Angular QA Notes

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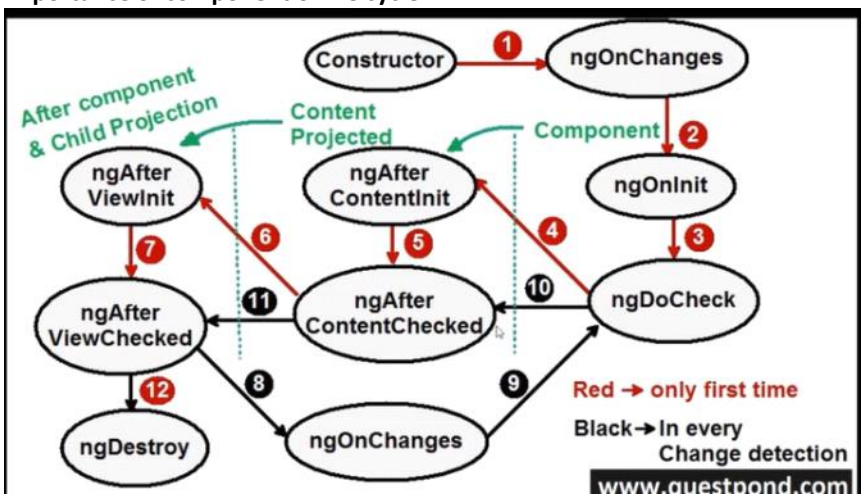
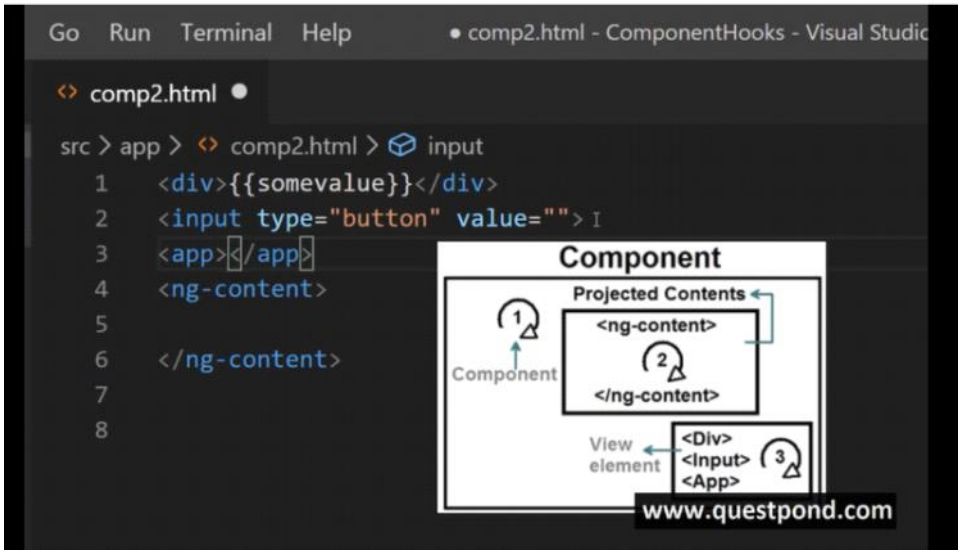
- What is angular?
  - Angular is framework and single page application.
  - JavaScript binding framework which binds HTML UI and java script model.
  - Features : Http, Dependency injection, Routing
- Diff b/w angular js vs angular
  - Angular js 1.x is javascript
    - Javascript
    - Controller
    - Not lazy loading
    - No CLI
  - Angular 2,to 17 framework
    - Type script
    - Component
    - Lazy loading
    - CLI
- What are directives in angular ?
  - Angular syntax inside html behaviour change
    - [(ngModel)] , {{value}}, [hidden]
- Types of angular directives?
  - Structural
    - Change the structure of the DOM elements (*ngFor)
  - Attribute
    - [hidden]="hide()"
    - Change behaviour of html(colour, visibility)
  - Component
    - Directives with template. Its like a user control.
- Npm and Node_modules folder?
  - NPM: Node package manager
    - Its help us to install the packages
  - Node_modules
    - That installed packages are available on this folder
- Importance of package. jSon?
  - It’s a file.it hold a project related packages.
- What is type script?
  - Its strongly typed. Do avoid the error.
  - Super set of java script.
  - Its provide the oops concepts
- Angular CLI?
  - Its provide the readymade template project files.
- What is component?
  - Component is mediator component vs html
- Decorator in angular?
  - @Component is one decorator its when component create it will come on component's file.
  - @NgModule
- What is annotation or metadata? Ans is above question
- What is a template?
  - Html view of angular
  - Two way of binding:
    - In component :
      - We can provide the templateurl
      - And we can write html code using template :
- Types of bindings in angular?
  - View and component communicate each other.
  - Expression: if for {{}}
  - Property binding: [(ngmodel)]="username" data flows component to view
  - Event binding:(click) => view to component
  - Two ways binding : data flows from component to view vice versa.
- Architecture of angular?
  - Template(view)

