

Introduction to Angular JS

Unit#2



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Highlights

- Basics and Syntax of Angular JS
- Features
- Advantages
- Application Structure
- Basics of routes and navigation
- MVC with Angular JS
- Services



Basics & History

- Misko Hevery and Adam Aborns are inventors of AngularJs.
- Backed by Google
- Maintained by Google and by a community of individuals and corporations.
- Initial release: 2010/2011
- Stable release: 1.8.2 / October 2020
- Written in: JavaScript
- Platform: JavaScript engine
- Website: angularjs.org



Basics

- AngularJS: A JavaScript-based open-source front-end web framework, maintained by Google and by a community of individuals and corporations.
- It aims to simplify both the development and the testing of applications.
- Providing a framework for client-side model–view–controller (MVC) and model–view–viewmodel (MVVM) architectures, along with components commonly used in rich Internet applications.



Advantages

- AngularJS is an efficient framework that can create Rich Internet Applications (RIA).
- AngularJS provides developers an options to write client side applications using JavaScript in a clean Model View Controller (MVC) way.
- Applications written in AngularJS are cross-browser compliant. AngularJS automatically handles JavaScript code suitable for each browser.
- AngularJS is open source, completely free, and used by thousands of developers around the world. It is licensed under the Apache license version 2.0.
- Overall, AngularJS is a framework to build large scale, high-performance, and easyto-maintain web applications.



How it works?

- The AngularJS framework works by first reading the Hypertext Markup Language (HTML) page, which has an additional custom HTML attributes embedded into it.
- Angular interprets those attributes as directives to bind input or output parts of the page to a model that is represented by standard JavaScript variables.
- The values of those JavaScript variables can be manually set within the code, or retrieved from static or dynamic JSON resources.



Features

- AngularJS Features:
 - Directives, Expressions, Filters, Modules, Controllers.
 - Events, DOM, Forms, Input and Validation, Http, and more.

Features

- AngularJS is used as the frontend of the MEAN stack.
 - MongoDB database
 - Express.js web application server framework
 - Angular.js itself, and
 - Node.js server runtime environment.
- Version 1.8.x is on Long Term Support until December 31st, 2021.
- After that date Google will no longer update AngularJS and Angular (2.0+) is suggested instead.
- Companies looking for LTS beyond December 31st, 2021 can look at Extended LTS for AngularJS.



Angular

- Angular (commonly referred to as "Angular 2+" or "Angular v2 and above") is a TypeScript-based open-source web application framework.
- Led by the Angular Team at Google and by a community of individuals and corporations.
- Angular is a complete rewrite from the same team that built AngularJS.



Angular

- Developed and maintained by Angular Team at Google and a community of individuals and corporations.
- Initial release: 2.0 / 14 September 2016
- Stable release: 11.0.5 / 16 December 2020
- Written in: TypeScript
- Platform: Web platform
- Website: angular.io



Basics & History

AngularJS

	
Developer(s)	Google
Initial release	October 20, 2010; 10 years ago ^[1]
Stable release	1.8.2 / October 21, 2020; 2 months ago ^[2]
Repository	AngularJS Repository ↗
Written in	JavaScript
Platform	JavaScript engine
Size	167 kB production 1.2 MB development
Type	Web framework
License	MIT License
Website	angularjs.org ↗

Source: wikipedia.org

Angular

	
Developer(s)	Google
Initial release	2.0 / 14 September 2016; 4 years ago ^[1]
Stable release	11.0.5 / 16 December 2020; 8 days ago ^[2]
Preview release	11.1.0-next.3 / 16 December 2020; 8 days ago ^[2]
Repository	Angular Repository ↗
Written in	TypeScript
Platform	Web platform
Type	Web framework
License	MIT License
Website	angular.io ↗



Differences between Angular and AngularJS

- Google designed Angular as a ground-up rewrite of AngularJS.
- Angular does not have a concept of "scope" or controllers; instead, it uses a hierarchy of components as its primary architectural characteristic.
- Angular has a different expression syntax, focusing on "["]" for property binding, and "()" for event binding
- Modularity – much core functionality has moved to modules.



