

Q1. What is AngularJS and what are some of its ~~its~~ advantages?

Ans. AngularJS is a popular open-source framework that simplifies web development by creating interactive single-page applications (SPAs).

- Unlike traditional websites that load new pages for each click, SPAs offer a smoother user experience by updating content on the same page.

→ Advantages of AngularJS:-

1. Two-way data binding
 - Automatically synchronizes data between the model and the view, reducing boilerplate code and improving efficiency.
2. MVC architecture:-
 - Implements model-view-controller (MVC) architecture, separating concerns and making the application more maintainable.
3. Dependency Injection (DI):-
 - Built-in dependency injection simplifies the management of components and services, improving testability and modularity.
4. Directives and Custom components.
 - Allows the creation of reusable components and directives, enhancing code reusability and maintainability.
5. Built-in services:-
 - Includes essential services like `$http` for AJAX calls, `$route` for routing, and `$scope` for data binding.

Q2. Explain the difference between a factory and a service on AngularJS.

Ans.	Feature	Factory	Service
1.	Definition	• A function that returns an object or function	• A constructor function that is instantiated using <code>new</code> .
2.	Usage	• Used to create and return an object, which can contain properties and methods.	• Used to define a constructor function, and angularJS creates an instance of it.
3.	Instance Creation	• Manually creates and returns an object.	• AngularJS instantiates the service using <code>new</code> .
4.	this context	• Not used, as it returns an object directly	• Uses <code>this</code> to define properties and methods.
5.	Performance	• Slightly better performance since it does not require instantiation.	• Slightly slower as it requires instantiation.
6.	Syntax	app. factory ('my Factory', function() { return { key: value; }; });	app. service ('my Service', function() { this this. key = value; });

Q 3: Explain AngularJS built-in directives.

Ans: AngularJS built-in directives are special attributes on elements that extend HTML's functionality allowing developers to manipulate the DOM and create dynamic web-applications.

• They include:-

1. ng-app

• Initializes an AngularJS application, defining the root element of the application.

2. ng-model

• Bonds the value of HTML input elements (like `<input>`, `<select>`, `<textarea>`) to variables on the AngularJS scope, enabling two-way data binding.

3. ng-bind:

• Replaces the content of an HTML element with the value of an expression.

4. ng-repeat:

• Repeats an HTML element for each item in a collection (array or object), creating dynamic lists or tables.

5. ng-show:

• Shows or hides an HTML element based on the truthiness of an expression.

6. ng-hide:

• Hides an HTML element based on the truthiness of an expression (opposite of ng-show)

Q4. How to use AngularJS filters and expressions to format and display data?

Ans. In AngularJS, filters and expressions are used to format and display data dynamically within the view.

- 2. Filter allow you to transform data, while expression binds and display data.
- 3. Filters format the data displayed on the view. They are used within expressions (`{{}}`)

1. Currency:

- Formats a number as currency
`& price | currency: '$'}}`

2. date

- Formats a date
`& current date | date: 'full date'}}`

3. uppercase / lowercase

- Converts text to uppercase or lowercase.
`& name | uppercase}}`

→ Expressions

- Expressions in AngularJS bind data to the view using syntax `&expression}}`.
- They can perform calculations or access scope variables.

1. Basic Data Binding

`& firstName + ' ' + lastName}}`

2. Arithmetic operations:

`& 10 + 20}}`

3. Using filters with expressions

`& price | currency: '$'}}`

Q5. What are Single Page Applications (SPA) and Routing in AngularJS?

Ans. → Single Page Applications (SPA)

- An SPA is a web application that loads a single HTML page and dynamically updates the content as the user interacts with the app.
- Unlike traditional multi-page applications, SPA's do not require full page reloads; instead, they use JavaScript to update the UI efficiently.

→ Key features:-

1. Fast performance:

- Only necessary content is updated, reducing page reload times.

2. Client side rendering:

- Uses AngularJS to manipulate the DOM and display content dynamically.

3. Improved user experience:

- Feels more like a desktop application.

4. Efficient data binding

- Uses AngularJS two-way data binding for seamless UI updates.

→ Routing in AngularJS.

- Routing in AngularJS is the mechanism that enables SPA's to navigate between different views or components without reloading the entire page.
- It allows users to access different parts of the application using URLs.