,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=92.6063003) [maybe do a console.log inside of it, but I'm going to take a slightly different approach;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=97.6063003) [Yes, I do want to return something that has a job1 method on it, but I don't want to define this function's inline.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=103.6063003) [Typically when I sit down to write an object that's going to expose some sort of API,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=111.6063003) [what I want to do is focus on the implementation details first. So I'm just going to create a variable](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=116.6063003) [called task1, and task1 just happens to point to a function that will do a console.log that says,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=122.6063003) [‘we are inside of task1'. And since this is a very simple example, let me just copy and paste that code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=129.6063003) [and change this to be a task2 variable. And when that is invoked, it will print out the result, task2.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=136.6063003) [And now the question is, how do I return an object that exposes task1 and task2 as methods that can be](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=143.6063003) [invoked when someone says worker.job1 or worker.job2, and again, the object literal syntax will let me do that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=150.6063003) [I can say job1 is a member of this object, and instead of defining an inline function here,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=157.6063003) [I can say that job1 points to task1, and job2 points to task2, and now that will return the proper object,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=164.6063003) [an object that has a job1 method and a job2 method, and the code I have below should work.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=173.6063003) [I could also call these variables job1 and job2. In fact, most people will do that to avoid some confusion.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=179.6063003) [Then the object that I return here, this line would be job1: job1, because that variable would be named job1.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=187.6063003) [And below that we would have job2: job2, but this is just an example of how you can alias things.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=195.6063003) [So I think of the top part here as my private implementation details, I can call these functions whatever I want.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=200.6063003) [I could even have private functions that aren't exposed from this object, but when I return this object](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=207.6063003) [I'm really defining the public API. I'm saying here's an object that has two methods, job1 and job2,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=213.6063003) [no one really needs to know what is inside, but if we were to come in and clear the Console and refresh this page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=219.6063003) [I'm able to see that I just executed task1 and task2. And to many people in JavaScript,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=227.6063003) [if you go out and read about JavaScript patterns, they'll refer to this as the revealing module pattern.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=232.6063003) [It's a module because what we've done is encapsulate some code inside of a function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=238.6063003) [and a module, the general meaning of that term in computer science and software development in general,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=244.6063003) [some collection of components or features that you can put together to perform some useful work.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=249.6063003) [So we're creating a module in JavaScript by defining a function. Inside of that function building up some](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=254.6063003) [things that we can use and expose to the outside world, and we can even have some private implementation details;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=260.6063003) [for example, if I create a variable called workCount that counts the number of times that task1 and task2](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=265.6063003) [have been invoked. That's not something that I want to expose to the outside world and allow them to manipulate it.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=274.6063003) [It's just something that I want to use an internal implementation detail and perhaps each time these methods](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=280.6063003) [are invoked, I will increment workCount and I will also print out the current value of workCount here](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=286.6063003) [inside of each task. So workCount += 1 (Typing); workCount here also.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=296.6063003) [So now let's clear the Console and also let's add a couple more calls to job2, Refresh, and you can see](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=306.6063003) [how workCount is incremented. So I have task1, we essentially did 1 unit of work, then 2, 3, and 4 units of work.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=317.6063003) [And this is something that we'll do later in the Angular course, will be defining a function that returns](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=324.6063003) [an object that provides an API, or other pieces of code elsewhere in the application to use.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=329.6063003) [And inside of that function that we created, this function like createWorker, we can have some private](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=336.6063003) [implementation details and properly encapsulate our work so that it's hidden and other people don't have to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=341.6063003) [worry about it. Now the one drawback to the code that I've been writing so far, both this code and the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=347.6063003) [previous code snippet, is that I'm creating global variables.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=352.6063003) [Let's learn about what those are and how to avoid them next.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=6&mode=live&start=358.6063003)

[The IIFE](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live)

[The createWorker function that we have is interesting, because it creates, in JavaScript, what is known as a scope.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=2.3208115) [and the local variables that we've created inside of that function, variables like workCount, task1, task2,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=8.3208115) [they are only visible inside of the function itself. So yes, you can have function definitions nested inside](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=15.3208115) [of other functions in JavaScript; that's how task1 can point to a function that is defined inside of another](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=21.3208115) [function that we assign to createWorker, and that's something that we'll do a lot of in this course.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=27.3208115) [And it's also great, because task1 is a variable that is not visible outside of createWorker.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=33.3208115) [If I try to go up to the worker object and invoke task1, that is going to be an error that tells me](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=38.3208115) [undefined is not a function; on line 28, that's essentially a way of saying, I don't know what task1 is,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=47.3208115) [I got undefined for that, and then you tried to invoke it, and that's just not going to work.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=53.3208115) [So I need to remove that line. The only way I can get to task1 is because createWorker explicitly referenced that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=57.3208115) [in an object that it returns to the outside world. But task1 itself is inside the scope of createWorker,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=66.3208115) [it's not visible to the outside. And these variables that I have outside of this function definition,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=72.3208115) [including the variable createWorker and the variable worker, these are also in a scope, and unfortunately,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=78.3208115) [it is the global scope. They are global variables because they are defined outside of any other code,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=85.3208115) [outside of any other function. If you've been doing software development for any time, you've probably](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=90.3208115) [heard that global variables are bad. They easily become a source of confusion and bugs.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=95.3208115) [But in JavaScript, global variables are beyond bad, they're downright evil.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=100.3208115) [Because JavaScript is a dynamically typed language, it's very easy for me to override a global variable](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=105.3208115) [defined by someone else, and vice versa, and so we try to avoid globals at all costs.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=110.3208115) [And so my next question to answer will be this, is there a way for me to define all the code that I have](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=116.3208115) [and execute that code and achieve the same output, where I see task1 and task2 executing,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=122.3208115) [and to be able to do that without creating any global variables? While I can think of one easy way](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=127.3208115) [to create only one single global variable, what if outside of createWorker, I defined a function called program,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=133.3208115) [and program is going to wrap up, not just createWorker, the function definition, but also a code where I](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=143.3208115) [instantiate a worker and call job1 and job2. Now currently, formatting is a little bit messed up,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=151.3208115) [but if I go into the toolbar here of Plunker and I select ‘Beautify my code', that will go through the code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=157.3208115) [and make sure that I have the proper indenting everywhere. And now, let me temporarily close the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=164.3208115) [Developer Tools so we can try to get this all on the screen. Now what I have is currently no global variables,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=168.3208115) [because createWorker and worker, they're both now just variables defined inside of this program function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=173.3208115) [the only global variable I have is program itself, and now if I invoke program, I'll be executing this function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=179.3208115) [which will create a worker and have that worker perform some jobs.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=187.3208115) [So if I open up the Developer Tools again, and let's clear the Console and run the program,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=192.3208115) [I get the same output I had before, which is the worker spits out task1, task2, task2, task2,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=200.3208115) [with a count of all the work being performed. So I'm down to one global variable, but how could I get to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=206.3208115) [0 global variables? Well what if instead of declaring a variable here called program, which will be global,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=211.3208115) [what if I just took this function, and at the very bottom of that function definition, I just had it invoke itself?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=219.3208115) [Well there's one little problem here, in that JavaScript doesn't particularly like this syntax,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=228.3208115) [it doesn't like to have an anonymous function just sitting here that invokes itself,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=235.3208115) [and what I have to do is apply an extra left parentheses before the opening keyword function](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=239.3208115) [and then have a corresponding closed parentheses at the end here before the semicolon.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=246.3208115) [And now what I've built is something known in the JavaScript circles as an immediately invoked function expression;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=251.3208115) [it is a function that I have defined that has some functions and some code inside of it that just immediately](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=258.3208115) [invokes itself. The end result being that if I clear the Console and load this page, I now have all the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=264.3208115) [same code executing that I had before, but because all of that code is wrapped up inside of a function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=272.3208115) [I'm not creating any global variables. All the variables that are being defined are local variables](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=279.3208115) [inside of that IIFE, that immediately invoked function expression.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=285.3208115) [And yes we'll use the occasional IIFE in this course to avoid creating any global variables.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=288.3208115) [So, we will see this pattern at work, and yes, you'll see it in a lot of other JavaScript code.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=294.3208115) [A lot of libraries use IIFEs to control the scope of the variables to build modules to provide encapsulation,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=299.3208115) [and most of all to avoid those global variables.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=7&mode=live&start=307)

[In Conclusion](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live)

[In this first module we did very little with Angular itself, but we did lay a foundation to dive into](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live&start=2.0820782) [Angular in the coming modules. We set up a plunk in a Plunker and learned how to reference the Angular Library,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live&start=7.0820782) [Bootstrap and Angular application with the ng-app directive, and create a small expression to put some](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live&start=13.5) [information on the screen. We spent most of our time making sure we know how to use our Developer Tools](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live&start=19.0820782) [and the Plunker interface, as well as reviewing some common JavaScript coding patterns](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live&start=23.0820782) [we'll see in the modules to come. I encourage you to try those patterns out on your own,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live&start=28.0820782) [experiment with them and make them do different things, even throw errors - that's the best way to learn.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live&start=32.0820782) [From here on out will be all Angular all the time.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m1-introduction&clip=8&mode=live&start=37.0820782)

[Controllers](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live)

[Hi, this is Scott Allen, and this module is all about Controllers in Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live&start=1.5) [Controllers are one of the central pieces of the Angular framework, and in working with Angular,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live&start=6.5) [you're going to create many different controllers. As the name implies, controllers are in charge of an area](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live&start=11) [of the application. And with Angular, a controller is in charge or responsible for building a model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live&start=17) [A model contains the data we need to work with and a controller will do whatever it needs to grab that data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live&start=24) [So it might need to make some calculations or call back to a web server that talks to a database,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live&start=30) [whatever it takes. I'll show you how to build a controller that is able to build a model,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live&start=35) [and then we'll be able to use data binding to show that model in a view; the view is the HTML for our webpage.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=0&mode=live&start=39)

[Controller Basics](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live)

[There are four basic facts for you to know about a controller. Now remember, the job of a controller is to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=1.9579112) [control the information that we need to put on a page, or in an editing scenario to save the information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=7.9579112) [that a user is typing into the page. And to bring a controller to life, the first thing we'll see](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=13.9579112) [is a new directive, the ng-controller directive. ng-controller is an attribute that we place into our HTML.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=18.9579112) [So just like ng-app is a directive, ng-controller is another directive.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=26.9579112) [And when we use ng-controller, we can specify the name of a controller that we want to take control of some](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=30.9579112) [area of the HTML. So in this code snippet, ng-app will initialize Angular and Angular will take control](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=37.9579112) [of that div and everything inside of it. Inside of that div is a child div where we can put something called](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=44.9579112) [the MainController in charge. So ng-controller can only be used where we have an ng-app in place,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=50.9579112) [and we have to tell Angular the name of the controller that will be in charge.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=56.9579112) [In this case, the controller is MainController, and we have to name these controllers, because in large applications](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=60.9579112) [you can have dozens and dozens of different controllers to use. So now the question is, how does Angular know](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=65.9579112) [where this controller lives? And the answer is that we'll need to create a controller with that name,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=71.9579112) [MainController, and we can do that by writing a function and assigning the function to a variable with a matching name.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=76.9579112) [As you can see in this code snippet, controllers are just functions.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=83.9579112) [We don't invoke these functions; Angular will invoke this controller function when it needs to create](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=87.9579112) [a controller to manage an area of the webpage. And, when Angular creates our controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=92.9579112) [it can pass a parameter to our function, a parameter we call $scope with a dollar sign in front, $scope.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=97.9579112) [You'll encounter a few things with dollar signs in the front when you work with Angular,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=104.9579112) [and just like the ng prefix, the dollar sign prefix is a sign that the component you're working with](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=108.9579112) [is a component provided by Angular. What we can do with the scope argument is assign our model to the object.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=114.9579112) [So $scope is not the model, but things that we attach to that $scope are going to be the model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=121.9579112) [In the code snippet, we've only attached a single property to $scope, it's called message,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=126.9579112) [and it points to the string "Hello!" This will now make message available to us inside the HTML](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=131.9579112) [so we can data-bind it into the display. Let's take a look at how that works.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=137.9579112) [Here I am on the Plunker webpage. I've just created a brand-new plunk, but I haven't made any changes to it yet.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=143.9579112) [Let's get set up to use Angular and create our first controller. So we know one way to get Angular](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=150.9579112) [is to come into the list of packages and just tell Plunker to install Angular for me.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=155.9579112) [That's going to put in the script reference that points to angular.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=161.9579112) [And once I have that in place, I'll need an ng-app directive. I'm just going to place that on the HTML element,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=167.9579112) [but it could go anywhere. And what I want to do ultimately is put a controller in charge of the body](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=174.9579112) [and everything inside of it, and provide the ability to write out some sort of custom message.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=181.9579112) [So, instead of the page displaying "Hello Plunker!", I want to be able to display something like,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=187.9579112) ["Hello Angular!" or "Hello Scott!", and to do that, I will create the controller and I'll call it MainController.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=193.9579112) [Now, a lot of people who work with Angular and a lot of the documentation you'll come across,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=202.9579112) [you'll see that people abbreviate the name controller to just CTRL, and that's fine, that works perfectly well.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=206.9579112) [It doesn't matter if you spell it this way or the long way; really just as long as you're consistent](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=213.9579112) [inside of an application, that's what would matter. I prefer to type out the word and just have](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=218.9579112) [MainController the full word; I'm not a big fan of abbreviations these days, unless they're really necessary.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=224.9579112) [So, now I'm asking for a controller, and if I were to run this webpage, I would find that I have some errors](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=230.9579112) [collecting inside of my Console. If I look at that, one of the errors that will be here is Angular complaining](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=237.9579112) [that it cannot find a MainController, which makes sense, we haven't written that yet.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=243.9579112) [So, let's do that. Inside of script.js, which is included in this page, I'm going to define a variable,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=247.9579112) [MainController, and is this variable a global variable? Yes it is, because I'm defining it outside of any other code.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=256.9579112) [We'll come back and fix that later. (long pause) But this MainController will be the controller that Angular is looking for,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=264.9579112) [and one of the parameters that you can always pass into a controller is $scope.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=280.5) [As we work through the course, we'll see there are other parameters that you can accept into a controller function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=286) [but for right now we just need this one, which is $scope, and now I can attach one or more things to that scope.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=291.5) [So I can attach something called message and set it equal to "Hello, Angular!"](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=298.5) [And now when my page refreshes, I have this model, which is a message attached to my scope,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=305) [and I have it displaying in the webpage, thanks to the data binding expression from Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=312) [And if you think about it, perhaps you can see why that argument that is passed to my controller function](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=318) [is called $scope, because it is establishing a $scope where the data binding expressions are evaluated again.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=323) [So if I have something in my HTML called message, where is Angular going to look for message?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=330) [It's going to look for it on the $scope object for the controller that is associated with that section of the HTML.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=335) [And I can do some fancier expressions, so inside of the HTML I could say, ‘let's output, not message,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=342) [but message.length", because every string has a length property and the length of that particular string](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=349) [is 15 characters. That might not be what I want to display to the user, but that was a perfectly valid](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=354) [expression inside of the curly braces. If I were to take that expression, the h1 that is inside of this body,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=360) [and move it outside of the HTML element that has this ng-controller directive, then it would no longer work.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=367) [I'd be trying to find a message, and the only place a message exists right now is inside of the MainController.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=373) [So I have to use this expression inside of the body tag that is specifying your controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=378) [that makes that message available. Let's build on this example in the next clip.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=1&mode=live&start=385)

[The Capabilities](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live)

