SPRING BOOT

Spring boot is Java-based spring framework used for Rapid Application Development. It has extra support of auto configuration and embedded applicat server like tomcat, Jetty etc.

~~F~~ Features

- Create stand alone spring application with minimal configuration needed.
- It has embedded tomcat, Jetty which makes it just code and run the application.
- No requirements for XML configure.

1. Spring Application 2. lazy Initialization
3. Admin features 4. Security
5. Logging 6. Caching
7. Kotlin Support 8. Validation
9. JSON 10 Testing
11. Task execution & Scheduling

advantage of using Spring Boot

- spring boot is an existing framework with the addition of an embedded HTTP server and annotation configuration which makes it easier to understand and faster the process development
- Increase productivity & reduce development time.
- Don't need to write any XML configuration, only a few annotation are required to do the configuration.

Key Components of Spring Boot

- Spring Boot auto-configuration
- Spring Boot CLI
- " " started POM's
- " " Activators.

Some key points which spring boot offer but spring doesn't

- Started POM's
- Version Management
- Auto configuration
- Component scanning
- Embeded server.
- In Memomry DB.
- Activators.

starter dependency of SpringB.

- Data JPA starter
- Test starter
- Security Starter
- Web Starter
- Mail Starter
- Thymeleaf starter.

How does SB work.

Spring Boot automatically configures your application based on the dependencies you have added to the project by using annotation. The entry point of the spring boot application is the class that contains @SpringBoot Application and the main method.

spring boat automatically scan all the component included in the project by using @Component Scan annatation.

• @SpringBoatApplication annatation do internally:

⇒ The @SpringBoatApplication annotation is equivalent to using @configuration, @EnabledAuto-configuration, @componentScan with their default attributes. Spring Boat enables the developer to use a single annatation instead of using multiple. But as we know, spring provided loosely coupled features that we can use for each annotation as per our project needs.

@ComponentScan in the classfile

⇒ Spring Boot Application scan all the bean and package declaration when the application initializes. You need to add the @Component Scan annatation for your class file to scan your components added to your projects.

starter dependencies

Spring boat starter is a maven template that contains a collection of all the relevent transitive dependencies that are needed to start a partiaular functionality.

SpringBoat CLI & What a its benefits

Spring Boat Cli is a command-line interface that allows you to create a spring-based Java application using Groovy.

eg ⇒ We don't need to create getter and setter method or access modifier, return statement. If we use the JDBC template, it automatically loads for us.

What is spring Boat dependency management?

⇒ Spring Boat dependency management is used to manage dependencies and configuration automatically without you specify the version for any of that dependencies.

What is Spring Actuator? What are its advantages?

⇒ An actuator is an additional features of Spring that helps you to monitor and manage your application when you push it to production. These actuators include adding ~~hot~~ health, CPU usage, HTTP hits, and metric gathering and many more that are automatically applied to your application.

How to enable Actuator in spring boat Application?

⇒ dependency → spring-boot-starter-actuator" in pom xml

Scanned by TapScanner

Spring Boot

~~Dependency In~~

What is Dependency Injection

⇒ The process of injecting dependent bean object into target bean objects is called dependency injection.

Setter Injection ⇒ The IOC container will inject the dependent bean object into the target bean object by calling the starter method.

- Constructor Injection ⇒ The IOC container will inject the dependent bean object into the target bean object by calling the target bean constructor.
- Field Injection :- The IOC container will inject the dependent bean object into the target bean object by Reflection API.

What is IOC container?

IoC container is a framework for implementing automatic dependency injection. It manages object creation and its life-time and also injects dependency into class.

Eureka Server ⇒ is an application that holds the information about all client service application. Every micro-service will register into the eureka server and Eureka server known all the client application running on each portal.

@Validate = whole class has to be validate.

@Valid = we have to valid this parameter, the field of this class will do validation is mention in class.

@Component ⇒ that allow Spring to automatically detect our custom beans.

1. Scan our application for classes
2. Instantiate them and inject any specified dependencies into them.
3. Inject them wherever needed

@Document ⇒ used to identify a domain object, which is persisted to mongoDB.

- It use to map a Java class into collection inside mongoDB

@Id ⇒ Primary key of an entity.

@GeneratedValues ⇒ Provide for the specificatio of generation strategies for the value of primary key.

@Service ⇒ is used ~~to~~ in our service layer and ~~annotation~~ annotates class that perform service task.

...

Mongo Repository = provide all the necessary methods which helps to create a CRUD applicatio It is an interface & it contain method of CRUD.

@Autowired ⇒ used for dependency injection. All loaded beans are eligible for auto wiring to another bean.

⇒ to autowired a bean into another bean.

Bean ⇒ is a Java object created by spring framwork, when application starts.

⇒ anything a service, database connect most beans depends on other beans to work.

@Configuration ⇒ class has @Bean defination method. spring container can process the class and generate Spring Bean to be used this application.

@Value = assign default value to variable and method arguments

@Enable Auto Configuration ⇒ Enable spring boat auto configuration mechanism.