    - Component
    - Module(collection of component)
    - Bindings {{}},[()],()
    - Directives (interpolation, event)
    - Service(common logic)
    - Dependency injection(service inject on component)
- Explain SPA:
    - Single page application
    - Common ui load once, other Ui load based on user selection
- Routing :
    - Navigation off application
- Routing working:
    - Routing.ts => routes
    - {path:'login', component: "logincomonent"}
    - <router-outlet> </router-outlet> we can write this code where the page UI change based on URL
- Lazy Loading in angular?
    - The loading what is necessary
- How to implement lazy loading?
    - Divide in our project as different module.
- Service in angular?
    - Share common functionality for all our modules.
    - Validation , logging, http
- Dependency injection:
    - We can use the provide attribute for to inject the service.
    - App.module.ts => provider
    - {provider : baseclass , userclass: httplogger}
    - decoupling the class dependencies, and when you add new dependencies changes required only one places.
- Ng serve: doing dev ng serve is good , its build onin-memory
- Ng build: build on hard disk
- What does --prod param in ng build?
    - Ng build --prod
    - In above comment remove unwanted code and create minify files.
- Explain view child vs view children ?
    - View child: references one object(individual elements)
        - help us to reference view objects in the component which is connected.
        - <div #div>
    - View children: reference the collection
        - <com2> hai hello <com2>
- Why template reference variable in angular?
    - #div1
    - {{div1.textcontext}}
    - Refer the DOM elements, angular components
- Explain content Projection?
    - In normal scenario child component html are showing but this content projection whatever we want we can show them using <ng-content> tag.
    - parent
        -
        - <child>
            - this is child component content
        - </chid>
        -
    - Child:
        - <ng-content></ng-content>
- What content project slot in angular?
    - If child component have multiple <ng-content> tag we can use slots in parent
    - Parent:
        - <child> <p slot1><hello slots </child>
    - Eg: child:
        - <ng-content select="slot1"></ng-content>
- Contents child : access single content on child from parent
- content children: access collection content child from parent
- **View child & view children**: help us to reference view elements which belongs to **his own view**.
- C**ontents child & content children** : help us to reference view elements which is **projected by the paren**t.

- **Components of Life cycle:**
  - **Importance of component of life cycle:**
  - 

    - ctor:when obj created its called
    - ngOnChanges: if any value changes on input
    - ngOnInit: when data bound and display the value
    - ngDoCheck: when angular changes detection check
    - ngAfter content init: its more related to content projection
    - ngAfter content checked:
    - Ngafterview Init: Child view
    - Ngafterviewchecked:
  - 

    - Constructor: its typescript concept
    - ngOnint: angular concept
- What kind on code write ng oninit and ctor?
  - Constructor :
    - used to initialize the variables and do dependency injection
    - Dom not Initialized
  - Ng oninit:
    - after Ui is bind, we have the access to Dom elements
- How to make http call in angular?
  - Httpclient import from angular /common/http
  - Create object on http client or dependency injection
  - Import http module in ap.module.ts
  - Post=> url, data,
    - Subscripe=> success ,error
- How to handle success and failed?
  - Using subscribe function we can use success and error methods
- How to data b/w components?
  - Parent child => input/output/event emitter
  - View chid can use to refer UI and pass data.
- Navigating from one url to another url:

    - Pass data using query params
- What is need Angular Pipes?
    - Pipe help you to transform data on angular UI expression
    - {word | **uppercase**}}
- Inbuild pipes?
    - Async pipe
- How to create custom pipe?
    - Class Implements Pipetransform
    - Write the logic on transfrom method => syntax look like extension method
- **Rxjs**
    - What is fullform RxJs:
        - Reactive extension for java script.
    - Why do we need Rxjs:
        - To handle the asyc data stream
        - Data come into within seconds/some time to handle.
    - What are observables and observer?
        - observable => async data
        - Observer=> listener
        - Both are Rxjs objects
- What is importance of subscribe method in oservable?
    - **Import observable from rxjs**
    - Attach the listener to observable using subscribe

- How to un subscripe?
    - Get the object of observable subscribtion and un subscribe.
- What are operators in Rxjs?
    - Operator create one more observable to filter the data using pipe.
    - Chain of logic
- rxJx Operator?
    - Map=> transform the data into different format
    - Filter => filter the data like where condition
    - Merge => combine multiple observables into one
- **Promise vs observable:**
    - Observable
        - Return stream of data
        - Un subscribe the stream
    - Promise:
        - Return single value
        - You cannot cancel a promise
- **Observable used maximum of time http call:**
- **Interceptor:**
    - To execute pre-processing logic before any http call is made from angular application
    - Ng g inercept --skip-tests
    - Maximum we are using set bearer token set header
    - In app.modul.ts level we can add this interceptor under "provider"
- Interceptor use cases:
    - Authentication , logging , caching, URL transformation, modifying header
- Can we provide multiple interceptor?
    - Yes its possible , we can add that interceptor on provider section under app.module.ts.
- **Validation:**
    - **Type of validation:**
        - Template driven form=> html part of angular
        - Reactive form
    - **Template Drive from:**
        - Validation inside the template (name ngmodel required)
        - Its more declarative
        - Its easy to write
        - Difficult to write unit test
    - Reactive from:
        - Written programmatically in ts file
        - Its more imperative
        - It take more control dynamic validation we can add easy
        - Unit test easy

- Template reference variable:
  - Help us to access DOM elements inside our angular template
- Template structure for template driven form:
  - Form group=> form control=> validation
    ||
  - Form tag => input=> required
  - We can use form template reference variable
- Reactive Form:
  - Formbuilder,formgroup,validatator
  - Dynamic validation => we can use formarray
- Inbuild validator:
  - Requires,minlength, max length, email.
- Custom validator:
  - Use validatorfn interface from "angular/forms"
- Without form tag we are able to implement the validation
- What is [ngModelOptons]="{standalone:true}"
  - When input under from and not participate on the validation we can use above tag

- **Interview Happy Angular Questions:** Top 50 Angular Interview Questions
  - What is Angular?
    - Angular is a component based framework for building structured, scalable and single page application for client side.
  - Angular Advantages:
    - Its simple to build single page application with help of component
    - Oops friendly(to make flexible and structured)
    - Its cross platform and open source
    - Reuseable code(Services)
    - Good for testability
  - Differ b/w angular js vs angular
    - Angular js support javascript angular suport type script and java script
    - Angular JS don't support type Type script
    - Angular Js don't have cli
    - Angular js don't have dependency injection
  - NPM: node package manager
    - Is online repository
    - In angular project => node modules provide the all packages
  - Cll Tool:
    - Command line interface
    - Cli use to initialize and develop angular application
  - What are the components in angular?
    - Menu component , login component , list component
    - Component are the most basic UI building block of an angular app
  - What is selector and template:
    - Selector :used to identify the component
    - Template: templateURL : HTMl view of angular
  - What is module in angular? What is app.module in angular?
    - Modules is place where you can group the component, directives, pipes and service which are related to the application.
  - How an angular loaded and started?
    - Index.html => main.ts=> app.module.ts=> app.component.
  - What is bootstrap module and bootstrap component?
    - Angular application start then the first module launched is the bootstrap module and same as bootstrap component.
    - In which component when run the first to run the application first.
  - What is data binding?
    - Communicate b/w the type script of your component and html code.
    - Output data:
      - String interpolation {{name}}
      - property binding : [property]
    - Input data
      - Event binding (event)="functionname"
    - Both ways