[Now we've seen a controller in action, and we see that the primary responsibility of a controller](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=2.3162779) [is to set up the model on our $scope object. Angular passes $scope to our controller function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=7.3162779) [and our controller manipulates that scope. Notice how our controller never has to directly manipulate the HTML,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=12.3162779) [or what we call the view? It only manipulates $scope by attaching a model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=18.3162779) [And then we use binding expressions to move data from the $scope into the view.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=23.3162779) [In future modules, we'll see how we can also set up methods to react to events.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=28.3162779) [So when a user clicks a button or types into a textbox, we'll be able to know about that from the controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=33.3162779) [but we'll do that with directives. So, again, the controller doesn't have to reach directly into the HTML](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=38.3162779) [to hook up events, and this setup creates a nice separation of concerns, where the controller is focused on](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=43) [$scope and the view is focused on HTML with some directives. And other than specifying which controller to use](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=49) [inside of my HTML, the view and the controller never interact directly.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=56.3162779) [If you've ever worked with jQuery, you know that's a much different world, because your JavaScript code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=60.3162779) [typically directly manipulates the HTML. And it looks inside the HTML to find elements to catch events](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=65.3162779) [and you have to write code to move data between your JavaScript objects and the HTML.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=71.3162779) [Angular simplifies these scenarios and you write a lot less code that is also better factored;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=75.3162779) [it has a separation of concerns. And here's a few other things that we can do with controllers.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=80.3162779) [First, on larger applications, you'll almost always have multiple controllers in your application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=85.3162779) [Probably even on the same page, because each controller is going to be responsible for different features](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=91.3162779) [or different areas of data. So here's a page with three controllers; the Date, Quote, and Chart Controllers.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=97.3162779) [You could also work against more complex objects. So instead of just having a simple message property](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=103.3162779) [on my $scope object, I might attach a Stock property to reference an object with symbol and price properties.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=108.3162779) [And the binding expressions allow me to use dots to navigate inside of an object that is attached to $scope;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=115.3162779) [stock.symbol, stock.price. And then there's a couple interesting things about the ChartController.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=121.3162779) [First, you'll notice it's nested inside of the QuoteController. This is an advanced technique we probably](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=126.3162779) [won't use in this course, but I want to make you aware that it's possible.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=132.3162779) [Also in this controller is something we will use, and that is, we can use binding expressions,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=136.3162779) [not just to display text on the page, but we can also use them to set the attributes inside of our HTML.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=140.3162779) [So in this example we're setting the source and the description of an image.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=147.3162779) [And I'm showing this example to let you know that you're not restricted to displaying just text on the screen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=150.3162779) [You can control anything you need just by setting up the right model data and then binding that data](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=154.3162779) [into the page at the right location. Let's try this out ourselves.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=160.3162779) [Inside of our plunk, let's swing over to the MainController and I want to now display information about a person.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=166.3162779) [So just using the JavaScript object literal syntax, I'll define a person object, and let's give that person](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=173.3162779) [a firstName of Scott and a lastName of Allen, and I even want to give this object an imageSrc that has](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=180.3162779) [a URL that points to a picture of me, a slightly dated picture, but that's okay.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=190.3162779) [Now just defining this person variable inside of the controller function does not make that object available](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=195.3162779) [for data binding. Right now that variable is only available inside of this function, but I can take that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=200.3162779) [variable, that person, and attach it to $scope, and now my binding expressions in the view can reach](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=205.3162779) [into $scope, into this person, and display the firstName and lastName. So let's try that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=214.3162779) [In index.html, I'll leave the message here, but let's create a div that will contain person information.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=218.3162779) [So, the first name of the person is person.firstName. And the last name of a person is person.lastName.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=225.3162779) [And then let's try to display the image, so I need an image whose source is equal to person.imageSrc.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=241.3162779) [And instead of using an Alt tag, which is good, I'm going to use a title tag to show you an expression](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=251.3162779) [that will appear if I mouse over that image. So inside of here, I want to put in person.firstName, space,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=257.3162779) [person.lastName. And now once the page refreshes, if I mouse over, I can see that displays Scott Allen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=264.3162779) [So I'm using that model information, not just to display text on the screen and intermingle binding](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=273.3162779) [expressions with literal text, I'm also using my model to set attributes of an image so that we can display](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=278.3162779) [a picture on the screen. Now, one quick tip about using a binding expression in the source of an image,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=285.3162779) [you have to think a little bit about how a browser works. When this HTML renders, the browser is going to see](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=292.3162779) ["<img src=" and then this binding expression. It's not until later when Angular is up and running,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=298.3162779) [that it comes in and replaces person.imageSrc with the value from my model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=305.3162779) [But unfortunately, the way the browser works, as soon as it sees "<img src="{{person.imageSrc}}",](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=310.3162779) [it's going to go and try to download an image, treating that binding expression as a URL.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=316.3162779) [And in fact, down inside of the Console window here, you can see that each time it refreshed the Preview window,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=321.3162779) [it tried to grab that image and got a 404 error, could not be found.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=327.3162779) [And this is why Angular provides a directive, ng-source. You'll notice now the Preview window refreshed,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=331.3162779) [but I did not get a 404 error and I still have my image. The purpose of the ng-source directive is that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=341.3162779) [once Angular is up and running, once it has evaluated this expression, then it will come in and set the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=348.3162779) [actual source attribute for that image and the image should be successfully downloaded and you'll avoid these](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=354.3162779) [404 errors. So ng-source is just a directive to set the source of an image when there's a data binding](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=359.3162779) [expression involved. That's a quick little tip, and there are many more directives that we'll see,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=366.3162779) [particularly in the next module. I also just want to point out one other thing about Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=370.3162779) [Let's say I have a typo here, and instead of person.firstName, I forgot the ‘e'.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=375.3162779) [And a couple things to notice; first of all, the firstName did not display in the Preview window,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=380.3162779) [because I'm trying to reference a property that doesn't exist on person, and secondly there was no new](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=384.3162779) [error creating in the Console window. This is the way Angular works and it has some pros and cons.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=389.3162779) [The pros are that a page doesn't break just because something isn't available.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=394.3162779) [Now in this case, I have a typographical error - I meant to type firstName, and I wish this would've been](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=399.3162779) [treated as an error so I could catch it without visually examining the page and seeing that that doesn't appear.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=404.3162779) [However, the Angular philosophy is, if a binding expression doesn't work, don't throw an error,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=409.3162779) [just continue on, because you might be trying to bind to data that doesn't exist yet.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=414.3162779) [It's data that we have to retrieve from a web server and massage before we make it available.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=419.3162779) [And so it's okay to try to bind person.firstName, maybe person doesn't exist yet, but it's not going to break](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=423.3162779) [the page; it'll fill in later when we get the data. But that does mean that you have to watch out on your page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=429.3162779) [and make sure it's displaying the expected data. But what about the scenario I'm talking about;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=437.3162779) [the scenario where I want to display person.firstName, but it's not available yet because I have to retrieve it](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=441.3162779) [from the server. Let's actually try to retrieve some data from a server, and see how that works with our](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=447.3162779) [controller and the model and the data binding.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=2&mode=live&start=452.3162779)

[Calling HTTP](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live)

[When we're writing code inside of a controller, we usually don't just make up our data, like we're doing](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=1.3243557) [with the person object in the last clip. We need to fetch data from our web server, and our web server](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=7.3243557) [might need to talk to a SQL database to send us back the data we need, or it might talk to a no-SQL database,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=12.3243557) [or XML files on the server's disk; we really don't care. We just need data from that server,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=17.3243557) [so we need a way to communicate with the server, and this is the job of the $http Service in Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=23.3243557) [HTTP is a service that Angular provides, and this service is just an object, an object with methods I can use](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=29.3243557) [to make HTTP calls. In fact, the methods are named after the HTTP methods that I commonly use,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=36.3243557) [so the methods on this object are methods like GET, POST, PUT, and DELETE.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=43.3243557) [And HTTP GET is commonly used to read information from the server, as in get me all the details for this user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=47.3243557) [while POST, PUT, and DELETE, they typically modify data somewhere and save or delete information from a database.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=54.3243557) [So how does one access this $http service in a controller, and the answer is, just like with $scope,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=61.3243557) [I can ask Angular to provide me with the $http service just by having a parameter on my controller function named $http.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=67.3243557) [It has to have the dollar sign in front and be all lowercase, because JavaScript is a case-sensitive language.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=76.3243557) [And once I have the $http object, I can use methods like .get, .post, and .delete to communicate with the web server.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=81.3243557) [So the code you see here is sending an $http.get message to the URL, /users/1783, presumably the 1783 is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=89.3243557) [the ID of the user that I need information about, and now the server has enough information to go off](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=99.3243557) [and find that data and return it to me. Every API will be a little bit different, so the URL that you use](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=104.3243557) [in a call to $http.get will probably be a bit different for your software compared to my software.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=110.3243557) [Now the code on the screen, though, has a serious flaw. It is calling $http.get and assigning the result](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=116.3243557) [to $scope.user; however, the HTTP communication methods on this object never ever return the data you need](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=122.3243557) [immediately. That's because all communication is asynchronous. When I call $http.get, that will start a request](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=129.3243557) [to the web server in the background and that call might take 250 milliseconds or it might take 25 seconds,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=137.3243557) [but I'm not going to be able to get the result immediately, like this code here implies.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=143.3243557) [What the $http methods do is return an object immediately, known as a promise.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=148.3243557) [A promise object is an object that promises to give you some result in the future, and that result might be](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=153.3243557) [the data that you need, or the result might be an error if the server was unavailable.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=160.3243557) [The way I find out is to call a then method on my promise and pass the then method a function that will be](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=164.3243557) [called in the future. So, again, we see the pattern that we talked about in the introduction,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=171.3243557) [where we pass functions to other functions to do work. The then method will call my function when the data](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=175.3243557) [is ready sometime in the future, and it will pass the data into my function as a parameter.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=182.3243557) [Here I'm taking a parameter named response, because the promise for an $http call will pass to me an object](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=187.3243557) [that represents the $http response, including things like the $http status code, but in many cases,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=194.3243557) [all you need to look at is the data property of this response, because that will contain the data](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=200.3243557) [that the web server has returned to you. And now I can take that data and add it to my $scope as a user property.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=205.3243557) [That makes the data from my server available to use from the view.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=211.3243557) [Many people when they write code like this will shorten it up just a bit into a single series of chained functions.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=215.3243557) [So, $http.get, pass in the URL, .then, here's how I want to process the response.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=220.3243557) [Now before we write this code ourselves, let's take a look at a server API that we can easily use for my controllers.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=3&mode=live&start=227.3243557)

[Using $http](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live)

[The API I want to use in my demo is the GitHub.com API, and I do this for three reasons;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=1.665578) [the GitHub.com API has three characteristics, which very few real APIs with real data have.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=7.665578) [#1, the API is available to call from JavaScript in a browser.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=14.665578) [#2, the response is in JSON format, which is easy to consume from JavaScript.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=19.665578) [In fact, Angular's $http service will automatically convert a JSON response into a JavaScript object for me.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=24.665578) [And #3, the service does not require me or you to sign up and provide authentication credentials](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=31.665578) [or some sort of client or application key, so it's easy to use.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=37.665578) [This isn't to say the situation might change in the future, but I hope you'll still be able to use this API](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=41.665578) [when you view this video. Here's what an API call looks like; I can go there right from a browser](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=46.665578) [that will issue an $http.get request, and this is a get request to api.github.com/users/odetocode.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=51.665578) [So I'm asking for the user details on the GitHub users/odetocode, and I can see a response that will give me](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=60.665578) [data like the name of the user, the location of the user, even the gravitar of the user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=66.665578) [which is the image commonly associated with this user. So I'm using this GitHub API to simulate data](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=71.665578) [that you might get back from your web server for your application that comes from your database,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=77.665578) [but I don't want to set all that up just to learn Angular, so let's try to use this GitHub API as a source of data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=82.665578) [Inside of our controller, let's get rid of the fake person data that I constructed, and instead,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=91.665578) [let's ask Angular for the $http service and we can use that to call the GitHub API.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=99.665578) [So, I want to issue a get request to https, so this is secure sockets, api.github.com/users,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=104.665578) [and now instead of me, let's use robconery. $http.get is going to return a promise.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=117.665578) [So I don't get details about robconery immediately. What I need to do with that promise is invoke a then method](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=125.665578) [and process the result, and I can do that by writing a function here, an anonymous function that I just](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=132.665578) [pass into them, or I can write a named function up here, a private implementation detail of the controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=138.665578) [and just pass that function into the then method. We did some of the same sorts of things inside of the introduction.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=145.665578) [So, onUserComplete, as I have gotten the details of the user in a response from that http request,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=151.665578) [the promise will pass in the response; all I really need to do is pick out the data portion of that response](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=160.665578) [and I can say "$scope.user = response.data". So, this web server will send data back in JSON format,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=166.665578) [Angular will automatically deserialize that data into a JavaScript object for me,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=174.665578) [and now $scope.user will have the same properties that we saw in the previous slide for that response from GitHub.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=179.665578) [It's going to have properties like name, location, avatar\_url.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=186.665578) [All I need to do is tell them that the function to call, when this $http request is successful,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=191.665578) [is onUserComplete, and that will put everything I need into my user object.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=201.665578) [Let me turn on auto refresh. And we'll go over to our view, and fix this up to work with the new information we have.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=206.665578) [We don't have firstName and lastName anymore. Instead, what we have is the user's name, which is user.name,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=216.665578) [we have the user's location, which is user.location, and now for the image, I have that avatar\_url.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=225.665578) [So let me first set the title of the image to user.name, so when a user mouses over, they can see that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=236.665578) [that is the person's name, and ng-source now becomes user.avatar\_url.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=244.665578) [And again, if you don't remember what these properties are, you can just launch a web browser](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=250.665578) [and go to this URL. You will see those properties in the output, but now that we've put all this together,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=255.665578) [we do get Rob's name and location and image on the screen. So let me show you one more thing about the $http service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=261.665578) [What would happen if the server was down or let's say I just had a typo in the URL that I was trying to get to.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=268.665578) [Well that will create an error in the Console. I can see that that URL ap.github.com, it couldn't load](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=276.665578) [for whatever reason, and of course my Preview screen goes blank because now I don't have a user attached](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=282.665578) [to $scope; there's no data available. This function that I pass into the then method, the first function I pass in,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=288.665578) [that's only invoked if the get call, or the post, or the put, or the delete, whatever you're using,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=294.665578) [it's only invoked if that call is successful, and the web server returns a successful response.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=300.665578) [If there's an error, I can pass a second function to then, that will be called if there's an error.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=306.665578) [So let's write a function on error, that's a function. I will actually get a reason for that error,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=313.665578) [which will contain all sorts of technical details about the $http request.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=319.665578) [Perhaps I'm not interesting in any of that, I just want to tell the user that I could not fetch the user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=325.665578) [and just have that on the screen so there's some visible indication that something went wrong.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=334.665578) [And now I can come into index.html and I can find a location where I could put that message.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=338.665578) [So, perhaps up here I could just say, bind error, and now "Could not fetch the user" appears.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=344.665578) [If I go back into script.js and I fix my call,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=354.665578) [now we're back to getting Rob's information. So this is the $http service, very easy to use.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=360.665578) [You just have to remember how to program with promises, invoke a then method, and give it a function to call](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=365.665578) [when you have a successful response and grab the data out of that. You can also optionally give it](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=371.665578) [a second function if there's an error, inspect the reason, and probably tell the user that something has gone wrong.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=4&mode=live&start=377.665578)

[Controllers and Modules](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live)

[Earlier in this course, I mentioned that the controller that we're creating in our plunk, the MainController,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=1.3892558) [it's living in the global namespace, which is usually bad. When you are building your own application with Angular,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=7) [you probably don't want to do this. And if you ever go to look at other applications built with Angular,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=13.3892558) [you'll rarely see controllers in the global namespace. We only do that in simple demo applications.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=18.3892558) [Instead, what you'll see is the controllers live inside an Angular module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=23.3892558) [Now the word module is overloaded in JavaScript. We have the module pattern, we have the revealing module pattern.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=28.3892558) [I showed you that one in the introduction. And then we have Angular modules.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=34.3892558) [And all of these are not exactly the same thing, but they all have similar goals, which is,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=38.3892558) [I want to provide some sort of container for the code that I write, so it has some place to live](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=42.3892558) [and it's not in a global namespace. I don't want identifiers leaking out and cluttering up someone else's code.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=48.3892558) [So my goal was to create an Angular module as a home for my controller, and then I can have many different](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=54.3892558) [controllers in that same module. If my application is complex, if it requires 20 different controllers,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=59.3892558) [I can put all 20 into the same module. I can even have multiple modules for my application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=65.3892558) [Now that all depends on how complex the application is, does it have to share features with other applications,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=71.3892558) [how do I want to go about unit testing the code inside of a module; all of those are decision points](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=77.3892558) [on when do I need a new module, when do I use an existing module, and those questions are slightly](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=82.3892558) [beyond the scope for this course. I just want to show you how to create a single module and place a controller inside,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=87.3892558) [then we can use modules throughout the rest of the course. And working with modules is, fortunately, simple.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=93.3892558) [The first thing I need to do is create a module and give it a name. I do this with an Angular API, angular.module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=99.3892558) [Angular, that particular object, is the one single identifier that Angular puts into the global namespace,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=107.3892558) [so I can use it anywhere where angular.js is included. And that Angular object has methods like, .module,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=113.3892558) [that will allow me to create a module or get a reference to an existing module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=121.3892558) [The way I create a module is to pass in the name of the module, in this case it is githubViewer,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=125.3892558) [and then I can pass in an array describing the dependencies for this module, because modules can depend](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=131.3892558) [on features from other modules. This is a lot like how libraries work for certain languages,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=136.3892558) [or in .NET the way assemblies work. I have an assembly that I wrote and it has dependencies on other assemblies;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=141.3892558) [Angular modules are much the same way. In this case I'm passing in an empty array because my githubViewer](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=147.3892558) [module has no other explicit dependencies. Now implicitly, it does depend on a core Angular module,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=152.3892558) [but that's always assumed so I don't need to specify it. Later in the course, we'll take a dependency](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=159.3892558) [on another module. Then once I have the module defined, there is an API on that module object that allows me](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=164.3892558) [to register my controllers, as well as other types of objects. Right now we're just working for controllers,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=170.3892558) [but I can register my controllers with that module. And the name of the function to do that registration](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=176.3892558) [is named, conveniently, controller. I pass in the name of my controller as a string, and then the function](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=180.3892558) [that I use for the controller. That's the function that will take the $scope and the $http arguments,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=187.3892558) [as well as anything else that controller needs to do its job. The third step in working with modules is that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=191.3892558) [now that I have a module, now that I have some things registered into it, I need to tell Angular about this](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=197.3892558) [module when I bootstrap the application. If I've created a module that represents my application,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=202.3892558) [then when I use the ng-app directive, I have to tell Angular, the module you want to be using is githubViewer.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=208.3892558) [Load that up, Angular will go out and look for that. When it goes looking for a controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=214.3892558) [it can look inside of that module, and everything will still work as it did before, but it won't be putting](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=218.3892558) [anything in the global namespace. So just three simple steps to working with modules.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=223.3892558) [I create the module, I register my components in the module, and then I tell Angular to use that module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=227) [Let's try this out.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=5&mode=live&start=233)

