

Angular Notes - ViewChild, ContentChild, etc.

1. ViewChild and ViewChildren

Purpose:

- @ViewChild and @ViewChildren are used to access elements or child components declared inside the component's own template.

Example:

Child Component:

```
@Component({ selector: 'app-child', template: '<p>Child works!</p>' })  
export class ChildComponent {}
```

Parent Component:

```
@Component({ selector: 'app-parent', template: '<app-child></app-child>' })  
export class ParentComponent implements AfterViewInit {  
  @ViewChild(ChildComponent) child!: ChildComponent;  
  ngAfterViewInit() { console.log('Accessed Child:', this.child); }  
}
```

Note: Access after ngAfterViewInit().

2. ContentChild and ContentChildren

Purpose:

- @ContentChild and @ContentChildren are used to access elements projected from the parent via content projection (<ng-content>) into the child component.

Example:

Card (Child) Component:

```
@Component({ selector: 'app-card', template: '<div><ng-content></ng-content></div>' })  
export class CardComponent implements AfterContentInit {  
  @ContentChild('projectedPara') projectedContent!: ElementRef;  
  ngAfterContentInit() { console.log('Projected:', this.projectedContent.nativeElement.textContent); }  
}
```

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```
}
```

Parent Component:

```
<app-card><p #projectedPara>Projected Content</p></app-card>
```

Note: Access after `ngAfterContentInit()`.

3. Static Option in ViewChild

```
@ViewChild(ChildComponent, { static: true }) child!: ChildComponent;
```

- static: true -> Access child before change detection, available in `ngOnInit`.
- static: false -> Access after change detection, available in `ngAfterViewInit`.

4. Quick Rules

- ViewChild/ViewChildren: Inside own template.
- ContentChild/ContentChildren: Access projected parent content.
- Access timing:
 - ViewChild: `ngAfterViewInit` (static: false).
 - ContentChild: `ngAfterContentInit`.

5. Interview Ready Answers

Q: What is the difference between ViewChild and ContentChild?

A: ViewChild accesses components/elements inside the component's own template. ContentChild accesses projected content passed from the parent.

Q: When to use static: true?

A: When the child element is immediately available without conditions (like without `*ngIf`).

Q: One-liner difference?

A: "ViewChild accesses my view; ContentChild accesses projected external content."

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