- Auto Configuration refer to creating beans automatically by scanning the class path.

@ Compoment Scan = Spring boat to scan the current pack and its sub package in order to identify annatated classes and configure them as Spring beans. IOC container.

@Rest Contraller ⇒ used for making restful web service.

⇒ Used at class level and allow the class to handle the request made by client.

@ Get Mapping ⇒ Handle GET type of request method.

@ PostMapping = handle POST type of request method

@ Repository = is a specialization of @ component annotation which is used to indicate that the class provides the mechanism for storage, retrival update, delete and search operation on object.

@Rest Contraller Advice ⇒ it auto detect via classpath scanning.
All class exception will handle in this single class.
→ To show the massage of server.

@Response Status = match a method or exception class with the status code and reason. massage that should be returned.

equestBody ⇒ maps the HTTP Request body to a transfer or domain object enabling automatic deserialization of the inbound HTTP Request body onto a Java object.

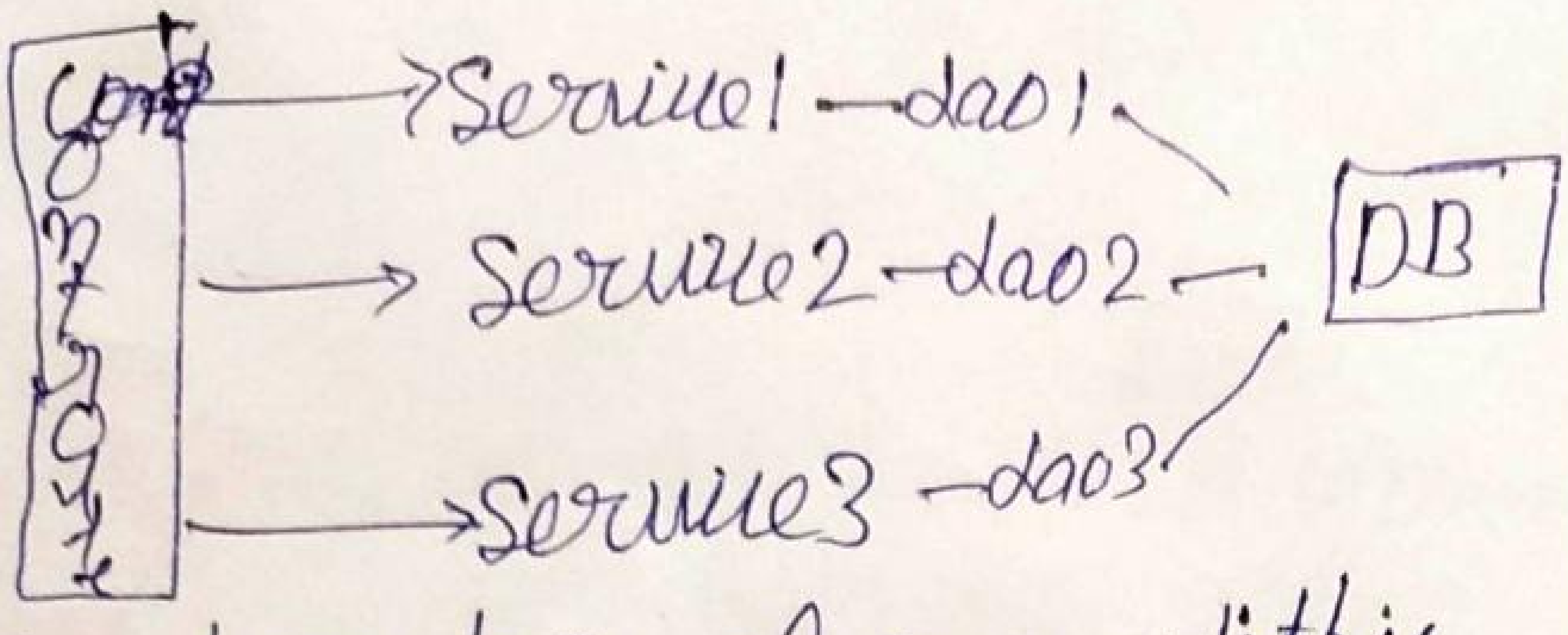
@pathVariable = To extract the value of the template variable and assign their value to a method variable.

Entity class = which has main field city weather.

@Request Mapping ⇒ To configure the mapping of web request.

Microservice

Monalithic Architecture ⇒ monolithic application has single code base with multiple modules.



Disadvantage of monolithic

- As a project scale, it become difficult to manage.
- For a single change redeployment of whole application needs.
- Difficult to adapt new technology for single functionality.
- Single bug may down your whole applicat.

Advantage of monolithic Application.

- Simple to develop
- Simple to build and deploy.
- Problem of network Latency are relative less.

Microservice

Microservice are the small service that work together.

These smaller service communicating with each other directly using Light weight protocols like Http.

These component are less coupling.

Advantage of micro servi

It is possible to change or upgrade each service individually rather than upgrade in the entire application

One service may down without impacting to other.

- Easily use different technolog for building different micro services.

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