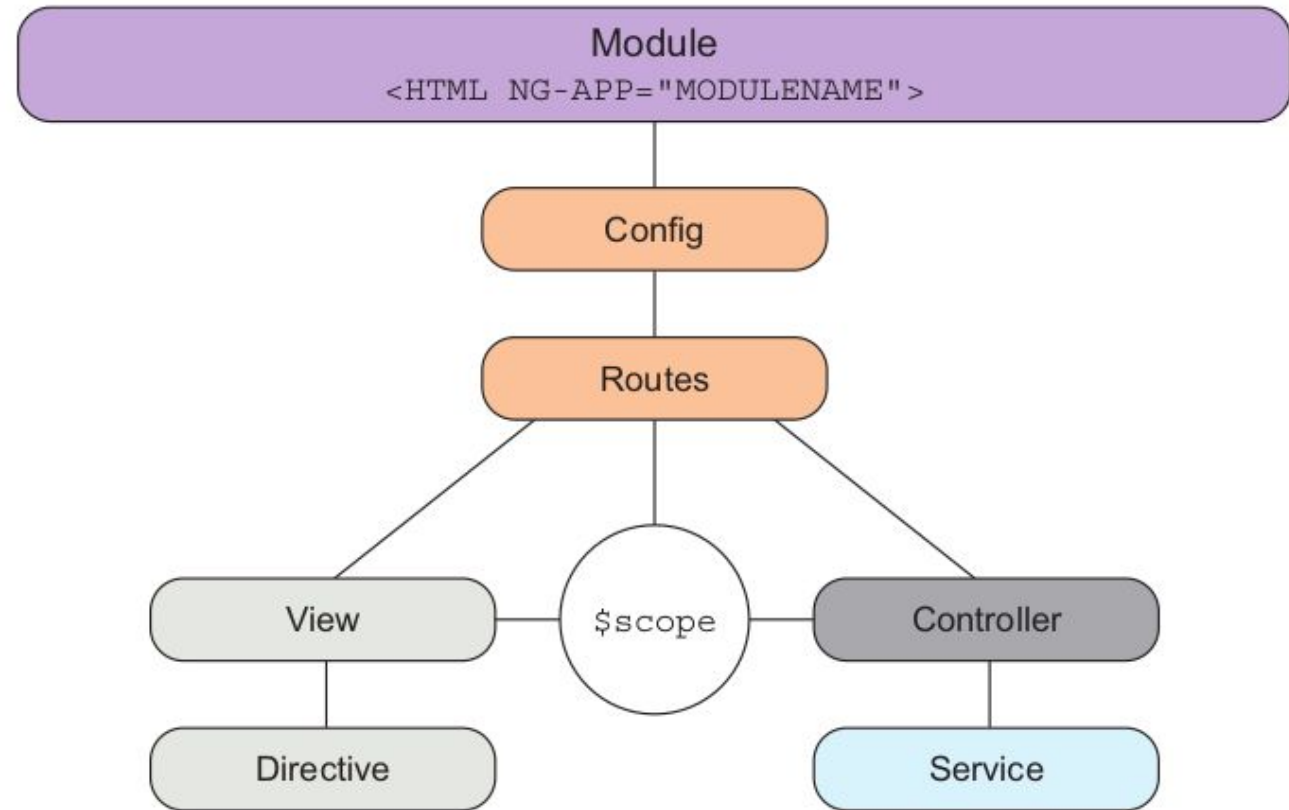
Differences between Angular and AngularJS

- Angular recommends the use of Microsoft's TypeScript language, which introduces the following features:
 - Static typing, including Generics
 - Annotations
- TypeScript is a superset of ECMAScript 6 (ES6), and is backwards compatible with ECMAScript 5 (i.e.: JavaScript).
- Dynamic loading
- Asynchronous template compilations
- Iterative callbacks provided by RxJS. RxJS limits state visibility and debugging, but these can be solved with reactive add-ons like ngrx or ngx.