[Creating a Module](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live)

[Inside of our plunk, MainController is currently in the global namespace. I want to change that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=1.8352003) [Now, back in the introduction I showed you one way to keep things out of the global namespace.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=7) [And one way to do that is, I could surround all of this code with an IIFE, an immediately invoked function expression.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=11.8352003) [So I will just apply the proper parentheses and then I will try to beautify this code so that the indentation](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=20.8352003) [is correct. Unfortunately, when I do this, Angular now has an error that it cannot find the MainController,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=27.8352003) [and as you can see in the Preview page, the application completely breaks down and I just see data binding expressions,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=34.8352003) [because Angular couldn't find MainController, it didn't have any way to control that portion of my HTML markup,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=40.8352003) [because MainController, it's not in the global namespace now, it's only available inside of this function.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=46.8352003) [If I want Angular to be able to use this controller, I'm going to need to create a module, I'm going to need](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=52.8352003) [to stick this controller in the module. So let me do this starting backwards.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=57.8352003) [I'll go in my index.html, into my view, and I'll say that the ng-app to use will be something called](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=62.8352003) [githubViewer, and now Angular will probably complain that it doesn't know what githubViewer is.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=68.8352003) [That's because I haven't created the module yet, but at least I know that Angular is looking for that module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=78.8352003) [So back in script.js, let me create this module definition; I'll put it here at the top.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=83.8352003) [Now many people, when they're working with Angular applications, what they will do is keep each component](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=89.8352003) [that they write in a separate .js file. So if I'm defining a module for my application,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=94.8352003) [I might put that in a .js file called app.js, and I would put MainController in maincontroller.js,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=100.8352003) [and then a second controller that I create goes in secondcontroller.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=107.8352003) [And this works out really well for development because we don't want all of our JavaScript code inside of](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=111.8352003) [one file that can be thousands and thousands of lines. Instead, we break our JavaScript into separate files](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=115.8352003) [and each file has an individual component, but I'm just going to create the module in the same file as my](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=121.8352003) [controller just to keep things a little bit simple, and later in the course we'll use multiple JavaScript files.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=126.8352003) [So, I will assign angular.module to a variable called app, and you can call that variable whatever you want.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=131.8352003) [The name of the module is githubViewer, and then it's very important to pass that second parameter,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=140.8352003) [which is an empty array, because otherwise you won't be defining a module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=147.8352003) [Instead, you would be asking Angular to get a reference to a module called githubViewer,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=151.8352003) [and that would only work if someone else had defined githubViewer; here we have to define githubViewer.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=156.8352003) [And now that I've created the module, I register my controller in the module, I do that by saying,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=162.8352003) [dear application, here is a controller named MainController, and here is the function to use](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=166.8352003) [when such a controller services are required. And you notice as soon as I do that, the Preview window](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=176.8352003) [refreshes, everything is working again, and we don't have any errors.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=181.8352003) [So you can see that working with modules is very simple, and also a good practice because it does keep that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=186.8352003) [global namespace clear. Now let me tell you about something different that you'll probably see when you](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=191.8352003) [go out and you look at real world Angular applications. And that is that, most of them do not use the syntax](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=195.8352003) [where they just pass in MainController to this controller method.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=203.8352003) [Most of them will actually pass an array as the second parameter here, and MainController is the last item](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=206.8352003) [in that array. The reason they do this is because most production applications, the JavaScript goes through](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=214.8352003) [a process known as minification. And if you've ever worked with a minifier before, you know that the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=220.8352003) [minifier's job is to make the JavaScript code as small as possible so we have a smaller download to give to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=225.8352003) [the person who is viewing our webpage; the page will load quicker.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=232.8352003) [And the minifier makes the JavaScript smaller because it strips out unneeded white space.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=235.8352003) [It will also change the names of local function arguments. So $scope might turn into the letter ‘n',](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=239.8352003) [because then instead of using 6 characters, we're only using a single character everywhere that we reference $scope,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=247.8352003) [so this will become n.user and n.error and n.message. But the problem is that Angular has to see the name](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=253.8352003) [$scope or it has to know somehow that the first parameter you need here is your $scope object and the second one](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=263.8352003) [is the $http service, because Angular is responsible for providing those specific objects to you.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=271.8352003) [And one way to tell Angular about that and still run a minifier that can change the names willy-nilly,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=278.8352003) [is to, when you register the controller, you pass in the parameters that it is going to require.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=283.8352003) [So, here I am telling Angular that when you create the MainController, it's going to need two parameters,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=291.8352003) [$scope and $http, to pass those in here regardless of what those actual function argument names are.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=297.8352003) [So not something we have to worry about in this course; this is just a little note to let you know when you](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=304.8352003) [move to production someday in the future and you go to minify your files and everything starts breaking,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=308) [it's probably because you need to come back and tell Angular more explicitly about the dependencies](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=313) [that things like your controllers need.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=6&mode=live&start=318.8352003)

[Summary](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live)

[In this module we took a look at controllers, and one aspect of controllers is how they manipulate $scope](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=1.5902115) [and thereby avoid interacting with the HTML directly. Instead, we attach data to the $scope object](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=7.5902115) [and we use binding to lift that data into the view. We also created a module for our controller to live in.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=12.5902115) [This keeps the controller out of the global scope and will continue to use modules in this course.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=19.5902115) [And finally we saw how controllers can use services from Angular; services like the $http service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=23.5902115) [There are many services in Angular and we'll see more as the course progresses, but the $http service,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=29.5902115) [it was important enough for us to use early on, because this is the service that we use to grab data from](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=35.5902115) [a web server. The $http service methods return promise objects, and those promise objects,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=40.5902115) [we can use them to grab a result in the future. We do that by using the then method.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=45.5902115) [In the next module we'll continue to build on what we know and we'll build a more complex view,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=51.5902115) [a view that has to work with an array of data and a view that requires click events from the user to interact](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=55.5902115) [with the page. All that and more in the next module on Views and Directives.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m2-controllers&clip=7&mode=live&start=61.5902115)

[Directives and Views](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live)

[Hi, this is Scott Allen, and this module is focused on Directives and Views in AngularJS.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live&start=2) [We've used some directives previously with Angular, directives like ng-app and ng-controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live&start=7) [but now I want to show you some other useful directives, like the directive to handle button clicks](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live&start=12) [and the directive to move user input into my JavaScript model. These directives allow you to build](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live&start=17) [interactive webpages that not only display data, but also react to the user and become a little more dynamic.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live&start=23) [We'll build something that lets the user search, sort, and browse code repositories.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live&start=29) [But before we begin, let's review the purpose of directives, in general.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=0&mode=live&start=34)

[Philosophy](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live)

[Based on what we've learned in the first two modules of this course, we know that the way to make data appear](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=1.8294778) [on a webpage with Angular is to add the data to a $scope object inside of a controller.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=6.8294778) [We usually call the data attached to $scope, the model, and we've seen how we can display the model data](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=12) [on a webpage without the model or the controller knowing anything about the view or the HTML that we use](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=17.8294778) [on that webpage. The controller and the model, they live a life completely free of worrying about](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=23.8294778) [what appears in the browser. The way we make the model data appear on the screen is to use binding expressions.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=28.8294778) [And these are actually one type of directive in Angular, a Data Binding Directive.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=34.8294778) [And these binding directives can reach into the model, pull out the data,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=39.8294778) [and put the data in the proper location on the screen. And this is just not to show text to the user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=43.8294778) [We've also seen how we can build the right URL for images by using model data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=49.8294778) [We can use these binding directives anywhere, to build any sort of presentation for our data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=53.8294778) [And this is a nice separation of concerns; the controller and the model are focused only on gathering the data,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=58.8294778) [the view is focused only on presenting the data available from the model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=64.8294778) [And believe me, this makes life much easier than working with software that does not separate the concerns of](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=67.8294778) [managing the data itself, versus managing the presentation of that data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=74.8294778) [But what we haven't seen yet is this; what if we need to move information from the view back into the model?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=79.8294778) [Because just like an API on the server, our HTML can be a source of information too.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=85.8294778) [An example would be this HTML form, there's actually a couple sources of information in this form.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=91.8294778) [First is the input, or the user can type text. We need to move that data back into the model](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=96.8294778) [so we know what type of message that the user wants. Another source of information is the form itself.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=102.8294778) [We want to know when the user submits this form or clicks the Save button, because this information,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=108.8294778) [which is an event, it's important; it means we might need to manipulate the model in response to that event,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=113.8294778) [or send something to the web server to save and commit the user's updates.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=119.8294778) [Fortunately, directives help in this scenario too. Directives are all about letting the view and the model](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=123.8294778) [work together without requiring direct interaction. And just like we have directives to move data from the model](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=129.8294778) [into the view, we also have directives to move information from the view into the model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=135.8294778) [And many of these directives work in both directions, so if data changes in the view or the model,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=140.8294778) [the directive will keep both sides in sync by propagating the changes throughout the application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=145.8294778) [So let's get an application set up and learn about some new directives.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=1&mode=live&start=151.8294778)

[ng-model](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live)

[For this module, I'm going to continue to work with the plunk that we created in the last module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=1.7712445) [This plunk is already set up with AngularJS included in the page, and we have a few features here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=6.5) [We have the ability to display information about a GitHub user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=12) [I'm currently displaying Rob Conery's GitHub information, but if I want to see a different user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=15.7712445) [I need to come into the source code and change this username portion of the URL,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=21.7712445) [my Preview window, which is in an external window now, so we have more space for the Editor, it's still set up](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=28.7712445) [to automatically refresh. Now I can see new user information, but let's try to make this easier.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=33.7712445) [What I want to be able to do is come into this page and have an input, where I can type in any username](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=39.7712445) [that I want, click a button, and then it will go out and fetch user information for me.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=44.7712445) [So instead of hardcoding that value, I want to be able to input that value as a user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=49.7712445) [To do this, let's come over into index.html, and here above where I'm displaying user information,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=53.7712445) [let's create a form. I did not need an action, but I think I'll give this form a name, let's call it searchUser.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=61.7712445) [And inside the form, which will not be the prettiest form you've ever seen, let's have an "input type="search"](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=69.7712445) [This is where I'm going to be able to type the username. So I'll put some placeholder text here of](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=75.7712445) ["Username to find", and for right now I will close this off and let's have another input,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=82.7712445) [which will be the button I can click on. So this will be "type="submit", and the value would be,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=87.7712445) [let's have the text "Search". So one of my first jobs with this form is that I'm going to need to know](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=93.7712445) [what the user has typed in to that Search input. And we've seen how easy it is to move data from the model](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=98.7712445) [into the view, but there's a different directive that I need to use to move data from the view into the model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=104.7712445) [And that directive is, ng-model. With ng-model I can specify an expression, like username,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=110.7712445) [and what ng-model will do is, as the user types into that input, ng-model will push the value of the input](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=122.7712445) [into my $scope object using this expression. So in this case it's going to appear in my $scope as a username property.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=128.7712445) [And if that property doesn't exist, which it currently doesn't, we have $scope.user, $scope.error,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=135.7712445) [$scope.message, so we don't have a username property, but that's okay.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=142.7712445) [This ng-model directive will create that property for me and give my scope a username.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=146.7712445) [In fact, we'll be able to see that, if I put a data binding directive here to display username,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=151.7712445) [that will be evaluated against $scope, so whatever username is should display both in that binding directive,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=159.7712445) [and also in the input. Let's flip over into our page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=164.7712445) [and try it out. Currently notice that there is no username displaying, but I do have my Search form,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=169.7712445) [and now if I type robconery, you can see as I'm typing that string, it's appearing as the username](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=175.7712445) [above the Search form and it happens instantly with every keystroke.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=183.7712445) [And if for some reason I were to change that username from my model, maybe because I got some information back](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=189.7712445) [from a web service call, that updated username would appear both inside of the input and also above the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=193.7712445) [Search form where I have the username binding.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=199.7712445) [In fact, I could initialize username inside of my $scope. Let's do a $scope.username.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=201.7712445) [We can say the default username to search for is Angular, and let's change our message.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=210.7712445) [We're not being introduced to Angular any longer. What we're sort of building is a GitHub Viewer.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=215.7712445) [And now as my Preview window refreshes, you can see Angular appears there automatically.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=223.7712445) [In fact, let me do an F5, a hard refresh, and you can see that username is there.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=227.7712445) [What we currently don't have is the ability to type in a new username and click the Search button,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=234.7712445) [and have the application go out and find information about that specific new user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=241.7712445) [We're going to have to handle this click event, this form submission. We'll do that next.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=245.7712445) [But for now just know that ng-model, an extremely useful directive because you can apply it to inputs,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=249.7712445) [you can apply it to selects, you can apply it to text areas, and what ng-model will do is always keep](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=255.7712445) [your data in sync; it's going to move information that the user types into your model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=261.7712445) [And if for some reason the model changes, it will move that information back into your input.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=2&mode=live&start=265.7712445)

[ng-click](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live)

[Now I want to know when the user is ready to search for a particular username, and there's a couple different](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=1.4120112) [ways I can do that. One way I can do that is to attach a directive to the "input type="submit",](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=6.4120112) [and this is the ng-click directive. Just like with ng-model, I can put an expression in here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=13.4120112) [Typically with an ng-click, you put an expression that's going to be a function call.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=19.4120112) [Because what I want to happen, when someone clicks on that button, is I want Angular to go out and find](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=24.4120112) [a function that is defined on my model, so it's attached to $scope, and then I want Angular to invoke it.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=28.4120112) [In this case it's a Search function, and then inside of that Search function I'm going to write the code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=33.4120112) [that gets the username, calls to the GitHub API, and retrieves information about that particular user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=37.4120112) [When you write expressions for ng-click, some of them can be rather fancy.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=43.4120112) [We can even include things like parameters to that method call. In this case I'm going to call search and](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=47.4120112) [pass in the username. That's really not necessary because $scope will already have username as a property](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=53.4120112) [thanks to ng-model, but I'm going to leave that parameter there just so you can see how easy it is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=59.4120112) [to call search and pass something along. And now before we go and implement that search,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=63.4120112) [let me just clean up the user interface a little bit. I want things to be able to fix on this page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=69.4120112) [and I also want to clean up some of the things down here. Instead of having all these divs,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=75.4120112) [let's just have a single div with an h2 element inside that displays the username that we retrieve.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=81.4120112) [And then I'm not so much worried about location and so forth, and the image, I'm going to change that around](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=89.4120112) [a little bit too. Instead of displaying the avatar, which is often a large image, what I want to display](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=96.4120112) [is the gravatar, which by default is an 80x80 pixel image. It's much smaller and it will fit on the screen](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=103.4120112) [a little bit nicer. And in order to do that, I need to look at the gravatar\_id that comes back from the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=109.4120112) [GitHub call that we're going to make, and that's going to be part of our user model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=116.4120112) [The gravatar\_id is basically a hash, but then if you take that gravatar\_id and you use it in a URL](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=120.4120112) [that point to www.gravatar.com/avatar, if I use it here, gravatar\_id from the user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=127.4120112) [That should be able to display that user's 80x80 image, and that's going to leave us more room on the page](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=144.4120112) [to display other information about the user. And now, I can see a couple errors down here in the Editor,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=150.4120112) [I have a missing end div tag, I think that was right there. Now we can go, and let's implement our search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=155.4120112) [Inside the controller, instead of immediately sending it off an $http.get request, I'm going to create](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=164.4120112) [a search attribute on my $scope and have that equal to a function that takes a username parameter.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=174.4120112) [And then I will send off the request, and I need to include that username in the request.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=182.4120112) [And essentially, instead of hard coding Angular, we're going to add in username, and now let's flip over](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=186.4120112) [into the Preview window and see how this works. Now the first thing you'll notice that there's some odd image here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=195.4120112) [And this is because we don't have the gravatar\_id of a user yet, but we still have an image tag that's trying](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=200.4120112) [to grab an image from gravatar.com and it's just giving us a generic image back.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=206.4120112) [We're going to fix that later, but right now I just want to see if I can search and get the proper Angular information,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=210.4120112) [that looks correct. If I go out and search for this, I get the right name and the right picture.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=216.4120112) [So our code appears to be working. What happens if I search for something that doesn't exist?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=223.4120112) [Just type in gibberish, but not fetch the user, so our error message works.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=230.4120112) [Basically what happened is I sent off that $http request that probably came back with a 404 saying,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=235.4120112) [‘I don't know who this user is.' That will invoke our error handler so we can display that message.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=240.4120112) [What happens if I don't enter any username? Well at that point, nothing happens.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=245.4120112) [It would be nice if we could tell the user that they need to type something into that field.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=250.4120112) [And one easy way to do this is to add an HTML validation attribute required, but in order for the browser](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=255.4120112) [to be able to tell the user that this particular input is required, I won't be able to handle ng-click](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=263.4120112) [on this button event. Instead, what I can handle is the ng-submit.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=270.4120112) [Use that directive to catch the submit event of the form and then have that call search, passing in the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=276.4120112) [username, that will work just as well. Let's get rid of that username, which --- was displaying some](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=283.4120112) [debugging information, come back to our Preview window, and now we can still find Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=288.4120112) [If I search for nothing, I get a nice little validation message from Chrome, saying I have to fill out](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=295.4120112) [this field, so fine; I'll fill out Rob's name and now we can get Rob's information.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=300.4120112) [So using ng-model and then either ng-submit or ng-click, we are able to take some information that a user](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=308.4120112) [has typed in, apply that to an API call that we make to GitHub.com, and we can now retrieve information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=314.4120112) [about different users. But let's find out some additional information about a user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=319.4120112) [It turns out that one of the pieces of information that will come back from GitHub is a URL that we can go to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=324.4120112) [to get all of the repositories for that user. This is an interesting exercise because, if we want to display](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=329.4120112) [all those repositories, we're going to need some sort of loop inside of our view code to create a table, row,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=336.4120112) [or a list element for each repository. Let's try this next.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=3&mode=live&start=342.4120112)