        - Two way data binding :[(ngmodel.name)]="data"
- String interpolation:(one way data binding)
    - Data pass from component from view
    - Its represent by {{}}
    - Only play with string
- Property binding:(one way data binding)
    - Its allow Boolean and string
    - It change the Html property
    - <div[innertext]='title' >
- Event Binding:
    - User action on Ui like button click
    - (click)="onclick()" mouse hover
    - Data pass from html to component
- Two way data binding:
    - Exchange the data from html to view and view to html
    - [("ngmodel"]="data"
    - Form module include on imports on app.module.ts
- Directives?
    - Add the additional behaviour to html elements
    - Types:
        - Structural: *ngIF, *ngFor,*ngSwitch => add remove elements on html
        - Attribute: change appearance/behaviour of element
            - [ngclass] =>[ngClass]="classname"
            - [ngstyle] =>[ngStyle]={'backround-color : colorname"}
        - Component =>with own template
- Decorator?
    - Its store metadata about a class, method or property
    - Metadata=> data that provides information about the data
    - All decorators represent with @ symbol , @compoent @Ngmodule
- Type of decorators:
    - Class => @NgModule @component @injectable @pipe
    - Property =>@input @output @view child @viewchildern @contenntchild @contentchildren
    - Method =>@hostlistener
    - Parameter=> @inject @self @host @skipself @optional
- What are pipes ? Types of pipe?
    - Accept input value and return the transformed value
    - types
        - Build-in pipe => lowercase uppercase date percentage currency decimal slice json
        - Custom pipe
    - Examples:
        - {title | uppercase}
        - {123.45 | currency}
        - {123.45 | currency :'INR'} => parametrized pipe
- What is chaining pipe?
    - Multiple pipes on input
    - {dbo | date | uppercase}
- Explain services wit example:
    - Service is a typescript class and reusable code in multiple components
    - Ng g service userservicename
    - Add service name in ngmodule => provider section
    - In constructor => we can inject the service
- Hierarchical dependency injections?
    - In component => ts file under component => provider : service name
- Provider ?
    - Inject our service name and used on entire application.
- What is role of @injectable decorator? How to use one service in another service?
    - @injectable is very imp on service class or else its throw the error.
    - Its normal declaration of inject service on component constructor part same way we can use one service to another service.
- Lifecycle hook in angular?
    - A component from creation to destruction goes through several level stages and these stages are the life cycle hooks.
        - Component initiation

        - Rendering the component to html view
        - Creating the child component
        - Destroying the component
    - Constructor:
    - Ngonchanges : called when input changes
    - Ngonint : called when component creation
    - ngDocheck : when component is creation after we can check the status component
        - Ngaftercontentinit
        - Ngaftercontentchecked
        - Ngafterviewinit
        - Ngafterviewchecked
    - ngonDestroy : component destroy
- Constructor in angular?
    - Constructor is method in a typescript class
    - Constructor is not part of life cycle
    - It's used to inject the dependencies into the component
- Ng oninit life cycle ?
    - NgonInit signals the activation of the created component
    - This is second hook and called after ngonchanges
    - Its called only once during the lifecycle
    - By default inside the component
    - Use to perform the business logic
- What are asynchronous operation?
    - Observable are used to perform the async operation
- Difference b/w promise and observable
    - Async pass the data we can use both
    - Promise:
        - Once whole data is ready then only it will show data to UI
        - Emit single value at a time.
        - Are not lazy: execute immediately after creation
        - Are not cancellable.
    - Observable:
        - Stream data => continuously processing the data
        - Emit multiple values over a period of the time
        - Are lazy : they are not executed until we subscript to them using subscribe method.
        - Cancellable=> using unsubscribe()
- What is Rxjs?
    - Rxjs Is father of observable
    - Reactive extension of javascript
    - Observable => stream of data
    - Observer: subscriber
- What is observable?
    - Stream data to multiple components
    - Import observable from Rxjs library
    - Create observable and emit the data => myobservable = new oabervable();
    - myobservable .subscribe() => receiving and sowing the data.
- How to get the data from http client using observable?
    - Http client build-in service class in angular.
    - @anular/common/http package