Angular Interview Questions and Answers

Angular is one of the most widely used frameworks in the industry. With Google's lifelong promised support to Angular, it is an important tool that every developer looking into making a career in this field, should learn.

What is Angular Framework?

Angular is a TypeScript-based open-source front-end platform that facilitates the easy development of web/mobile/desktop applications. Declarative templates, dependency injection, end-to-end tooling, and many other features have increased the popularity of this framework.

Are AngularJS and Angular the same?

No, Angular and AngularJS are not the same. Some of the major differences between the two frameworks are:

AngularJS	Angular
Based on MVC (Model-View-Controller) Architecture	Based on Service/Controller
Uses JavaScript to build the applications	Uses TypeScript to write the application
Based on the controllers' concept	Angular uses a component-based UI approach
It is not a mobile-friendly framework	Angular was developed with built-in support for the mobile platform
It is difficult to create SEO friendly Applications using AngularJS	It is easier to create SEO-friendly applications.

Explain TypeScript.

The primary language for Angular application development is TypeScript. It is a superset of JavaScript from Microsoft, that adds optional types, classes, async/await, and many other additional features.

Browsers can't execute TypeScript directly and therefore, TypeScript is compiled into JavaScript using the "tsc" compiler.

TypeScript can be installed globally using the following command:

```
npm install -g typescript
```

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Explain Scope in Angular.

Scope in Angular is an object that represents the whole application mode. It also refers to the execution context of Angular expression and is usually ordered within a hierarchy. It can resemble the Data Object Model (DOM), document object model, or application structure.

Why are filters used in Angular?

Filters are used to format expression values and data to display on the User Interface without changing the original format. These filters can be added to application services, directives, controllers, and templates to organize data on specific criteria. It helps the users to navigate and search for web pages easily.

List the key components of Angular.

The key components of Angular are:

1. Component- The basic building blocks of angular application to control HTML views.
2. Modules- A module in Angular consists of basic building blocks like components, directives, services, etc. An application is divided into logical pieces of code and these pieces are called "modules". Each module performs a specific task.
3. Templates- Templates represent the views of an Angular application.
4. Services- Services are used to create components that can be shared across the entire platform.
5. Metadata- Metadata is used to add additional information to an Angular class.

Explain Angular CLI.

Angular CLI is a Command Line Interface to scaffold and build applications using the nodeJS modules. Scaffolding is a technique used by programmers to specify how the application database may be used. It is supported by some of the model-view-controller frameworks.

To install Angular CLI, use the following command:

```
npm install @angular/cli@latest
```

Differentiate between constructor and ngOnInit.

Constructor is a default method of TypeScript classes which is used for initialization purpose. ngOnInit, on the other hand, is specific to Angular and is used to define Angular bindings. Even though Constructor is called first, it is preferred to shift all Angular bindings to the ngOnInit method.

Briefly explain about Annotations and Decorators.

Annotations are hardcoded features of Angular that store arrays. The compiler creates an attribute of the annotated class and instantiates an object of the same name, passing the metadata to the constructor.

Decorators are functions that receive the object to be decorated. On receiving the object, the decorator has the liberty to modify the object in whichever way it deems fit. Decorators are implemented by the TypeScript compiler.

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What is Dependency Injection?

Dependency Injection is an important application design pattern where a class asks for dependencies from external sources instead of creating them, itself. Angular comes with its own dependency injection framework whose function is to resolve all dependencies.

List some of the advantages of Angular over other frameworks.

- Out-of-the-box features: Angular has a plethora of built-in features like routing, state management, rxjs library and HTTP services, straight out of the box. This implies that a developer does not need to look for the above features separately, as they are all provided together.
- Declarative UI: Angular makes use of HTML to render the UI of an application. HTML is a declarative language and hence, is much easier to use as compared to JavaScript.
- Long-term Google support: Google has announced its long-term support for Angular which means that it will stick with Angular in the future too, and will provide support for further scaling up Angular's ecosystem.

What are Lifecycle hooks in Angular?