[ng-repeat](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live)

[The information we receive from GitHub includes this repos\_url, which if we follow that link,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=2) [we will find out information about the repositories associated with that user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=9.8696557) [So the first thing I'll point out about the response is it starts with a bracket and a JavaScript object](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=13.8696557) [notation that means we're dealing with an array. So what we have is an array of objects,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=18.8696557) [where each object represents the information about a specific repository.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=22.8696557) [Information like the name, and then if we scroll down a bit, we can also see there's information about the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=26.8696557) [number of stars that repository has, as well as the primary language that GitHub has detected for that repository.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=32.8696557) [And this is the information that we want to retrieve and display on the screen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=39.8696557) [So we will start back in our controller. Once we receive information about a user, we can issue another](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=42.8696557) [$http.get request and send this one off to $scope.user.repos\_url. That will retrieve the repository information,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=49.8696557) [that particular method call, though, will only give us a promise back, so we have to call then,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=61.8696557) [and then I'll say, ‘when we have repositories' or ‘when we have an error'.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=66.8696557) [I might want to fix up this error function to say, ‘could not fetch the data'.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=72.8696557) [Typically in a real application you'd have to dig into this reason, perhaps inspect the status code and the URL](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=76.8696557) [that was being called, and come up with a more specific error message so someone could diagnose exactly what went wrong.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=82.8696557) [For now I'm just going to leave onError like this, and now I need onRepos, also a function that takes](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=88.8696557) [a response that will be all the repository information, and I will attach that to "$scope.repos = response.data".](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=96.8696557) [There's actually a couple different things I could do there. I could take that repository information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=106.8696557) [and attach it to user, so "$scope.user.repos = response.data", but I'll leave it as a top-level collection](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=110.8696557) [here in the $scope that will also work. And although I'm not a big fan of the abbreviation, r-e-p-o-s,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=118.8696557) [I'm going to stick with that since that is actually the name of the field that GitHub returns.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=124.8696557) [And using that will reduce the chance of confusion. Now over in the view, I need to walk up to that property](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=128.8696557) [and be able to display information about each repository. Typically you would display information from](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=134.8696557) [an array inside of an unordered list or a table. I'm going to go with the table because I want to display](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=140.8696557) [multiple things about each repository. In fact, as I write out the thead here, we'll figure out exactly](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=146.8696557) [what we want to display. Let's display the name of the repository, the number of stars for that repository,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=152.8696557) [and the primary language for that repository. And now I'm going to write the tbody and this is where](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=161.8696557) [I will need a table row for each repository. I just want to do that with Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=167.8696557) [That's the job of the ng-repeat directive. So I will write an expression here, "repo in repos".](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=173.8696557) [And the idea is that ng-repeat is a lot like a for loop, or more like a foreach loop in C# if you use C#.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=180.8696557) [There is going to be a variable repo that will contain the value of each repository in that collection](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=187.8696557) [as we iterate, or loop through, that array of repositories. What ng-repeat will also do is take this element,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=192.8696557) [this tr, and stamp that out for each repository, so for each time through the loop, and it's also going to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=198.8696557) [include any child elements inside of that HTML. So if I write out a table cell, I'll get a row with a cell](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=205.8696557) [for each repository. Inside of the first cell, I want to write out the repository name,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=213.8696557) [so it says if repository is available inside of the $scope where ng-repeat lives, and in fact that's exactly](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=219.8696557) [what is happening, repo is available inside of here, we want the stargazers\_count, and we also want](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=226.8696557) [the language for the repository. And now if I have 10 repositories, I should have 10 tr's.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=237.8696557) [Let's flip over into the Preview window and try this out, search for Angular, and it looks like I have](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=243.8696557) [a successful result. Now there are a couple issues with this display, one notable one would be](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=249.8696557) [that the format for the number, the number of stars on this repository, isn't very readable](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=256.8696557) [because it doesn't include any comma's or any sort of delimiter for the difference between what's in the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=261.8696557) [thousands and what's in the one-hundreds. So let me show you a quick way to fix that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=266.8696557) [In addition to directives in Angular, Angular also has the concept of filters.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=272.8696557) [A filter is something that you invoke and pipe data through, by using the | symbol, and then the name](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=279.8696557) [of the filter. So this expression that I have now, repo.stargazers\_count, pipe into number.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=285.8696557) [Number is a filter that can take data, the count of stargazers, and format it.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=291.8696557) [In this case I want it formatted as a number. Number is one of many filters out there,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=296.8696557) [and if we do a Search now, I can see that the larger numbers have formatted a little bit better,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=302.8696557) [so 23,209 for angular.js, it's 23,000. If I wanted to include some](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=308.8696557) [digits after the decimal point, this is the syntax to say, please give me one digit after the decimal point.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=316.8696557) [That's obviously not something I need for the number of stars, so I will remove that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=324.8696557) [But there's a number of filters included with Angular out-of-the-box.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=328.8696557) [Filters that allow you to format numbers as currency, format date values, output JSON, even order some collection.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=331.8696557) [So it might be nice, when we bring up this table of information, if we had the ability to order the list](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=340.8696557) [of repositories alphabetically, or by the number of stars, or by the primary language.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=347.8696557) [We'll look at that next.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=4&mode=live&start=353.8696557)

[Filters](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live)

[As we just saw in the last clip, filters in Angular allow you to massage and format data for a presentation.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=1.421678) [You can take an expression, like stargazers\_count, and you can pipe that model value through a filter,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=8.421678) [which will modify the data for display. The basic format to use a filter is to use some sort of expression,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=15.421678) [and then the | symbol. So you pipe something into a filter, you have to name the filter, and then there's](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=20.421678) [a colon and any parameters that the filter might need. Here are some examples using the built-in filters of Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=26.421678) [We don't have time to cover each one, but you can convert numerical data into a number with a currency sign;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=33.421678) [convert dates into string that display just the date, or just the year, or anything you need as the date filter](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=39.421678) [is very flexible; there's a filter filter that will filter out objects from a collection based on a Search term;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=45.421678) [and a json filter, which is useful for dumping objects into the display for debugging.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=51.421678) [The limit filter is a way to say, I only want to show 3 repositories or 10 repositories, instead of the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=57.421678) [entire array; while lowercase and uppercase transform strings, just as their names would imply;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=62.421678) [and number is one filter we've already used, it will format numbers with a localized delimiter,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=68.421678) [and optionally control the number of digits after the decimal point.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=73.421678) [What I want to use next is the orderBy filter, so we can sort our list of repositories using different fields.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=77.421678) [Let's set up the page so that we see the repositories up here in sorted order.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=85.421678) [I want the repository with the most number of stars to appear first, and in order to do that I would try](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=89.421678) [an orderBy filter, here with my ng-repeat. So, I want to order this array of repositories by stargazers\_count.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=95.421678) [And the reason I'm using a single quote here, is because orderBy needs you to tell it the property to orderBy,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=108.421678) [so I need to specify a property on a repository and I'm using single quotes here, because Angular will](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=114.421678) [evaluate whatever parameter I pass here as an expression. By using single quotes, I'm telling Angular](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=121.421678) [this is a string literal, stargazers\_count, this is the name of the property to use.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=128.421678) [And it's single quotes because I already have double quotes here for the attribute.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=132.421678) [If I did not use those single quotes, Angular would go looking for a property on my $scope,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=137.421678) [a property by the name stargazers\_count, and then it would use the value of that property to orderBy.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=142.421678) [That's not what I want just yet, but if that didn't make sense don't worry, we're going to come back](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=148.421678) [and revisit that, but right now I just want to take a look at the Preview window and try to bring up](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=152.421678) [Angular's repositories, and I can see that the default sort order is ascending sort.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=157.421678) [So we are looking at the repository with the least number of stars first.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=163.421678) [This is very easy to change. With Angular you can put a plus or a minus in front of this.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=167.421678) [A plus would imply ascending sort order, that's what we already have.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=174.421678) [So I would like to have a minus here, to get a descending sort order, and now I can see that the most](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=178.421678) [popular repository for the Angular user is, not surprisingly, angular.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=186.421678) [So now let me show you what happens if I do not use single quotes here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=193.421678) [I'm going to take this string, cut it out of here, and replace it with repoSortOrder.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=198.421678) [So now what Angular is going to do is it's going to look for a property by this name on my $scope object,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=206.421678) [and use that value to figure out how to sort this collection. In other words, if I come in,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=211.421678) [to my controller and I say, "$scope.repoSortOrder = ‘and that string that I cut out'",](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=218.421678) [this is effectively the same thing I had before, but now instead of controlling the sort order by putting](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=226.421678) [a hard-coded string into the view, I am now controlling the sort order using a property on my $scope.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=231.421678) [And if I come out to the Preview page and search for Angular, it's still working the same as before,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=237.421678) [but now what's interesting is, I have a property that I can manipulate on my $scope object to change](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=242.421678) [the sort order, and perhaps the user doesn't like this default sort order, perhaps they want to sort by](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=248.421678) [the repository name in alphabetical order or the primary language in alphabetical order.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=254.421678) [Well that is now very easy to make happen. Back in my Index view, just before the table,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=259.421678) [let me play some text here and let's build a dropdown list so that the user can select how they want to sort something.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=267.421678) [So this will be a select option, I don't really need a name or an id for my select, but what I do need to do](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=273.421678) [is bind this using ng-model to repoSortOrder. So ng-model also works against a select, just as well as it does](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=281.421678) [an input type="text". Essentially when the user selects something in this dropdown list,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=291.421678) [Angular will make sure to move the selected value into the model. Likewise, if my controllers sets](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=296.421678) [the model value that it is examining, ng-bind will automatically make sure that that is the selected element](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=303.421678) [inside of here. So now I just need some options. So one option will be to sort ascending order on Name.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=309.421678) [Another option will be to sort in descending order on stargazers\_count, and that's the default.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=317.421678) [And the last option will be to sort in ascending order, on the Language.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=328.421678) [So the value that I'm putting in for these options is the value that's going to be placed into the model,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=335.421678) [+name or +language, and whenever that changes, Angular will realize there's a change there](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=340.421678) [and then this orderBy depends on that particular value, so it will resort the table. Let's try it out.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=346.421678) [Back in the Preview window, let's look at Angular. Notice, Stars was the initial selection and that is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=352.421678) [the sort order, but I can change to Name, or I could change to Language.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=359.421678) [And now with just a little bit of code, not only are we displaying information about a user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=369.421678) [we're also displaying information about the user's repositories and we're letting our user select](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=374.421678) [the order in which those are displayed.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=5&mode=live&start=379.421678)

[ng-show and hide](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live)

[One of the issues I promised to come back to later in this application is the fact that,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=1.8976892) [when this application initially displays, we have this generic gravatar image appearing and we also now have](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=6.8976892) [a table with no data in it. And this is because we don't have any user information to bind against yet.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=12.8976892) [The controller's not going out and doing an $http request for Angular, until we hit the Search button,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=17.8976892) [but now if I refresh this again to bring it back to its original state, what I would like to do is not](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=23.8976892) [display this image, or the table, or the sort order until we have some valid user information.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=29.8976892) [And fortunately, there are directives in Angular that make showing and hiding pieces of my markup very easy.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=34.8976892) [The directives are ng-show and ng-hide. For example, if I wanted to get rid of the gravatar image until we had](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=40.8976892) [some user information, I could place an ng-show directive on the div that surrounds that image and the username.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=47.8976892) [And I could use an expression in here, which is just user. So the way ng-show works is it looks at that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=55.8976892) [expression, and if that expression is truthy in JavaScript, it will allow this markup to show;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=61.8976892) [otherwise, it's going to hide this markup. And what do I mean by "truthy"?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=67.8976892) [Well if you've worked with JavaScript at all, you know that you can check to see if something is truthy,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=70.8976892) [and it doesn't have to be a Boolean, it doesn't have to be a true or false value.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=75.8976892) [You can check to see if a string is truthy, or if a number is truthy, and in this case user will be an object](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=79.8976892) [populated with lots of properties like the username and the user location, but until we reach that point,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=85.8976892) [we don't have a user in $scope. User is undefined, and in JavaScript, undefined means false.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=91.8976892) [If I also take this order markup, and place that in this top div, that would make that easy to show and hide also,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=97.8976892) [just want to tab it over so it's inside that div. And the table, let me show you how ng-hide would work.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=107.8976892) [I'll put, inside of here, not-user, because this is going to hide this particular markup if this expression](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=115.8976892) [comes out to be truthy. So by using bang user, or negate user, what I'm saying is hide this if we don't have a user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=124.8976892) [And now if we come back to the Preview window, what we'll see is all that other extraneous stuff disappears](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=132.8976892) [until I have my user information. And then I get the gravatar and then I get the table full of information.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=138.8976892) [Now one thing I would try to do is not make logic too complicated, so really, on table,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=145.8976892) [I would also use the ng-show directive, but ng-show and ng-hide, both useful directives when you want to make](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=151.8976892) [things appear and disappear from the screen based on some expression or some flag that is in the model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=6&mode=live&start=158.8976892)

[ng-include](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live)

[The last directive I have time to show you in detail is the ng-include directive.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=2.0391004) [ng-include is useful for a number of scenarios, because ng-include can bring in HTML from another source,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=7.0391004) [like another file, and then you can use that HTML in the current view.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=14.0391004) [This is useful because you can break up a complex page into pieces; it's also useful if you have some markup](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=18.0391004) [that you can reuse in other views of the application. For example, perhaps the user details that we are](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=24.0391004) [displaying, the user's name, the gravatar, the list of repositories, perhaps we can use that in other areas](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=30.0391004) [of the application. In that case, I want to ng-include this markup.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=36.0391004) [And then, what I would do, is take all the markup that is being used to display details about the user](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=40.0391004) [and I will cut it out of this index view, and now let me create a new file, userdetails.html.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=47.0391004) [And I will paste all that markup into this file and do a little beautifying, just to make sure all the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=57.0391004) [indentation is correct, and now I just need to ng-include this view.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=64.0391004) [But before I do that, I'm going to take out the ng-show that we just added, because I'm going to add them](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=68.0391004) [on the element where I ng-include this markup. So, in index.html, I'm going to create a div,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=76.0391004) [and this div will have two directives on it. The first directive is ng-include, and this is where I can](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=84.0391004) [specify an expression and that expression can be resolved against $scope, and the value that the expressions](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=90.0391004) [yields should be the location where Angular can go and grab the additional markup.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=96.0391004) [Now because I know exactly where this markup is coming from, I'm going to use the single quote trick again](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=102.0391004) [to tell Angular, ‘I'm giving you a string literal, please use this value.'](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=107.0391004) [‘Don't try to evaluate it against scope instead, just go grab userdetails.html and bring it in](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=112.0391004) [and include it right here.' And I'm also going to add just one ng-show now, one ng-show for user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=119.0391004) [So if we have a user object on the $scope, that expression evaluates to truthy and then we should be able to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=127.0391004) [show all the details on the page. Let's go back to the Preview window and see if this works.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=132.0391004) [I'll search for Angular, and I can see that my userdetails markup was included and that the ng-show](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=136.0391004) [was still working and allowing this to display once we have user information on the model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=142.0391004) [Notice how this included markup is just fitting in and working against the existing MainController.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=148.0391004) [I didn't need to change any of the bindings or expressions in the included view;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=154.0391004) [it just works if you want to include some additional markup inside of an area](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=159.0391004) [that is already the responsibility of a controller.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=7&mode=live&start=164.0391004)

