Typescript

Template control features

Template control features in Angular allow developers to manipulate the structure and behavior of HTML templates dynamically. These features provide mechanisms for conditionally rendering elements, iterating over collections, and handling user interactions. Here are some of the key template control features in Angular:

1. **Interpolation**: Interpolation allows you to embed expressions within double curly braces (`{{ }}`) in your templates to dynamically display data. For example:
   ```html
   <p>Hello, {{ name }}!</p>
   ```

2. **Property Binding**: Property binding allows you to set an element's property dynamically based on a component's property. It uses square brackets (`[ ]`). For example:
   ```html
   <img [src]="imageUrl">
   ```

3. **Event Binding**: Event binding allows you to listen to DOM events and execute methods in response. It uses parentheses (`( )`). For example:
   ```html
   <button (click)="onClick()">Click me</button>
   ```

4. **Attribute Directives**: Attribute directives modify the behavior or appearance of an element. You can apply them using attributes. For example:
   ```html
   <div [ngClass]="{ 'active': isActive }"></div>
   ```

5. **Structural Directives**: Structural directives modify the structure of the DOM by adding or removing elements based on conditions. They use asterisks (`*`). For example:
   ```html
   <div *ngIf="isVisible">Visible content</div>
   ```

6. **ngFor Directive**: The `ngFor` directive is a common structural directive used for iterating over arrays or iterables to generate HTML elements dynamically. For example:
   ```html
   <ul>
     <li *ngFor="let item of items">{{ item }}</li>
   ```

```
   </ul>
   ```

7. **ngSwitch Directive**: The `ngSwitch` directive conditionally displays one template among several possible templates based on the value of an expression. For example:
   ```html
   <div [ngSwitch]="color">
     <p *ngSwitchCase="'red'">Red color</p>
     <p *ngSwitchCase="'blue'">Blue color</p>
     <p *ngSwitchDefault>Unknown color</p>
   </div>
   ```

These template control features in Angular provide powerful mechanisms for creating dynamic and interactive user interfaces in applications. They enable developers to build complex UIs with ease by dynamically manipulating the HTML structure and behavior based on component data and user interactions.

"Defer loading" refers to a technique used to improve website performance by delaying the loading of non-critical resources until they are needed. This can include delaying the loading of JavaScript files, CSS files, or images that are not immediately necessary for the initial rendering of the webpage.

"Declarative control" and "deferrable views" are concepts related to how you manage and optimize the rendering and loading of views in web applications, particularly in frameworks like Angular.

1. **Declarative Control**:
   - In the context of Angular or other declarative frameworks, "declarative control" typically refers to the ability to define the structure and behavior of your application's UI using declarative markup (HTML) and binding expressions, rather than imperatively manipulating the DOM.
   - Declarative control allows developers to specify what the UI should look like based on the application's state, and the framework takes care of updating the DOM accordingly.
   - With Angular's declarative approach, you define your UI components and templates using HTML templates and directives, and the framework handles rendering and updating the DOM based on changes to the application's data and state.

2. **Deferrable Views**:
   - "Deferrable views" refer to the ability to defer the loading or rendering of certain views or components until they are needed, rather than loading everything upfront.

- This can be particularly beneficial in large-scale applications where loading all views upfront may lead to longer initial load times and decreased performance.
- In Angular, deferrable views can be achieved through lazy loading techniques, where modules and components are only loaded when they are required, such as when the user navigates to a specific route or performs a certain action.
- By lazy loading views, you can optimize the initial loading time of your application and improve the overall user experience by loading only the necessary resources upfront and deferring the loading of other resources until they are needed.

In summary, declarative control allows you to define your application's UI using declarative markup and expressions, while deferrable views enable you to defer the loading or rendering of certain views until they are required, helping to optimize performance and improve the user experience.

Angular, as a JavaScript framework, supports declarative control through HTML templates and binding expressions. Languages that rely heavily on imperative programming, such as JavaScript without a framework, Java, and C#, do not inherently support declarative control in the same way Angular does.

Includes

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m. Animations
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o. Server Side Rendering
p. HTTP and much more

Imperative programming involves explicitly specifying the sequence of steps or operations for the computer to execute to achieve a desired outcome. Languages like JavaScript (without frameworks like Angular or React), Java, C#, and others follow this paradigm. In imperative programming, developers directly control the flow of execution, manipulating the state of the program through commands and statements.

In Angular development:

1. **ng**: It's the Angular CLI (Command Line Interface) tool used for various tasks.

2. **npx**: It's a package runner tool that allows running Node.js packages without installation. Used for executing Angular CLI commands without global installation.

Why npx ng version why not ng version

The reason why `npx ng version` works while `ng version` does not work directly could be due to the absence of Angular CLI installed globally on your system. When you use `npx`, it looks for the `ng` command in your project's local `node_modules` directory, thus executing the Angular CLI command from there. This way, you don't need to have the Angular CLI installed globally. However, if you want to use `ng version` directly without `npx`, you would need to have the Angular CLI installed globally on your system using `npm install -g @angular/cli`.

What does ng serve mean?

`ng serve` is a command provided by the Angular CLI (Command Line Interface). When you run `ng serve` in your terminal within an Angular project directory, it starts a development server that hosts your Angular application locally. This allows you to preview your application in a web browser during development. The `ng serve` command also watches for changes to your source files and automatically rebuilds and reloads the application in the browser, providing a seamless development experience.