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NARESH[®]

technologies

SOFTWARE TRAINING & DEVELOPMENT

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spring Basics/Spring Boot /MicroServices/Cloud / Security

Introduction to Frameworks

- Programming language
- Technology
- Framework
- Java Bean (VO /DTO/BO classes)
- Component class vs java bean vs spring Bean
- POJI vs POJO

Spring Basics

- Need of spring framework
- Spring 1/2/3/4/5 overview diagrams
- IOC container
- BeanFactory Vs ApplicationContext Container
- Dependency lookup vs Dependency Injections
- Different modes Injections
 - >setter Injection
 - >constructor Injection
 - >aware Injection
 - >Lookup Method Injection
 - >Method Replacer/Method Injection

* Annotation fundamentals

* spring Annotations

* Layered Applications /MiniProjects

- >using xml driven cfgs
- >using 100% code cfgs
- >using spring boot

* Reltime scenarios and usecases

Introduction to spring boot

- Types of software architectures
- SOA and Monolith Architecture
- Why Microservices
- Detailed MicroService Architecture
 - i) App Layer
 - ii) Business Layer
 - iii) Enterprise Layer

iv) Infra Layer

- Need of spring boot
- Difference between spring & spring boot
- Advantages with Micro Services

Building Spring Boot Application

- Normal Spring Manual Approach
- Maven Overview
- Spring Initializer
- STS
- Eclipse with STS Plugin
- Understanding the Spring Boot autoconfiguration

Actuator Concepts

- Production Monitoring
- Health Check Concepts
- Security Measurements

Spring Boot Custom Logging

- Logging Level
- Patterns Changes
- Rolling Logs

Spring Boot Profile Components

- Introduction
- Multiple Properties files
- Properties file to YML conversion
- YML File
- Properties file Vs YML file
- Command Line Runner Example
- Real time scenarios of components
- Enviroment Object

Auto Configuration

- Introduction
- DataSource AutoConfiguration

- @Conditional Flow
- Customize conditional annotations
- Spring Boot built in conditional annotations

Thymeleaf Concepts

- Introduction
- Example on Web Application
- Validations on Web Applications
- Internationalization i18n Concepts

Spring Boot MVC

- MVC flow
- Form validations
- Data rendering and data binding
- Different View Resolvers
- Different Views
- Using Bootstrap in MVC applications
- MiniProject with CRUD Operations
- Working with Tiles framework
- File uploading and downloading
- Double posting problem-PRG pattern
- Spring mvc with spring data jpa
- Need of embedded servers & customization
- DevTools
- I18n
- Pagination and sorting in webapplication
- Realtime scenarios and uses-cases

Rest Annotation with In Memory Database & CRUD Operations

- H2
- Derby
- HSQL
- Redis Cache
- PostMan or Swagger Overview

Rest Annotation with Relation DB

- MySql
- PostgreSQL

JPA Repository Concepts

- Crud Repository
- JPA Query Concepts
- Finder methods
- HQL/JPQL
- NamedQueries
- @Query Annotation
- Projections

- Pagination and Sorting
- Spring Data MongoDB
- Configuring two data sources

Spring Boot Security

- Basics
- Basic Authentication
- Form Based Authentication
- Authorization
- Remember me
- Different authentication providers
- Role Based Access Control
- Attribute Based Access Control
- LDAP Based
- SSL Security & TLS Security

Database Concepts

- Spring JDBC
- Database to CSV
- Spring Batch
- Flyway Database Migration
- Liquibase Database Migration
- Flyway vs Liquibase
- Hikari Connection Pool

Core Concepts

- Spring Boot AOP & Spring Boot Cache
- Guava Cache integration
- Caffeine Cache
- EH Cache
- MultiResourceItemReader
- Spring MVC vs JAX-RS
- SpringBoot with Jersey
- Junit Integration
- Rest Integration Test Cases

Microservices

- Introduction
- Principle and Characteristics
- Usecases & Benefits
- Challenges
- Design standards
- MicroServices Communication
 - i) Synchronous
 - ii) Asynchronous
- Pitfalls

Microservices Design Considerations

- Microservices per JVM?
- Microservices share the data stores?
- Microservices Transaction boundaries
- User Interfaces integration with Microservices
- Challenges in Microservices implementation
- Applying SOLID principles

Spring Cloud

- Introduction
- Cloud Architecture
- Cloud application benefits

Spring Cloud Config

- Introduction
- Setup version control repository
- Integration with repository

Netflix

- Introduction
- Eureka Server & Eureka Client
- Feign Client, Ribbon

Fault Tolerance Concepts

- Circuit Breaker Pattern
- Hystrix Concepts, Hystrix Dashboard

API Gateway

- Introduction to ZUUL
- Design standards
- Integration

Messaging Queue Concepts (CloudBus)

- Apache KAFKA
- RabbitMQ
- JMS

Oauth2 Concepts

- Client Types
- Protocol End Points
- Grant Types
- Implantation with Token Based
- JWT Tokens

Swagger API

- Introduction
- Integration

Cloud Hosting

- Pivotal Cloud Foundry account setup
- Hosting to Pivotal
- AWS account setup

- Hosting to AWS
- Enabling cloud features like load balancing, security

Reactive Programming using spring boot webflux

Spring boot mail

Spring boot captcha

Spring social

Tools::

- Maven
- Gradle
- Junit
- Mockito
- HttpUnit
- Eclipse Debugging
- GIT/GIT HUB
- SVN
- Log4J
- SLF4J
- PostMan
- Robo3T
- Jenkins
- Docker
- JaCoCo
- AGILE-SCRUM/KANBAN
- JIRA
- Splunk
- Swagger
- Sonar cube
- ELK
- SQLDeveloper/Mysql Work Bench
- And etc..

→ Multiple Mini Projects development with coding standard and implementing design patterns.

→ Discussions on challenging problems and solutions.

→ Resume preparation and interview tips

→ Mock Interviews for freshers and experienced

→ Interaction with old students who are working professionals