[Directives!](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live)

[Before we finish, I just want to let you know there's an entire world of directives available for Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=2.1851338) [There's over 50 directives that come with the core library. That's more than I could fit on the screen;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=8.1851338) [that's more than we could cover in this module. We've used some directives, directives like ng-click,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=12.1851338) [but there's a lot of directives that we didn't have time to cover; like mouse-related directives,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=17.1851338) [for example, ng-mouseover and ng-dblclick; also key-oriented directives, like ng-keypress;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=22.1851338) [and CSS-related directives, like ng-class. In addition to these built-in directives, Angular allows you](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=30.1851338) [to write custom directives and this is where the fun begins, because you can find many custom directives](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=36.1851338) [as open-source projects, custom directives to perform activities like drag-and-drop,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=41.1851338) [or custom directives that can wrap bootstrap widgets, or media players, or wrappers for Google Maps.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=46.1851338) [I encourage you to try out some of the other directives listed here, as well as some of the third-party directives,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=53.1851338) [and see all of the capabilities and power that directives have to offer.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=8&mode=live&start=58.1851338)

[Summary](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live)

[In this module we focused on directives and views, and we saw the powerful capability that directives offer.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=1.8658561) [We can manipulate our view and move data in two directions between the model and the view using these directives.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=7.8658561) [We've seen binding directives, they can move text anywhere we need into the HTML.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=13.8658561) [We've also seen model directives, like ng-model, that can move data from a select or input into the model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=18.8658561) [We've seen event directives, like ng-submit and ng-click, that can direct events into our model,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=25.8658561) [events like a button-click, and we've also seen display directives, like ng-include, ng-show, and ng-hide,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=31.8658561) [that can fetch HTML fragments and also show and hide pieces of the display.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=37.8658561) [And again we've only seen a handful of the directives available in Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=42.8658561) [There are many more directives available from the Angular Team itself, as well as other projects and parties.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=46.8658561) [Once you start programming with directives, you'll never want to go back to programming against the browser,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=51.8658561) [using a library like jQuery or handcrafting code to synchronize your data with the display.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m3-directives&clip=9&mode=live&start=56.8658561)

[Services](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live)

[Hi, this is Scott Allen, and this module is about Services in AngularJS.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live&start=2) [The word Service has many different meanings in software, and in web development we typically think](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live&start=6.5) [of a service as a feature offered by a web server, like the GitHub API Web Service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live&start=11) [But in an AngularJS application, a service is a different animal. A service in Angular is a component](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live&start=17) [that performs a specific job, like providing a timer, or providing the ability to communicate over HTTP.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live&start=23) [We've seen that component, we've used it; it is the $http service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live&start=30) [This module will show you some of the other built-in Angular services, as well as how and why](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live&start=35) [you would want to build your own custom service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=0&mode=live&start=40.5)

[The Venn of Services](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live)

[So far in this course, we've seen how we can write a controller function that takes a $scope object,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=2.418) [and it's the controller's responsibility to set up the model on that $scope object, by attaching properties](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=7.418) [and functions on $scope. We can even have a $scope property reference a complex child object,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=13.418) [like we did in the last module when we had a $scope point to all the data for a GitHub user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=18.418) [as well as an array of all the user's code repositories. We also know there are views, which are the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=23.418) [HTML markup for the application, and a view can consume the model using directives.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=29.418) [So directives serve as an intermediary between the model and the view, making sure that neither one knows](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=35.418) [too much about the other, and that gives us more maintainable code thanks to two-way data binding](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=41.418) [and a separation of concerns; the concerns being model logic and presentation logic.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=45.418) [Now where does services fit into the picture? Let me try to draw an actual picture.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=51.418) [We have Controllers, we have Models, and we have Views. Directives sit in-between the Model and the View,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=56.418) [keeping them separate, but allowing them to communicate indirectly and move data back and forth.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=63.418) [If someone changes an input in the View, I can have the ng-model directive push that input value](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=67.418) [back into my Model, and changes in my Model are automatically pushed into the presentation of the page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=73.418) [the browser's Document Object Model, what we call the DOM, D-O-M.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=79.418) [So we can say that a Model and a View work together thanks to a Directive.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=83.418) [Now Services also allow us to separate concerns, because I can write a Service that provides logic](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=88.418) [not directly related to a module, it might be logic to communicate over HTTP, or it might be an algorithm](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=93.418) [to compute the hash of a string, or it might be code that provides validation checks,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=100.418) [or code that talks to local storage in the browser, or manage cookies sent from a server.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=104.418) [So one way to think about Services is, if the logic doesn't fit in a Model or a View or a Directive,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=110.418) [then the Service is a grab-bag where everything else can fit. And one of the many benefits of putting logic](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=116.418) [into that service is that the logic will be easy to use anywhere else in the application,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=121.418) [because Controllers can view Services, we've seen that example already where we've written the Controller](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=126.418) [that requires an $http service, and the Controller can then make that available to use from the Model methods](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=131.418) [attached to our $scope, and it turns out that Directives can also use Services.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=136.418) [So you'd never use a Service directly from a View; a View is about presentation and directives only,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=142.418) [but Services can offer functionality some Models and Directives in a reusable way.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=147.418) [And they can contain logic that either doesn't belong in a Model or Directive, or it's just logic that you want](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=152.418) [to be able to use from several other Models or Directives that are in the application, or you just need to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=159.418) [package up some functionality because your controller is growing too large, where you have hundreds and](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=165.418) [hundreds of lines of code inside of a single controller, that would be a point where I would look at that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=169.418) [Controller and see if there's anything in there that should be refactored out of Controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=173.418) [perhaps put into a service to use from there. Now so far we've been using the $http service,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=177.418) [but let me show you a service that is not communication-related, actually a couple other built-in services](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=183.418) [from Angular, the timeout and interval services.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=1&mode=live&start=188.418)

[Gamification](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live)

[In this module, we'll continue building on the plunk that we've been working on for the last couple modules,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=2) [the GitHub Viewer, and to demonstrate one of the timer services from Angular, I'd like to play a bit](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=6.009) [of a game with the user. When the application loads, I will only give the user 5 seconds to perform a user search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=11.009) [Otherwise, the application will search for them using whatever is in that Search textbox.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=19.009) [So we will count down from 5 to 0, and when we reach 0, automatic search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=24.009) [I probably want to let the user know what that countdown value is.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=29.009) [So we can display 5, 4, 3, 2, 1 on the screen, and that means over inside of the controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=34.009) [I will probably want to initialize a variable called countdown and I'll set it initially equal to 5.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=41.009) [Now before we even get timers involved, I want to think about the logic of, how do I count down and perform](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=49.009) [an automatic search. So let me create a function, called decrementCountdown.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=54.009) [That will be a function that ultimately I want it called once every second, and we'll figure out how to do that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=61.009) [in just a bit, but right now I'm going to say that whenever this is called, we will subtract 1 from countdown](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=67.009) [and then if countdown is equal to 0, or I could also say less than 1, we will do an automatic search,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=75.009) [so $scope.search, and because search requires a username, I will just pass in $scope.username,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=82.009) [because that is the model value that is bound to that input search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=90.009) [Now the question is, how do I get this function invoked once a second?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=95.009) [Well JavaScript provides some native global functions that you can use to work with timers.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=98.009) [There is setTimeout and there is setInterval. setTimeout worked by passing in a piece of code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=103.009) [and then the number of milliseconds into the future when you want that code invoked.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=110.009) [So if I want to have a method called doWork invoked in 2 seconds, I would call setTimeout(doWork,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=114.009) [and pass in 2000 milliseconds. setInterval is very similar, except setInterval will continue to invoke](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=120.009) [that method every time its countdown expires; it counts down from 2000 milliseconds to 0,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=128.009) [and every time it hits 0, it invokes that method and then resets the timer to 2000 milliseconds.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=133.009) [It will continue to do that until you cancel that interval. Now I could use these functions directly](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=139.009) [in my Angular application, but I don't want to. It turns out that Angular provides a service,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=145.009) [or actually two services, that wrap these two functions. So there is a $timeout service that wraps](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=150.009) [setTimeout, and there's a $interval service that wraps setInterval.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=156.009) [I want the $interval, because I want to call decrementCountdown once a second.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=161.009) [And there's a couple really good reasons to use these services, instead of the built-in functions that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=166.009) [JavaScript provides. Both reasons are a little beyond the scope of what this course is,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=171.009) [but let me briefly describe them. One reason is unit testing; if you want to unit test the code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=175.009) [inside of this controller, it's much easier to unit test if you're using Angular Services,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=181.009) [instead of built-in, intrinsic, JavaScript objects, like setTimeout.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=185.009) [Angular provides you a way to substitute a testable counterpart to a service like $interval,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=190.009) [so during a unit test it's not really using a timer. And if you build bigger Angular applications,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=196.009) [I strongly suggest you take a look at unit testing. I know it has saved me a lot of time on the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=200.009) [Angular projects I've been in. The second reason to use these services has to do with some internal details](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=205.009) [of how Angular performs two-way data binding. If I change the model inside of a function called from](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=210.009) [setTimeout or setInterval, I might see that my page does not update correctly.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=216.009) [I don't have data moving from my model onto the screen, but that problem goes away if I use the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=220.009) [built-in Angular Services, and for that reason, instead of using setInterval, I want to ask Angular to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=224.009) [provide my controller with a $interval service. And the way I would use that service is,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=232.009) [let's say down here at the bottom of the controller, once everything is set up and initialized,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=237.009) [I will explicitly call a function called startCountdown, and startCountdown will just be another](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=241.009) [implementation detail here. So startCountdown is a function that, when it gets invoked,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=250.009) [it's going to go to $interval and it's going to tell $interval to call decrementCountdown,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=257.009) [every 1000 milliseconds, or 1 second, and then there's actually a third parameter that $interval provides.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=265.009) [Usually setInterval will just run forever until the user leaves the page or you cancel it.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=272.009) [The $interval service, you can actually specify a parameter here for the number of intervals that you want.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=277.009) [So I want 5 intervals and then stop using that timer after that. Or I could say $scope.countdown,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=282.009) [which is also equal to a 5, but now I don't have it hardcoded. I just want to use this interval for 5 ticks.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=290.009) [And after the fifth tick, stop calling that decrementCountdown function.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=295.009) [Now one thing that you might notice is a little bit odd about this $interval service,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=299.009) [is that it's a function, I can invoke it, and indeed in Angular you can have different types of services.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=303.009) [So, $interval is a function, I can immediately invoke it; $http, that's more of an object API,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=309.009) [so I typically invoke methods that are on that service, like $http.get, and you'll see examples of both of these](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=315.009) [throughout Angular, services that you have to dot in to some method to get it to perform work,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=321.009) [and then services where you just invoke the service and pass in some parameters, and something magical happens.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=326.009) [So now I think I have all the codes set up, but let's come over to the Preview window](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=332.009) [and I will see that something has gone terribly wrong. My application's not running.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=335.009) [But that's okay, I want to show you about how to troubleshoot a specific scenario with Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=341.009) [Let's open up the Developer Tools and I'll see "undefined is not a function".](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=345.009) [That usually means I have something that is undefined, I tried to invoke it like a function.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=349.009) [This is the TypeError that I will get in Chrome. I can see this happen in startCountdown,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=353.009) [and that is in script.js, line 31. So let's go to script.js, line 31, and I will see ---](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=358.009) [that this must be the $interval service. This is the one method that I'm invoking here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=366.009) [Why is $interval, why am I not getting that service from Angular? So a couple things to check when this happens.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=370.009) [First thing to check is, are you naming that service correctly as a function argument?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=376.009) [And if I go and check the Angular API Documentation, I will see - yes, there is a service, $interval.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=381.009) [I have it spelled correctly, it's using the proper case, but for some reason I'm getting an undefined value for that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=388.009) [And really undefined means Angular didn't know what to give you. So if you have that service spelled correctly](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=393.009) [as a function argument, the next place to check would be wherever you are registering that controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=399.009) [which is done with module.controller, in this case we called it app.controller, that's the registration](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=406.009) [for this controller. I'm telling Angular, ‘Here is something called MainController, and here is an array](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=411.009) [that describes that controller.' You might remember we talked about this earlier in the course.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=417.009) [I'm using this syntax to describe the objects and services that I need so that I can minify this file later on.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=422.009) [Remember, minification changes the names of function arguments, so something like $interval might become](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=430.009) [just the letter ‘n'. And because Angular needs to know the names of these things to give you the proper services,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=436.009) [minification will break your code, unless you use this syntax, but when you use this syntax,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=444.009) [you need to make sure that you're describing all the right parameters.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=450.009) [In this case I'm telling Angular, ‘I need $scope, I need $http, I need nothing else.'](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=452.009) [So it's not going to pass me that $interval service. To fix this problem, I would either need to add](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=458.009) [$interval here into the array, or let's just get rid of the array syntax and use the simpler syntax that says,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=463.009) [‘Dear Angular, I want to register something called MainController. Here's the function to use.'](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=471.009) [When you use that syntax, Angular will be looking at literally the names of these function arguments.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=476.009) [So now it should see $interval, and I hope when I come back to the Preview window, it's working again.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=483.009) [Let's refresh and start from the beginning. I can see there is a countdown, 5, 4, 3, 2, 1, Search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=490.009) [So now our page is working. But there is a slight problem, it's not exactly obvious.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=499.009) [If I refresh this page again, think about what happens if I immediately do a Search, and now you'll notice](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=504.009) [the countdown still goes on. When it reaches 0, it's going to do another search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=509.009) [I'm going to prove to you that that is the behavior that is happening behind-the-scenes,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=514.009) [and then we'll fix that up in a later clip, but before we do that, let's just take a step back,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=518.009) [and talk a little more about services now that we've gotten to meet another one.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=2&mode=live&start=523.009)

[Service Roles](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live)

[Let's talk a bit more about the relationship between services and the rest of your application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=1.793) [When you're writing a component like a Controller, you want to focus on one thing, which is setting up the model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=6.793) [The model should contain and retrieve the data that it needs, as well as have the methods required to respond](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=12.793) [to events, events from the user or other events, like a timer event, that might require the model to change.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=17.793) [And when you're writing this Controller code, you want some insulation from the outside world,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=23.793) [not just for testability, but also for the sanity of keeping complexity out of your Controller.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=28.793) [And those are two reasons why services are useful; someone, like Angular, can provide a service that wraps up](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=32.793) [all the intricate details of $http communication and you can just ask Angular to pass the service to you](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=38.793) [by including $http as one of the controller arguments. So you can use services from Controllers,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=45.793) [but you can also use services inside of directives if you ever write a custom directive, and also other services.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=50.793) [We'll write our own service in a bit. Another service that we've seen, the $interval service,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=56.793) [is just one of many built-in services that Angular provides. Each of these services provides a specific](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=61.793) [feature for an application, a feature that because it is wrapped in a service, it can be easily reused](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=67.793) [throughout the application. Let's take a look at another one of the built-in services, the $log service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=73.793) [You'll find this useful for debugging and diagnostics if you ever run into trouble with Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=3&mode=live&start=78.793)

[Using $log](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live)

