**Angular 13+**

1. **Q:** How does Angular’s change detection work, and how can you optimize it?  
   **A:** Angular uses Zone.js to detect changes. Optimize it with OnPush strategy and immutable data.
2. **Q:** What is the difference between ngOnInit and ngAfterViewInit?  
   **A:** ngOnInit runs after the component is initialized, while ngAfterViewInit runs after the view is rendered.
3. **Q:** How would you implement lazy loading in Angular?  
   **A:** Use loadChildren in the route configuration to load modules on demand.
4. **Q:** What is the difference between @Input and @Output?  
   **A:** @Input passes data into a component, while @Output emits events from a component.
5. **Q:** How would you implement a custom pipe in Angular?  
   **A:** Create a class that implements PipeTransform and define its transform method.
6. **Q:** What is the difference between ngIf and ngSwitch?  
   **A:** ngIf conditionally renders content, while ngSwitch renders content based on a value.
7. **Q:** How would you implement a custom directive in Angular?  
   **A:** Create a class with the @Directive decorator and define its behavior.
8. **Q:** What is the difference between ngModel and formControl?  
   **A:** ngModel is for two-way binding, while formControl is for reactive forms.
9. **Q:** How would you implement a custom validator in Angular?  
   **A:** Create a function that returns a ValidatorFn and use it in reactive forms.
10. **Q:** What is the difference between ViewChild and ContentChild?  
    **A:** ViewChild queries the component’s view, while ContentChild queries projected content.
11. **Q:** How would you implement a custom route guard in Angular?  
    **A:** Create a class that implements CanActivate and define its canActivate method.
12. **Q:** What is the difference between BehaviorSubject and ReplaySubject?  
    **A:** BehaviorSubject emits the latest value, while ReplaySubject emits a specified number of previous values.
13. **Q:** How would you implement a custom interceptor in Angular?  
    **A:** Create a class that implements HttpInterceptor and define its intercept method.
14. **Q:** What is the difference between ngOnChanges and ngDoCheck?  
    **A:** ngOnChanges runs when input properties change, while ngDoCheck runs during every change detection cycle.
15. **Q:** How would you implement a custom state management solution in Angular?  
    **A:** Use services with BehaviorSubject to manage state and provide it to components.
16. **Q:** What is the difference between async pipe and subscribe?  
    **A:** async pipe automatically subscribes and unsubscribes, while subscribe requires manual management.
17. **Q:** How would you implement a custom decorator in Angular?  
    **A:** Create a function that returns a decorator and apply it to classes or properties.
18. **Q:** What is the difference between ngTemplateOutlet and ngComponentOutlet?  
    **A:** ngTemplateOutlet renders templates, while ngComponentOutlet renders components.
19. **Q:** How would you implement a custom animation in Angular?  
    **A:** Use the trigger function to define animations and apply them with @Component.
20. **Q:** What is the difference between ngAfterContentInit and ngAfterViewInit?  
    **A:** ngAfterContentInit runs after content projection, while ngAfterViewInit runs after the view is rendered.