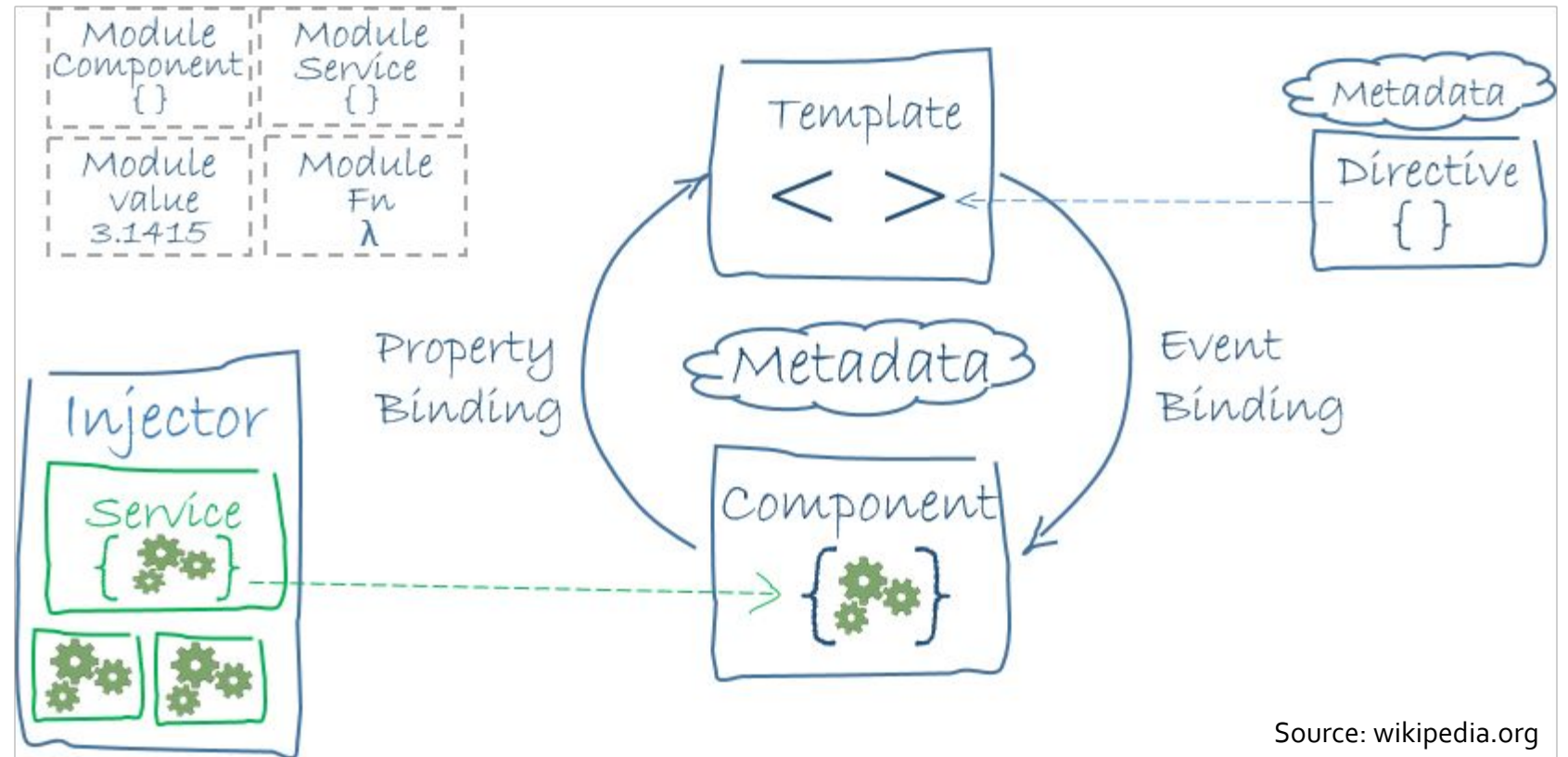
AngularJS application

- The main building blocks are modules, Config, Routes, Views, Controllers, Scope, directives, and services.



Angular application

- The main building blocks are modules, components, templates, metadata, data binding, directives, services, and dependency injection.



Source: wikipedia.org

Core Features

- **Data-binding** – It is the automatic synchronization of data between model and view components.
- **Scope** – These are objects that refer to the model. They act as a glue between controller and view.
- **Controller** – These are JavaScript functions bound to a particular scope.
- **Services** – AngularJS comes with several built-in services such as \$http to make a XMLHttpRequests. These are singleton objects which are instantiated only once in app.
- **Filters** – These select a subset of items from an array and returns a new array.



Core Features

- **Directives** – Directives are markers on DOM elements such as elements, attributes, css, and more. These can be used to create custom HTML tags that serve as new, custom widgets. AngularJS has built-in directives such as ngApp, ngBind, ngModel, etc.
- **Templates** – These are the rendered view with information from the controller and model. These can be a single file (such as index.html) or multiple views in one page using partials.



Core Features

- **Routing** – It is concept of switching views.
- **Model View Whatever** – MVW is a design pattern for dividing an application into different parts called Model, View, and Controller, each with distinct responsibilities. AngularJS does not implement MVC in the traditional sense, but rather something closer to MVVM (Model-View-ViewModel). The Angular JS team refers it humorously as Model View Whatever.



Core Features

- **Deep Linking** – Deep linking allows to encode the state of application in the URL so that it can be bookmarked. The application can then be restored from the URL to the same state.
- **Dependency Injection** – AngularJS has a built-in dependency injection subsystem that helps the developer to create, understand, and test the applications easily.



MVC Architecture

- Model View Controller is a software design pattern, made up of the following three parts –
 - Model – It is the lowest level of the pattern responsible for maintaining data.
 - View – It is responsible for displaying all or a portion of the data to the user.
 - Controller – It is a software code that controls the interactions between the Model and View.



Writing First AngularJS Example

- Let's get our hands dirty.!!!



Review

- Basics and Syntax of Angular JS
- Features
- Advantages
- Application Structure
- Basics of routes and navigation
- MVC with Angular JS
- Services



Up Next

- Unit3# Angular JS in Details
 - Modules, Directives, Routes, Angular JS Forms and Validations, Data binding, Creating single page website using Angular JS
- With this we will cover: Routes and Services



Thank You.