[Let me demonstrate the $log service of Angular by first asking Angular to give me a $log service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=1.738) [And you can have as many services inside of this controller function as you want.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=7.738) [Angular will identify each one and pass in each one that you need.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=11.738) [And this $log service has some methods on it, methods like warn, info, error.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=15.738) [You can invoke those methods, pass in a string, and that string will appear in the Developer Tools Console tab.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=20.738) [So if I want to see when we're searching, what we're searching for, I could say let's do a](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=26.738) ["$log.info("Searching for ", and add in the username that we're searching for.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=32.738) [So each time that particular method executes, I should be able to see who we're searching for.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=39.738) [And one of the great features of Services in Angular, something that we won't have time to cover in this course,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=44.738) [is that you can reprogram them. In other words, if I detect an error condition, I might want to do a](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=49.738) [$log.error and put a description of that error in the Console, but no one's going to see that error message](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=53.738) [unless they are actively opening the Developer Tools and looking at the Console.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=58.738) [And it is possible to reprogram this built-in $log service to not only add that message to the Console,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=62.738) [but also to send that message back to the web server via the $http service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=68.738) [That way on the server, I can log these messages and find out that clients are having some errors,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=73.738) [someone can investigate to see if it's an error in the program logic.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=78.738) [But we're just going to use the $log service as is, and if I come over to the Preview window and open up](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=81.738) [the Developer Tools, I'm first going to clear out the Console and then refresh this window,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=87.738) [quickly do a Search, and you can see I get one message searching for Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=93.738) [And then when the countdown expires, I get the second message searching for Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=99.738) [So we're doing two searches. I should change this program so that if the user beats the timer and does a search,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=103.738) [then we no longer do the automatic search. And fortunately, this is relatively easy.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=108.738) [When I call $interval, it's going to return an object to me, and the first thing I need to do is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=113.738) [save that object and then use it later to cancel the $interval. So I will declare a private variable here,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=118.738) [it doesn't have to be on $scope, let's call it countdownInterval. I'll start it off as null.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=125.738) [And then when we call $interval, I will store the return value into that variable.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=134.738) [Now, when we do a search, I need to check to see if there is a countdownInterval,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=141.738) [because if there is I want to cancel that $interval. So, if countdownInterval, if that is truthy,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=147.738) [because it's not null, then I can walk up to the $interval service and tell it to cancel,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=156.738) [and I need to pass in that object, countdownInterval. Let's see how this behaves.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=161.738) [Come back to the Preview window, and have the Developer Tools on the screen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=169.738) [I wasn't quite quick enough so let's clear the Console, refresh the window, and do a Search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=174.738) [I got one search, notice the countdown timer stopped. So I'm pretty sure that I have canceled that interval correctly.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=181.738) [I might also want to take that 4 off of the screen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=187.738) [Let's try to do that real quick. You probably know how to do this, but if I just say $scope.countdown = null,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=190.738) [or empty it out, blank it out, now what I should be able to do is,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=198.738) [open all of these Windows again, let's do a refresh, do a Search, now I did one Search, I stopped the interval,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=202.738) [and I took the countdown off the screen. So that's how useful the $log service can be.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=214.738) [It's sort of interesting because it allows us to present some information into the Developer Tools,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=217.738) [but what if I wanted to use a service to interact with something on the page, or on the screen,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=222.738) [or in the browser window? Well generally, we try to keep things like services and controllers from](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=227.738) [interacting with UI pieces directly, but there are some scenarios where it's extremely useful to be able to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=233.738) [invoke some behavior in the User Interface from logic that is inside of the model or inside of a service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=239.738) [Let's talk about that next.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=4&mode=live&start=245.738)

[UI Services](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live)

[Most of the time with Angular, when we want something to happen in the View, all we do is make a change in the Model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=1.959) [And directives will make sure that the View and the Model stay synchronized.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=7.959) [This keeps our Model and Controller free of UI concerns, but there are some scenarios where it makes more sense](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=10.959) [to use imperative JavaScript code to interact with the View in a more direct fashion](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=16.959) [than relying on declarative HTML with directives inside. Some of these scenarios include,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=21.959) [forcing the browser to navigate to a new URL or popping up a model dialog box to force a user to input](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=26.959) [some data before we take some other action. And the solution to these types of scenarios is still not](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=32.959) [to touch UI-related objects directly from the model. Instead, there are services that can wrap](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=37.959) [these types of functionality. So, for example, there is a location service in Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=43.959) [And if we need to read or write the location in the address bar of the browser, the model can talk to the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=48.959) [$location service and the service can talk directly to the UI component.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=53.959) [Again, this can be because the service presents a simplified API for that UI component, making it easier to use.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=57.959) [It's also easier to unit test if a model doesn't touch that UI object directly.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=64.959) [So let's take a look at a couple of these UI-related services; the $location service, which can set the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=68.959) [location in the address bar, and $anchorScroll, which can force a window to scroll to a specific location](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=73.959) [in the HTML identified by an element with an ID.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=79.959) [So here is the scenario I want to explore. Imagine the user has very little real-estate on their screen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=86.959) [and when they come to this page and they do a Search, the Search results appear outside of the visible part](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=93.959) [of the window, so the user might not even know that the Search results have appeared on the screen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=100.959) [What I'd like to do is after the user has executed the search, after we have retrieved all of the data,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=106.959) [I would like the window to scroll to make sure that the user details down here are visible.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=111.959) [And to do this I need to do a couple things. First of all, I'm going to need to ID an HTML element](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=117.959) [that I want visible. In this case it will be very easy to find the element where the userdetails start.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=123.959) [I'll give that element an ID. And then I need to use a service known as $anchorScroll,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=128.959) [and tell it to scroll, make the window scroll so that element is visible.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=133.959) [And that behavior is a little more indirect than what you might think.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=136.959) [I do not pass the name or the ID of the HTML element to the $anchorScroll service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=140.959) [Instead what I have to do is actually change a fragment identifier of the URL.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=145.959) [A fragment identifier is what will appear after the hash sign in the address bar of the browser.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=151.959) [So if I give this HTML element an ID of userdetails, I'm going to have to set the fragment identifier](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=156.959) [in the URL to userDetails and then tell $anchorScroll to go. So a number of changes to put together,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=163.959) [and a couple new services, but let's see how this works. I think I will start with userDetails.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=169.959) [Let's come to this top div. I would like to give this the id of userDetails, try to get this div into the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=174.959) [visible portion of the window. And now inside of my controller, I'm going to need two services.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=182.959) [I'm going to need $anchorScroll to do the scrolling, and I'm going to need $location so that I can modify](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=188.959) [the fragment identifier inside of the URL. And now let me just reformat some of this code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=197.959) [so we can actually fit all of our dependencies on the screen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=203.959) [Very good. Now, inside of onRepos, because at this point we will have retrieved both the user information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=209.959) [inside of onUserComplete, and retrieved all the repository information, what I want to do is say,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=218.959) [$location service, please set the hash or the fragment identifier to userDetails.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=225.959) [And once that has been set, $anchorScroll is one of those services that is a function I can just invoke.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=233.959) [So, two different services, only two lines of code required and one id on a DOM element.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=241.959) [Now we should be able to come back into my Preview window, let me do a hard refresh,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=246.959) [we're starting up here, I do a Search, we get all the results, and the window scrolls down.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=252.959) [It bumps down to make sure that that part of the userDetails is visible.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=257.959) [And that's an example of a couple UI-related services, and UI-related services, like $location,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=261.959) [they certainly make dealing with the address bar a lot easier than if you had to use the built-in APIs](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=266.959) [provided by the browser. For one thing, the $location service can make sure that its functionality](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=272.959) [works across all the different browsers with all their little nuances and bugs.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=276.959) [And now that we've used a few of the built-in Angular services,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=281.959) [it's time to talk about why and how we could write our own service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=5&mode=live&start=284.959)

[Custom Services](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live)

[I want to show you how to create your own service for Angular, and the question to ask is,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=1.385) [‘Why would I ever want to write a service?' Well services are useful in a number of scenarios,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=7.385) [many we've already seen, but let me talk about the big three.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=12.385) [The first reason is to package reusable logic into a container that you can use in different places](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=15.385) [throughout the application. This might be an algorithm or some piece of logic that you need in several](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=21.385) [different controllers. Instead of duplicating code in multiple places, it's always a good idea to keep the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=25.385) [code in one place, a service, and call into that shared code from other locations.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=31.385) [Another reason is to store shared data. It turns out that if you need to share data between controllers](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=36.385) [on different views, a service makes a great place to store data, because Angular only instantiates](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=41.385) [a single instance of each service for a given application. That means if you use a service from three](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=47.385) [different controllers, all three controllers, even if they aren't on the screen at the same time,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=53.385) [they will get the same service instance, and therefore the same shared data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=57.385) [A third reason is to manage complexity. Maybe a controller is getting too difficult to manage.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=62.385) [You have so much code, it scrolls off the screen. That's a time to take a step back and see if there is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=67.385) [anything you can do to simplify the code and separate the responsibilities.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=71.385) [What I want to do is build a service that will demonstrate two of these reasons.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=75.385) [We'll build a github Service. It will encapsulate the API calls to GitHub.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=79.385) [Instead of using the $http service directly from our controller, we'll use $http inside of this new service](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=84.385) [instead, and we'll see it actually simplifies the code of our container, so it helps to manage the complexity,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=90.385) [and it will be a nice reusable service that we can use for multiple controllers later on.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=95.385) [Let's try it.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=6&mode=live&start=100.385)

[A GitHub Service](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live)

[Inside of my plunk, I want to write a custom github service that will make $http calls for me.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=1.508) [And I will place the code for that service inside of a new file, because script.js is getting a little](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=7.508) [long in the tooth, the code scrolls off the bottom of the screen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=13.508) [Things will be much easier if I just create this in a separate file, called github.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=16.508) [I will add that to the project, and I need to make sure that inside of index.html, I include this script,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=22.508) [so the JavaScript code inside will actually execute. Give me a reference to github.js, and I want to make sure](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=30.508) [that this script is included after script.js, because it is script.js that defines the module for the application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=36.508) [I know that defines the module for the application because it has the second parameter, which is an empty array.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=45.508) [You might remember from a couple modules ago, that describes the dependencies for this module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=51.508) [We don't have any explicit dependencies, that's why it's an empty array.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=55.508) [But I need a reference to that same module so that I can register my custom service in that module](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=59.508) [and make it available. So over in github.js, I will create an IIFE, just to give me some scope](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=64.508) [so that I won't create any globals, and then I'll create a variable called module and I'll say,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=73.508) [‘Dear Angular, please give me a reference to githubViewer.' There's no second parameter here,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=79.508) [because I'm not trying to create a module; all I'm trying to do is get a reference to an existing module](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=86.508) [that was defined before this script file came along. So give me a reference to that module,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=91.508) [that will allow me to register my service, but how do I create my service?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=95.508) [I could actually put this above the module. While you might remember from the introduction of this course](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=99.508) [that we talked about a design pattern where I could have a function that gets invoked that returns an object](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=105.508) [with an API; that was the revealing module design pattern. So someone invokes this github function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=113.508) [it's going to be Angular that invokes it. I'm going to return an object that is the github service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=118.508) [What I return will represent the public API, but I will build first are the implementation details.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=123.508) [I know the service has to do two things; it has to get a user and it has to get the repositories for a user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=129.508) [And in order to do either of those things, it's going to need the $http service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=136.508) [So yes, a service can have a dependency on another service, so my github service requires the $http service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=141.508) [That will allow me to do things like, get a user. So I'm thinking if you call getUser,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=148.508) [you will pass in a username, and what I will do is make the $http call to get the data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=155.508) [Now this function is still going to be asynchronous, so what I need to return from this method is a promise,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=161.508) [because in the controller when it gets a user, that's inherently an asynchronous operation.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=167.508) [I cannot return you any data from getUser until I have talked to the server and the server has responded](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=173.508) [with some data. So ultimately the code inside of our controller is not going to change a lot.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=179.508) [It's still going to call something to get a user, and then it needs a .then method for a promise](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=182.508) [that will deliver the value when we have that information. Let me copy this line of code that calls](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=188.508) [$http.get on the user URL, and I'm going to put that into getUser after a return statement.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=194.508) [So if this is all I did and I registered the service with the name of github, someone could call this function](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=202.508) [and still do a .then and pass in a function that gets the $http response, because what I'm returning](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=207.508) [is the promise that is given to me by $http.get, but I can do one better than this,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=213.508) [because inside of the controller, once it calls that URL and it says ".then(onUserComplete",](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=218.508) [one of the things that onUserComplete has to do is look at the raw HTTP response and dig the data out of that response.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=224.508) [I can actually perform that in my service so that the controller doesn't have to.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=232.508) [So back in my service, instead of returning this directly, I will say $http.get, .then.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=237.508) [Here is a function that takes a response, and what I want you to return is response.data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=244.508) [Now there's something happening here, which isn't immediately obvious, and I'll admit it can be completely](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=252.508) [mind-bending until you get used to this particular programming paradigm, but what will happen when someone calls](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=257.508) [getUser is that I will make a call to $http.get and that will return a promise.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=263.508) [I will call .then on that promise so that when that $http call is complete, it will call my function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=268.508) [passing in a response, and I will dig out the data to that response, and then I will return response.data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=274.508) [The not immediately obvious part is that when you return something from a function that is invoked by .then,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=281.508) [and this something could be a number, could be an object, could be a string, whatever you return will be](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=289.508) [wrapped by .then into another promise that is given back to the caller.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=294.508) [So whoever calls getUser, they're going to get back a promise that will deliver the value that this return](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=299.508) [statement provides, response.data. They're not getting back a promise that will be complete when the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=307.508) [$http call is complete; they're getting back a promise that represents the completion of $http and](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=312.508) [this particular function that digs out the data. If it's not immediately obvious how that is working,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=318.508) [that's okay, it didn't make sense to me for a little bit, I had to work at it awhile,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=322.508) [but hopefully you'll see that the results are very simple and it's going to be very simple to call this method.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=326.508) [We won't actually have to change much inside of the controller, but I am going to follow this same basic pattern](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=331.508) [for getRepos without any, which will get the repositories for a user, so you pass me a user object](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=335.508) [and I will figure out how to get the repositories. Again, let me borrow some code from onUserComplete,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=344.508) [copy that call, and paste it here, because I still need to do an $http.get, this time not against $scope.user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=351.508) [but just against the user parameter that is passed to me. I'm still going to return a promise,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=360.508) [but not the $http.get promise; I will return the promise that I will return this, which is response.data again.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=365.508) [So, processing that response to the controller doesn't have to, and that is everything I need to do](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=377.508) [for the private implementation details of the service. Now we just need to pick the public API,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=382.508) [which can be very simple. I want something called getUser, which will call that getUser function,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=386.508) [and something called getRepos, which will call the getRepos function, and now my service definition is complete.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=392.508) [All I need to do is register this service with Angular, so that other components can use it.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=399.508) [Now, I will warn you there's about 24 different ways to register and configure a service with Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=404.508) [If you go into the documentation it's very confusing, but I will give you the one simple straightforward way](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=410.508) [to register a service with Angular, and that is to use a method called factory.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=415.508) [With the factory method what you do is you pass in the name of your service, in this case it's going to be github,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=421.508) [and then you pass in something that points to a function that returns an object with the API that you want.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=427.508) [So now when any controller or anything else inside of this application says, ‘Give me something called github',](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=434.508) [they will get back this object, something that they can call .getUser and .getRepos.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=440.508) [I've implemented that service here, I've registered that service with Angular here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=446.508) [The only thing I need to do to use it is, here inside of MainController, I no longer need the $http service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=451.508) [I need the github service, I just ask for it by name. And now we have to fix up the code in here to use that.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=457.508) [Let's start at the top. When the user clicks Search, I don't want to call $http.get.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=464.508) [I want to call github.getUser, here is the username to fetch, and then either call onUserComplete or onError.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=469.508) [onUserComplete has to change just a little bit, it's up here at the top.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=481.508) [Instead of getting a raw $http response, we're doing that processing here, what it will get instead is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=485.508) [the user data. So this is simplified a little bit. Just give me the data and $scope.user will be that data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=493.508) [Now instead of calling $http.get here, I can also say github.getRepos, pass in $scope.user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=501.508) [that will call this function ultimately, and I can still use my promise to say onRepos or onError.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=512.508) [And onRepos will change just like onUserComplete changed. I get the raw data, just set $scope.repos](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=521.508) [equal to that data. So the code inside of the controller hasn't changed tremendously.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=529.508) [It's not like we took out 50% of the code inside of the controller, but it has been simplified.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=534.508) [And if you think about it, now we have the service, this github service that manages the URLs,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=538.508) [that manages the response processing. I can reuse it from other components inside of the application,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=543.508) [and if I never need to add additional features, features like making authenticated calls or caching of the data](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=548.508) [that comes back, I can add that to the github service and it's just available everywhere.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=554.508) [So I'm in a much better situation. And this is typically what I do in real applications;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=558.508) [I never make $http calls directly from inside of a controller or inside of a model.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=562.508) [I usually encapsulate all that server communication inside of a service that makes it easier to use.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=567.508) [It's much easier to see that I'm getting repositories, or that I'm getting a user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=572.508) [than it is trying to read through a URL and figuring out what is happening, but having said all that,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=577.508) [we should probably check the Preview window to make sure this works, and I'm hopeful because it is displaying](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=581.508) [Angular information. If I refresh, and let's go back to Rob Conery.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=587.508) [If I can beat the timer, which I did, it looks like I now have a github service](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=595.508) [and that github service is working for my controller.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=7&mode=live&start=599.508)

