Advanced JavaScript programming (especially the complex handling of browser differences), can often be very difficult and time-consuming to work with.

To deal with these difficulties, a lot of JavaScript (helper) libraries have been developed.

These JavaScript libraries are often called JavaScript frameworks.

All of these frameworks have functions for common JavaScript tasks like animations, DOM manipulation, and Ajax handling.
AngularJS (commonly referred to as ”Angular”) is an open-source web application framework maintained by Google.

It’s a JavaScript framework that addresses challenges faced in building single page applications.

Providing a framework for client-side model-view-controller (MVC) and model-view-viewmodel (MVVM) architectures.

AngularJS is the frontend part of the MEAN stack, together with Node.js runtime, Express.js backend framework and MongoDB database.
What you should know

▶ HTML
  ▶ You should know how to write Dynamic HTML and use attributes.
  ▶ You should know how to add JavaScript to your HTML page.

▶ CSS
  ▶ This is just to make stuff look pretty.

▶ JavaScript
  ▶ This *might* be important.
  ▶ You should know JavaScript variables, functions, arrays, objects and JSONS.
Some more stuff about Angular

- Angular is used to make response driven web pages.
- It helps you organize your JavaScript.
- Decouples the client and server sides.
- Decouples DOM manipulation with the application logic.
- Very easy to build and test.
- Plays very well with other frameworks like jQuery.
AngularJS is a JavaScript framework. It is a library written in JavaScript.

AngularJS is distributed as a JavaScript file, and can be added to a web page with a script tag:

```html
<script src="http://ajax.googleapis.com/ajax/libs/angularjs/1.4.8/angular.min.js"></script>
```

AngularJS starts automatically when the web page has loaded.

AngularJS extends HTML with ng-directives.
AngularJS lets you extend HTML with new attributes called Directives.

AngularJS directives are extended HTML attributes with the prefix ng-.

Some common directives include:

- ng-app
- ng-init
- ng-module
- ng-controller
- ng-model
- ng-repeat
- ng-show
- ng-hide
Angular Expressions

- AngularJS binds data to HTML using Expressions.
- AngularJS expressions are written inside double braces: `{ { expression } }`.
- AngularJS expressions binds data to HTML the same way as the ng-bind directive.
- AngularJS will “output” data exactly where the expression is written.
- AngularJS expressions are much like JavaScript expressions: They can contain literals, operators, and variables.
Like JavaScript expressions, AngularJS expressions can contain literals, operators, and variables.

Unlike JavaScript expressions, AngularJS expressions can be written inside HTML.

Unlike JavaScript expressions, AngularJS expressions do not support conditionals, loops, or exceptions.

Unlike JavaScript expressions, AngularJS expressions support filters.
Angular Controllers

- AngularJS controllers control the data of AngularJS applications.
- The ng-controller directive defines the application controller.
- A controller is a JavaScript Object, created by a standard JavaScript object constructor.
- In larger applications, it is common to store controllers in external files.
Filters can be added to expressions and directives using a pipe character.

Filters can be added to directives and inputs too.

Some common filters include:

- **currency**: Format a number to a currency format.
- **lowercase**: Format a string to lower case.
- **uppercase**: Format a string to upper case.
- **orderBy**: Orders an array by an expression.