Every component in Angular goes through the process of creation and possible destruction. In between the process of creation and destruction, Angular executes all the functions that the components helped to create.

Angular does this by creating the component, rendering it as well as creating and rendering all its children. Then Angular checks for changes in the data properties or the DOM, and makes the appropriate updates and finally when it is done, destroys it then removes it from the DOM.

Lifecycle hooks are offered by Angular to provide visibility into these key life moments and the ability to act when they occur.

The eight lifecycle hooks in Angular are:

1. ngOnChanges()
2. ngOnInit()
3. ngDoCheck()
4. ngAfterContentInit()
5. ngAfterContentChecked()
6. ngAfterViewInit()
7. ngAfterViewChecked()
8. ngonDestroy()

What is NgModule?

NgModules configure the injector and the compiler and also, help organize the things related together. A NgModule is a class marked by the @NgModule decorator. It takes a metadata object that describes how to compile a component's template and how to create an injector at runtime. It identifies the module's own components, directives, and pipes, making some of them public, through the exports property, so that external components can use them. @NgModule can also add service providers to the application dependency injectors.

What are the different types of compilations in Angular?

There are two types of compilations in Angular- AOT (Ahead-of-Time) and JIT (Just-in-Time).

What is "ahead-of-time compilation" in Angular?

The Ahead-of-Time compiler turns the code written in HTML or TypeScript into JavaScript code during the development stage. This conversion process occurs internally before executing the code since browsers can't understand templates and components directly. This compiler helps in rendering the browser easily.

The CLI command for AOT:

```
ng build --aot ng server -aot
```

Explain the JIT compilation in brief.

In the Just-in-Time compiler, compilation happens during run-time in the browser. It is the default compilation style in Angular. The CLI command for Just-in-Time compilation is:

```
ng build ng serve
```

Which one is better out of Ahead-of-Time and Just-in-Time compilers?

Ahead-of-Time compiler is the better option since it reduces the load and bootstrap time of the application. The pages also load considerably faster. Errors are also shown during the application building process.

Differentiate between service() and factory() functions.

The service() function is employed in the app business layer where it works as a construction function. On the other hand, the factory() function is quite similar to the service() function except for the fact that it is less flexible and powerful.

How will you generate a class in Angular 7 using CLI?

```
ng generate class Test [options]
```

The above command will generate a class named Test.

Explain Ivy Compiler.

The Ivy compiler is the next-generation compilation and rendering pipeline that was introduced in Angular version 9, replacing the View Engine. Ivy is now used as the default framework along with the runtime instructions.

What is a pipe? Explain with an example.

Pipe '|' is a tool that is used to transform the input data into the desired output format. For example:

```
<p> The cost of the article is {{cost | currency}} </p>
```

How does an Angular router work?

The Angular Router interprets a browser URL as commands to navigate to a client-generated view. The router is bound to the links on a page so that Angular knows to navigate the application view to the particular page when a user clicks on it.

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List the Router Navigation Events.

The Router navigation events help to track the lifecycle of a route.

- NavigationStart
- RouteConfigLoadStart
- RouteConfigLoadEnd
- RoutesRecognized
- GuardsCheckStart
- ChildActivationStart
- ActivationStart
- GuardsCheckEnd
- ResolveStart
- ResolveEnd
- ActivationEnd
- ChildActivationEnd
- NavigationEnd
- NavigationCancel
- NavigationError
- Scroll

What is an Angular Library?

The Angular library is a set of generic solutions that other developers have compiled to be re-used. We can also create our own libraries. These libraries can be published as npm packages. A library should be imported into the application.

Are there any disadvantages to using Angular?

There are a few disadvantages to using Angular. They are:

- Complex SPAs can be inconvenient and laggy to use due to their enormous file size
- Dynamic applications do not always perform well when built on the Angular framework
- Learning Angular requires a significant amount of effort and time

Conclusion

We hope that you have gained clarity on some of the most popular Angular questions asked by interviewers. In case of any doubts, do reach out to us through the comment section.

All the Best! :)