[Summary](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live)

[In this module we looked at services in Angular, and we used a few of the built-in services that Angular provides,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live&start=2.103) [services like $location, $log, and $interval. We also saw how to build our own custom service,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live&start=8.103) [and most importantly we saw that services are another barrier, or another shield that we can use](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live&start=14.103) [to keep our models and controllers free of code that will make them complicated or harder to test.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live&start=19.103) [Services are like software components that we can pass around in the application and they can package up](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live&start=24.103) [custom logic and data for reuse and allow us to break down large pieces of functionality into smaller pieces](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live&start=29.103) [of software. In the next module, we'll look at yet another service that we can use with Angular,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live&start=35.103) [the routing service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m4-services&clip=8&mode=live&start=41.103)

[Routing](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=0&mode=live)

[Introduction](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=0&mode=live)

[Hi, this is Scott Allen, and this final module with Angular will demonstrate Routing.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=0&mode=live&start=2) [Routing allows you to manage multiple views in an application, and it's an essential feature](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=0&mode=live&start=6) [for building larger apps, because you can allow a user to navigate between different screens,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=0&mode=live&start=11) [you can pass parameters between the controllers that manage these screens, and even tap into the browser](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=0&mode=live&start=16) [Back and Forward buttons so that the browser history is synchronized with the user's location in your application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=0&mode=live&start=21) [Let's start by looking at some of the details of how routing works in AngularJS.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=0&mode=live&start=28)

[What is Routing?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live)

[At a high level, here's what Routing is all about. You are building an application and you cannot put](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=2.2149667) [all the functionality that you need into a single controller in a single view.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=7.2149667) [You have different features and you need different areas inside the application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=11.2149667) [That's going to require multiple views, multiple controllers. Each view and controller is responsible](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=15.2149667) [for a specific feature or area of functionality, and now that you have functionalities spread around,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=20.2149667) [how do you know where the user is located in your application, how do you know what is supposed to be on the page,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=26.2149667) [what are they seeing? Are they trying to view the details about a user, or are they trying to view the details](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=32.2149667) [about a repository for some user? And that's the first question; how do I know the location of the user?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=38.2149667) [While the browser does have the concept of a URL, a Uniform Resource Location, that's what appears in the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=44.2149667) [address bar. We usually think of the URL as a way to reach some resource on the server,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=50.2149667) [but when building an application with Angular, you can also start thinking of a URL as being able to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=55.2149667) [locate the resource on the client too. Every JavaScript framework I know of that provides Routing features](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=60.2149667) [uses the URL of the browser. So let's say the URL includes /users/odetocode; that means your customer wants](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=66.2149667) [to see information about the GitHub user, odetocode. It is the responsibility of the routing engine](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=74.2149667) [to see that URL, capture it, and figure out what should happen. It will figure out what should happen,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=80.2149667) [because we will configure the routing engine with some rules. Rules like, when our customer comes to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=86.2149667) [the URL that looks like /users/(some username), you need to render the users details view,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=91.2149667) [or the user details controller. So the rules we configure allow the routing engine to pass the request off](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=98.2149667) [to the right area of the application. We'll have a controller find a user, and we'll use data binding](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=104.2149667) [to put that user information into the display. Then, a customer might click on a link, one that takes them](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=109.2149667) [to /users/odetocode/repos, so they want to drill into the details of the repositories available for this user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=115.2149667) [Again, the routing engine will see that request, intercept it, capture it, and transfer control over to the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=122.2149667) [proper components to do the work of responding to that request. And all of this happens on the client,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=127.2149667) [in the browser, in JavaScript. And now what we need to do next is talk about some specifics with Angular.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=133.2149667) [How do we put this routing engine in place, and how do we configure the rules that the routing engine will use?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=138.2149667) [That's what we'll look at next.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=1&mode=live&start=144.2149667)

[Routing With Angular](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live)

[Here's how Routing works with Angular. First, we're going to need another script from the Angular code base;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=2.3735112) [it's called angular-route.js. This will give us access to a new module, a module that our application module](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=7.3735112) [will need to take a dependency on; this new module is called ng-route.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=14.3735112) [Using a component in ng-route, we will configure our routing rules into the routing engine.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=18.3735112) [Remember, this is where you describe the URLs for your application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=24.3735112) [You have to tell the routing engine how it should respond to a particular URL that appears in the browser.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=28.3735112) [With ng-route, this is done using a component known as $routeProvider.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=33.3735112) [It has an API where you describe what the URL looks like and then what to do for that URL.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=38.3735112) [For each URL you can specify a templateUrl, that is the HTML that Angular has to go and find and load up](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=44.3735112) [for that route, and then optionally a controller that should be used to manage that template.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=51.3735112) [And because the routing engine has to take that template and load it into the display,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=56.3735112) [we're going to need to reorganize our application and our default.html file.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=61.3735112) [Our default.html file will become what some people call a layout view, or a shell view.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=66.3735112) [A layout view is a view that contains the markup you will use on every page of your application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=72.3735112) [It might include some common features, like a navigation menu at the top that's going to appear everywhere](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=77.3735112) [in your application, and perhaps a foot at the bottom that contains links to contact you and a copyright,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=83.3735112) [but there will be space somewhere in that layout view, where the routing engine can load a template](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=88.3735112) [that corresponds to the current URL. So let's say we have two templates available; one to display userDetails](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=93.3735112) [and one to display repository details. We will tell the routing engine where to place these templates](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=99.3735112) [using a new directive, an ng-view directive. We will use that directive on an HTML element and it is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=106.3735112) [that HTML element where Angular will insert the template when we're at the right URL.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=113.3735112) [And now, as the user clicks and navigates and enters information and saves information,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=119.3735112) [the routing engine will swap out one template with another template inside the shell view,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=124.3735112) [and our application is now scalable; it can support any number of templates and controllers.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=128.3735112) [The routing engine is going to swap them in and out. When it does that, it will also coordinate with the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=133.3735112) [browser history, so that if the user hits the Back button or the Forward button, they will still be](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=138.3735112) [navigating just inside of your application. So we have a little bit of work cut out for ourselves,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=142.3735112) [but let's try this out now.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=2&mode=live&start=147.3735112)

[The Setup](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live)

[For this module, I want to build on the Plunk that we've been working on for several modules now.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=2.2580446) [Only this time we're going to tear it apart and put it back together and use it with routing.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=6.2580446) [We'll have all the same features we currently have, plus we're going to add a feature,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=10.2580446) [and what we'll find out is that routing actually makes some things easier.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=14.2580446) [For one, we can start dividing responsibilities between searching for user information versus displaying](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=17.2580446) [user information, but before we get to any of that, we need to at least get set up for routing.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=22.2580446) [So the first thing I will do is make sure I go out and add,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=27.2580446) [that angular--route script that I can find if I do a Search for angular-route.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=31.2580446) [Now you notice I get a couple Search results here, angular-route and angular-router.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=37.2580446) [It's angular-route that I want, it has the most up-to-date version of angular-route.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=40.2580446) [I'll just click the button, and that will add an additional script file for me in my page.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=44.2580446) [This one going to code.angular.js, and it's picking up angular-route.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=50.2580446) [And now that we have that script included, the next step would be to set ourselves up so that we can](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=57.2580446) [configure the routing engine. One place we could do that,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=61.2580446) [is inside of script.js where we create a githubViewer module, but script.js is already a little bit full.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=65.2580446) [It's really where we have MainController defined. So I would like to remove the creation of this](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=72.2580446) [githubViewer module from script.js and move it to the new file where we will create that module and also](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=78.2580446) [add the configuration. So, create a new file, this one I'll call app.js because this is really what's going to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=86.2580446) [define the application, and it's inside of here where I can have an IIFE, where I can have a line that will](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=93.2580446) [define the module, and what we're going to find is that we can run and register configuration functions](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=102.2580446) [against our application, and inside of this configuration function where we can define our routes.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=109.2580446) [And now that's cleanly separated out from script.js, which is just going to get a reference to githubViewer.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=114.2580446) [And before I forget, we will need to add app.js to the list of scripts that need to be included here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=120.2580446) [This one has to come before the other scripts because it is the one that is defining the module,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=129.2580446) [and actually script.js, I'm going to go ahead and rename that to MainController, because that is really](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=134.2580446) [what is inside of script.js. If I double-click the filename, I can rename this MainController.js,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=141.2580446) [and now we're a little further along. So app.config, that's a new API we haven't seen yet, but I'm essentially](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=150.2580446) [telling Angular, here is a configuration function to run when you're bringing this module to life.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=155.2580446) [And so Angular will do this early on in the lifecycle of the application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=160.2580446) [And it's inside of here where I can configure the routeProvider, but in order to do that,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=165.2580446) [I need to tell Angular that I have a dependency on ng-route. So it's not enough just to put that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=171.2580446) [angular-route.js script into the page; I also explicitly have to tell Angular, ng-route is another module](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=177.2580446) [that my module needs. Only then will routeProvider be available to me.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=184.2580446) [And here's what I'm thinking we will do with routeProvider. What I'm picturing is that eventually we will](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=188.2580446) [have three separate views, three separate sections of the application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=192.2580446) [There will be a main section; this is going to contain the search form that we currently have,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=196.2580446) [where a user can type in a name and click a Search button and go off and search for a user,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=201.2580446) [but that's just going to be one view, and searching is the only thing that viewer is going to do.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=205.2580446) [When a user of this application completes a search, we're going to send them over to a user.html](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=209.2580446) [view and controller, and that's where we will present the results.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=214.2580446) [I also plan on adding a new feature to this application, which is the ability to drill into a repository](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=218.2580446) [and see some details. Someone can do that just by clicking a link inside of that user view,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=223.2580446) [it will take them over to the repo view. And all of this is going to require the proper route configuration,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=227.2580446) [as well as some changes to index.html, because we have to turn that into a layout view.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=233.2580446) [And most of the HTML that's in there now is going to need to be broken out into some of these other views,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=237.2580446) [but first the routing configuration.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=242.2580446) [With the routeProvider, I will just do one of these right now. I can describe the route that I want it](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=244.2580446) [to look for. So I could say that if the user comes to the entry of this application, the root of this](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=251.2580446) [application, just slash, then go to this controller with this view, but I'm going to make the main view](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=256.2580446) [the entry point for the application, something that will appear on the screen when the user is at "/main".](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=262.2580446) [And I need to tell Angular when it does see this URL, here is the template to load main.html,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=269.2580446) [and here is the controller to use, which is the MainController. So Angular will go out and fetch that view,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=277.2580446) [put it into the DOM, create a MainController, put it in charge of that template, and then we'll be off and running.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=284.2580446) [The other thing that I can do with the routing engine is I can tell it, ‘If you see a URL that you don't understand,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=289.2580446) [so it's not one of the URLs that have been listed previously, it's not "/main" at this point,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=296.2580446) [we'll add some other routes in just a bit, but otherwise if you don't know what else to do,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=301.2580446) [I want you to redirect to "/main"'. And now what the routing engine can do, is if someone for some reason](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=305.2580446) [comes in to /unknown URL, what the routing engine will do is send them to /main, which will bring up our Search form.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=312.2580446) [Let's just see if we can get this part working.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=320.2580446) [index.html will need to become a layout view, a shell view. Let's say that it's going to have a body,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=323.2580446) [and a header that appears on every page. We'll say githubViewer.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=330.2580446) [I will remove that responsibility from the MainController, instead we're just going to have it hardcoded here,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=335.2580446) [we could also have a navigational menu up here at the top, but we'll display githubViewer and then](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=339.2580446) [everything else will be controlled by the routing engine. I will put in an ng-view directive.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=345.2580446) [So that is where the routing engine will load these different templates.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=351.2580446) [And now this existing markup that I have inside of here, I'm going to need to change it around a bit,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=354.2580446) [but I'm going to cut it out of this page; this is all we need now inside of index.html.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=358.2580446) [I'm going to take that HTML and I'm going to put it inside of main.html and set it up so that it works correctly.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=364.2580446) [But this is a new file, main.html, paste in what we have, and now I don't need this to be a body tag,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=370.2580446) [so I will change that to being just a div. I no longer need to specify which controller to use,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=379.2580446) [because that's going to be specified in the routing rules. This is optional, you don't have to specify](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=386.2580446) [the controller here, and you can still specify the controller in the template, but I'm going to remove it from here](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=391.2580446) [and allow the routing rules to figure out which controller is going to be in charge.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=399.2580446) [We don't need the message anymore. And let me beautify things a little bit to get the indentation,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=403.2580446) [that's better. Actually we don't need the error here, because this view will no longer have the Search results.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=408.2580446) [I don't need userDetails anymore. It is just going to be that Search form and the countdown timer](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=414.2580446) [that MainController will be responsible for. So to see if we can get this page on the screen,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=420.2580446) [the other piece I'm going to need to rip apart is MainController.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=424.2580446) [Right now it does the searching and display of user data. I'm going to make a copy of everything in this file,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=428.2580446) [create a new file called UserController.js, and paste it in here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=435.2580446) [We will come back to this file later and fix it up. We need to remove some features from this file.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=442.2580446) [But right now, I want to remove some things from MainController that I no longer need.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=447.2580446) [For instance, this controller no longer needs the github service. All it's going to do is present the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=452.2580446) [Search form and send things off to another controller and template to do the actual search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=458.2580446) [And in fact, I'm going to get rid of $log and $anchorScroll also.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=462.2580446) [The only thing this controller is going to work with is $scope, $interval, and $location.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=467.2580446) [I'll show you why we need location in just a bit. I don't have to worry when the user search is finished,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=471.2580446) [I don't need to worry about when repository searches are finished, or when there's an error.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=477.2580446) [I do need my function to decrement a countdown, to start a countdown, to manage the countdown.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=481.2580446) [And now, inside of search, we no longer call into GitHub. I still want to manage the countdownInterval.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=486.2580446) [This is the place where I will need to place some codes that we go off to the right route where we will](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=494.2580446) [actually search and display this user that we're looking for. And now just to fix up a couple few last things,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=499.2580446) [we'll still have a default username, I don't need a message or a repoSortOrder; I just need countdown-related logic.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=506.2580446) [So now, MainController much smaller. It's focused on one thing, which is to manage that search form](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=513.2580446) [and to manage a countdown to perform an automatic search if the user doesn't search first.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=520.2580446) [And now let's take a look at this in the Preview window.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=524.2580446) [In fact, I want to look at it in an external window to show you a couple features here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=527.2580446) [The countdown timer still works, I'm still presenting the search form.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=531.2580446) [If I open up the Developer Tools, I don't see any errors. These are all good signs that things are working.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=535.2580446) [Of course now we're not actually doing the search; that's a feature that we'll tie in next.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=540.2580446) [But I do want to call your attention to the URL, and that one has a hash sign in it and a /main.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=544.2580446) [And that is what the routing engine is using to determine where to go.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=549.2580446) [When I tell the routing engine to go to /main and to load up the MainController, that's exactly what it's doing,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=554.2580446) [because we are at /main. We're using pliant fragment section of the URL, the thing that comes after the # sign,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=559.2580446) [that's what Angular uses by default. And unfortunately, this address bar, you cannot modify it when it's](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=565.2580446) [being run in Plunker, but if I were to try to come to something like #/user, which we don't have it defined](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=572.2580446) [as a route yet, the routing engine would redirect me back here to #/main.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=577.2580446) [So this part up here is to be working. Next, let's get the userDetails display back.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=3&mode=live&start=582.2580446)

[The Fixup](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live)

[Let's get the display of userDetails back into the application. What I want to happen is that when the user](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=1.5) [clicks on Search, or there's an automatic search, I want the URL to change to /user/ and then the GitHub Login ID,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=6.5) [like Angular. I want that in the URL for two reasons. One reason is that it makes it very easy to pass](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=15.421678) [a parameter from this view and controller to another view and controller by putting data into the URL.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=20.421678) [And the second reason that this makes sense is because by having that Login ID in the URL,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=26.421678) [someone can bookmark that URL and come back to it anytime and see details about a specific GitHub user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=30.421678) [They could also copy that URL and email it to a friend or a coworker who can follow the link](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=37.421678) [and they'll see the same data as the first person. And in order for all of this to work,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=42.421678) [we'll need to go through four steps. First of all, we'll need to register a new route so that the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=46.421678) [routing provider understands why we go to /user/username, what it needs to do.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=50.421678) [Then we'll need to create a template for that URL, we'll need to create a controller for that URL,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=55.421678) [and finally we'll need the MainController to send us to that particular URL when a search occurs.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=61.421678) [Let's start all of this by working with the $routeProvider to define that new URL.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=67.421678) [So, as you've probably already deduced, .when is the API to use to register a route for your application.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=72.421678) [And you can have as many calls to .when as you want, and you can chain them together like this.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=79.421678) [So I can just say .when, .when, .when, .when, and then a dot otherwise at the end if you want to handle](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=83.421678) [unknown URLs. This time I want a URL that looks like "/user/:username".](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=89.421678) [So whenever the routing provider sees a segment of the URL with a colon in front, it's going to treat](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=97.421678) [that piece of the URL as a parameter, a piece of data that needs to be extracted from the URL](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=102.421678) [and perhaps given to other components, so that they know what to search for, what to look for.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=107.421678) [Everything else it treats as a literal string, so for this particular route, it has to start with /user, ---](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=112.421678) [and then a slash, and whatever comes afterwards will be treated as a username parameter.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=120.421678) [So it could be /angular or /robconery, whatever the value is, we'll be able to ask the routing engine](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=124.421678) [what is the value for username and it will be able to tell us what's in the URL.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=130.421678) [We'll see how to do that in just a bit. For right now, I want to tell the router what to do when we have](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=134.421678) [reached this particular URL. Well the template, I want it to use something called user.html,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=141.421678) [we'll have to create that, and the controller will be UserController.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=147.421678) [We have already created UserController, but remember that was a copy of the original MainController,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=153.421678) [so it has a lot of functionality in there that we needed to take out.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=158.421678) [All it needs to do now is display userDetails, so we need to fix up that file.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=162.421678) [Now let's create the template, user.html. It turns out we already have something that can display](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=166.421678) [userDetails, we had it ng-included into the main view as this file, userdetails.html.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=171.421678) [I can use this. All I need to do is rename it. Let me double-click the file, change its name to user.html,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=178.421678) [and maybe just a few little things to clean up here. We no longer need to ID a particular element,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=185.421678) [we're not going to scroll there anymore, and I might need a place to display errors if something goes wrong](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=191.421678) [when we search for a user. So those two little simple changes, everything else in here is perfectly set up](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=197.421678) [to display the userDetails that we need. So now I just need to fix up UserController.js,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=202.421678) [which we have not included as a script in the application as yet, because it hasn't been ready,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=207.421678) [but now I will go ahead and say, please bring in UserController.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=215.421678) [That can appear anywhere in this list as long as it is after the app.js script.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=219.421678) [And UserController itself, we will have to change the name here to just UserController, instead of MainController,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=224.421678) [and down here where I register this controller, I want to register a controller by the name UserController,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=232.421678) [and please use this function when you need a UserController. Now we can clean up inside of here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=238.421678) [This UserController no longer needs an $interval service, or a $log service, or $anchorScroll, or $location.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=243.421678) [I'm going to get rid of all of those. It's going to be a much simpler controller.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=250.421678) [We do need to know when the user search is complete, when the repository search is complete.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=255.421678) [when there's an error, but we don't have to manage countdowns, or start the countdown timer,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=259.421678) [or perform a search; we don't need any of that. We don't need a message.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=265.421678) [All we really need to do is find out, what is the username we're searching for and then we need to search for it.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=271.421678) [So how do we find out the username? Well there is a service available called $routeParams,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=275.421678) [when you're using routing, and what $routeParams will give you is any parameter that is defined in the URL.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=281.421678) [So, if our route has something called username, which is a parameter in the URL, if that's available,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=287.421678) [$routeParams will make that available as a property that I can read.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=293.421678) [So I can say, the username we're going to look for is, $routeParams.username, that gives me the username.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=297.421678) [And now, I can say github service, let's get the user, $scope.username.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=305.421678) [And when that is complete, use the existing onUserComplete function, or the error function that we already](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=312.421678) [have defined. And there's actually two more pieces of code that I can delete here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=320.421678) [The feature that we had to scroll to the HTML element with an id of userDetails, we don't need that anymore](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=324.421678) [because this page will only display userDetails. Now the UserController is nice and simple.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=330.421678) [We removed a lot of code because the UserController is only focused on one responsibility,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=336.421678) [which is to display those userDetails. Now all the application needs is a way to get to this UserController](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=340.421678) [and user view. We left that until later. That's the line of code that I left commented out here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=347.421678) [I need to move to a particular route from a code inside of a controller. How do I do that?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=352.421678) [I do that with the $location service. Not only can the $location service tell you what URL you are on,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=357.421678) [if you want to read the URL for some reason, but it can also tell the $location service to move this](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=362.421678) [somewhere else. I can do that with a method named path. So I can say, $location.path, please take us to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=367.421678) [/user/ and then the username that our user searched for. Let's try this out,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=375.421678) [by looking at it in an external preview window. Notice we start at #/main.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=385.421678) [I do a search, and we go to #/user/angular, and our repository information displays.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=390.421678) [And now it might be nice, when I'm on this page, to be able to get back to the Search page.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=398.421678) [Currently we have no navigation here to get back and do another search, that's easy enough to add](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=403.421678) [over in user.html. The other way to move between routes is to use a simple anchor tag.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=408.421678) [So I could say, please give me an anchor tag that points to #/main, and the text will be back to search.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=414.421678) [And by the time I flip over to the Preview window,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=425.421678) [that might've already refreshed so that if I scroll down, I have ‘Back to search', and here I am on the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=427.421678) [Search window. I can do a search for Angular again. The other thing that will be working will be the](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=433.421678) [Back and Forward buttons in the browser, because every time you make a route change, the routing engine](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=438.421678) [will make an entry into the browser history list. And although this Preview window does not display the UI](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=442.421678) [for a Back and Forward button, it gets rid of the browser toolbar, there's always shortcut keys,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=448.421678) [like on Windows I can hit Alt + Back Arrow, that takes me back to the Search form; Alt + Forward Arrow,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=453.421678) [I'm back to displaying the user details of Angular. And that's another nice benefit of routing for your users,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=458.421678) [because many users like to use those Back and Forward buttons to move between screens that they've seen.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=4&mode=live&start=464.421678)

[Your Challenge](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live)

[I thought that a good finale for this course would be to implement a new feature in the application,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=1.9637225) [and a feature that will require us to apply all the knowledge we've learned in this course.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=7.9637225) [What I'm thinking of is that it would be nice to click on the name of a repository in this table,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=11.9637225) [and to drill into some details about the repository, even see who are the people who work on the code](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=16.9637225) [in this repository. That's what GitHub refers to as the Collaborators.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=21.9637225) [To get the details of a repository from GitHub, I really need two pieces of information;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=25.9637225) [the GitHub username, which GitHub data sometimes refers to as the login,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=30.9637225) [and the repository name, because repositories are unique only within the context of a specific user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=34.9637225) [So we'll need to define a new route with two parameters inside, then we can create a template,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=41.9637225) [then a controller. We'll need to modify our github service to make http calls to provide this new data also.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=46.9637225) [You'll find out that this requires two http calls.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=52.9637225) [One call will need to get the details of a repository. From here I might want to display information about](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=56.9637225) [the total number of open issues in the repository. You'll find that in a data member called open\_issues\_count.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=61.9637225) [And then a second call is needed to get the collaborators for a project.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=68.9637225) [I'd like to list the names of the collaborators and their gravatar images.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=74.9637225) [So think about how you would implement this feature and then pause the video and give it a try yourself.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=77.9637225) [It will be challenging, but it's also a good test of what you've learned.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=83.9637225) [I'll give you my solution in the next clip.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=5&mode=live&start=86.9637225)

[My Solution](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live)

[To implement the feature, I'm going to start with the route definition.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=2.2449003) [So inside of app.js, let's add a third .when. I'll tell the routing engine, when it sees something like](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=5.2449003) [repo/:parameter username/parameter repository name, then please do the following;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=13.2449003) [I want you to load a template, repo.html, and I want you to load a controller in charge of that template,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=21.2449003) [the RepoController. Now you could start this off by implementing the view first, or the RepoController first.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=30.2449003) [I'm going to start off with the controller, so create a new file, RepoController.js.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=36.2449003) [I will need to include this script in index.html; otherwise, the controller will not be defined.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=43.2449003) [So please include the script, RepoController.js, that can appear anywhere in this list as long as it is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=50.2449003) [after app.js, and inside of RepoController, I'll follow the pattern of creating an IIFE,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=57.2449003) [then going out and getting a reference to my githubViewer. (Typing)](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=67.2449003) [And ultimately what I need to do is tell that module that I'm registering a new controller,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=74.2449003) [it's the RepoController, and that will be a function that I'm about to define, RepoController.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=80.2449003) [So RepoController is a function that will need $scope so it can do data binding, it will need $routeParams](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=88.2449003) [so it can figure out what username and reponame we're searching for, and it will need the github service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=96.2449003) [Let's figure out what we're searching for first. The reponame will come from $routeParams.reponame;](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=102.2449003) [the username will come from $routeParams.username. Remember we need both of those pieces of information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=110.2449003) [to get the details of a repository, and these names -- reponame and username, they just need to match](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=116.2449003) [the way you've described the parameters to the routing engine; username, reponame, all lowercase.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=123.2449003) [Then, we can go up to the github service and say, ‘github, please getRepoDetails for username and reponame.'](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=129.2449003) [Now this is a method that is not defined on the github service as yet, we're going to need to define it,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=139.2449003) [but we can assume that when that comes back, it will give us information about our repository.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=145.2449003) [So I can say, .then, here's a function that will get some data, or let's build named methods instead.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=149.2449003) [I've gotten the repository, or I've gotten an error. Now, there's really two ways to implement getRepoDetails.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=157.2449003) [Since getting all the information that we need about the repository and its collaborators requires two](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=165.2449003) [$http calls, you can certainly take the approach that we took in UserController, which is,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=170.2449003) [first, get the user information, and then get the repository information.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=174.2449003) [So I'm making both calls by calling something on the github service and kicking off those calls](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=181.2449003) [from the controller itself. For the RepoController, I'd like to show you a slightly different approach,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=185.2449003) [which is, I'm going to make one method call and that service is going to put together all the information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=191.2449003) [I need, so that I don't have to make a second call to the github service for my controller.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=196.2449003) [All I need is onRepo and onError, and then we will go over and implement what we need in the github service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=200.2449003) [So onRepo is a function that will take some data and I'll just say, $scope.repo = that incoming data,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=207.2449003) [onError is a function that takes some sort of reason that that error occurred, and then we'll just say](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=217.2449003) [$scope.error = the reason for the error. And that's all we need in our RepoController.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=225.2449003) [But this will require us to work a little bit harder inside of our github service.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=231.2449003) [So I need to expose a method, getRepoDetails, that's going to be a function that takes a username](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=236.2449003) [and a reponame and figures out how to make all of the $http calls necessary to get all the information I need](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=243.2449003) [about the repository and the collaborators, and I will expose that method here as part of the public API.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=250.2449003) [So getRepoDetails points to getRepoDetails. And now inside of here, I will declare a variable,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=259.2449003) [a variable that represents the repository, and that variable is going to contain all the information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=266.2449003) [that we need to return to whoever called this method. So ultimately, return repo is going to be the goal,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=271.2449003) [but first I need to populate that object with all of the information we need.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=279.2449003) [And to do that, I'm going to need to call the GitHub API Server. The place I want to go is](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=284.2449003) [https://api.github.com/repos/and then add in the username, and another /, and add in the reponame.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=290.2449003) [And I also need to return a promise. Because all of this is going to be asynchronous, I am going to return](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=306.2449003) [$http.get and call that repoUrl, but I don't want to return the raw response; I want to add a .then here](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=314.2449003) [and have a function that will process that response on behalf of the controller.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=323.2449003) [And it's inside of here where I say, "repo = response.data". So, before when we had getUser and getRepos,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=328.2449003) [we did some simple processing of the response just to return response.data, and ultimately inside of](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=337.2449003) [a controller, when it calls .getUser.then, what the .then is waiting for is response.data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=342.2449003) [That's what we're going to return to it. But in getRepoDetails, I want to take this one step further.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=349.2449003) [I don't want to return just the repository information, I want to also go out and get collaborator information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=354.2449003) [and process that, and give the controller back an object that is full of information about the repository,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=361.2449003) [and all the collaborators are filled in too. And so, instead of returning response.data,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=366.2449003) [I'm going to return $http.get on that repoUrl again, but this time add in the /collaborators,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=371.2449003) [and that's going to return another promise from this then. The beautiful thing about promises is that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=384.2449003) [you can chain them together, and we've done this already. GetUser returns response.data from a then method.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=389.2449003) [So a controller has to say .getUser.then, the process response.data.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=396.2449003) [What I'm doing is that second .then inside of getRepoDetails, so I can process this $http response,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=401.2449003) [so again, a function that takes a response, and now I have collaborator information inside of this object.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=410.2449003) [So if I say "repo.collaborators = response.data", I have now taken that collaborator information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=418.2449003) [and attached it to my repository object, and ultimately what I want to do is just return repo.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=429.2449003) [So, chained promises can be a little bit mind-bending; we talked about this in the last module.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=436.2449003) [But ultimately, what I am going to return to the caller of getRepoDetails is a promise,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=441.2449003) [a promise that will either deliver an error or it's going to deliver this repo object that I've been building up.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=447.2449003) [I've placed inside of that object the response to get the repository details, I've placed in that object](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=453.2449003) [the response that includes the collaborators details, and by placing this all inside of .then calls with](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=459.2449003) [return statements, I'm essentially building a bigger promise that says, I will give you a result once](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=465.2449003) [all of this work is done, both of the $http calls will be complete, and we will have built this](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=470.2449003) [entire object for you. And now my next job will be to build the template for that particular route,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=475.2449003) [so ‘New file', repo.html. I know in my RepoController, I will now have access to all of that information](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=482.2449003) [that the github service put together. So inside of repo.html, what are the things that I might want to display?](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=490.2449003) [Well I might want to display repo.name inside of a header, so it's really clear what we're looking at.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=497.2449003) [I also said that I wanted to display the count of open issues, so give me a div tag that says,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=503.2449003) ["Issues: {{repo.open\_issues\_count}}". And then I want to display the collaborators, so put that inside of](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=510.2449003) [another div. There are multiple collaborators, so perhaps an unordered list would be nice here.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=519.2449003) [And I need to create a list item for each collaborator, so ng-repeat.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=524.2449003) [ng-repeat, let's use the expression for each user in repo.collaborators, which I always have to pronounce](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=530.2449003) [funny to make sure that I spell it correctly. Inside of here I want to display the user's name,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=538.2449003) [which in the particular data structure that comes back when you get collaborators, that is the login property,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=545.2449003) [so user.login, but I also want to display their gravatar, which is available, and we've done this before.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=550.2449003) [I need an image whose source references www.gravatar.com/avatar/and then the user.gravatar\_id.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=556.2449003) [We could make the alt tag the user.login also. And then it might be nice to provide some links to get back](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=572.2449003) [to the Search page, so a link to go to #/main, we'll say "Back to search", and perhaps a link to get back to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=583.2449003) [the userDetails, so #/user/, and here I will have to say repo.owner.login,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=591.2449003) [that's a particular data structure inside the repository details that will give you the name of the user.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=602.2449003) [And here I could say, "Back to {{repo.owner.login}}". So now I have links from this view to go back to](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=608.2449003) [other places in the application. The last thing we need to do, I think, is inside of user.html,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=617.2449003) [instead of just displaying the repository name, I need a link to go to this new feature.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=623.2449003) [So an anchor tag whose href is "#/repo/{{user.login}}/{{repo.name}}", and it will display the text,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=630.2449003) [repo.name. So if we've done everything correctly, I should be able to launch a preview,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=644.2449003) [let's launch it in an external window again, do a Search for Angular, and I'll see that I have hyperlinks](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=650.2449003) [that I can click to see the details of the repository. I can see the number of open issues,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=656.2449003) [I can see a list of the collaborators along with their pictures, and I have links at the bottom.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=663.2449003) [I can go back to the Search page, or I can go back to the Angular user itself.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=6&mode=live&start=668.2449003)

[Summary](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live)

[This concludes my course on learning Angular. We saw how Angular is a framework for building applications](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live&start=2.3878448) [with HTML and we took a look at the primary components involved, including Controllers, Models, Views, and Services.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live&start=7.3878448) [And in this module, we looked at Routing in detail. The primary takeaways for Routing are that](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live&start=14.3878448) [Routing allows you to build navigation into your application and it also allows you to build an application](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live&start=19.3878448) [from smaller pieces. You can divide responsibility for your features amongst multiple controllers,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live&start=24.3878448) [models, views, and services. Now I encourage you to keep building applications with Angular,](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live&start=30.3878448) [do some experiments, try some of the other Pluralsight courses on AngularJS, and look at unit testing.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live&start=35.3878448) [As an application grows, the tests that you write will make sure everything keeps working together.](https://app.pluralsight.com/player?course=angularjs-get-started&author=scott-allen&name=angularjs-get-started-m5-routing&clip=7&mode=live&start=40.3878448)