Spring Boot & Micro Service Course Contents

1. **What is API & Web Application? Why API is needed in web application?**
2. **What is Restful API & SOAP Based API?**
3. **Software Architecture pattern (introduction):**
   - Client-Server Architecture
   - MVC Architecture
   - Multi-tiered Architecture
   - Monolithic Architecture
   - Service Oriented Architecture (SOA)
   - Micro Service Architecture

4. **Advantages & Disadvantages of Micro Service Architecture.**
5. **Difference between web server and Application server.**
6. **JAR vs WAR vs EAR in web-based java application.**
7. **What is HTTP & HTTPS protocol? Various HTTP method & HTTP Status code (Briefly)**
8. **Overview of Core Spring Framework and Spring MVC.**
9. **Introduction of Spring Boot framework for creating micro service.**
10. **Important annotation of Spring boot ad Spring framework:**
    - @SpringBootApplication
    - @EnableAutoConfiguration
    - @ComponentScan
    - @Configuration
    - @RestController
    - @RequestMapping
    - @Controller
    - @GetMapping
    - @PostMapping
    - @PutMapping
    - @DeleteMapping
    - @PatchMapping
    - @Component
    - @Service
    - @Repository
    - @Transactional
    - @RequestBody
    - @Autowired
    - @Scope
    - @Qualifier
    - @ResponseBody:
    - @PathVariable
    - @RequestParam
    - @PathParam

- ➢ @Required
- ➢ @Import
- ➢ @Bean
- ➢ @ControllerAdvice
- ➢ @ExceptionHandler
- ➢ @ResponseStatus
- ➢ @ImportResource
- ➢ @PropertySource
- ➢ @PropertySources
- ➢ @Value
- ➢ @Profile
- ➢ @Scheduled
- ➢ @EnableScheduling
- ➢ @Async
- ➢ @EnableAsync
- ➢ @Schedules

11. Set up development environment: Java 8 + Maven 3.3.x + IDE + PostMan.
12. Maven Build tool and Dependency hierarchy.
13. RESTful Service Project template with Spring Boot by Spring initlializr.
14. Create first RESTful Service.
15. Spring boot inbuilt web server.
16. Power of Spring Boot DevTools Jar
17. Create a CRUD operation API using Collection framework and Spring Boot?
18. Introduction of Spring JPA and its annotation (Javax.persistance API annotation)
19. understand common term - POJO/DTO/Model/Entity class
20. Introduce Lombok framework for clean code.
21. Create CRUD operation RESTful Services using in memory Database (H2)
22. Write API documentation using Swagger framework.
23. Spring various properties configuration
24. Create CRUD operation RESTful Services using RDBMS Database (MySQL)
25. Spring Data JPA
26. Write custom SQL query in JpaRepository for accessing DB.
27. Create RESTful Services using NoSQL Database (MongoDB)
28. Setting Logger in the RESTful Services.
29. Testing RESTful webservice using postman or Rest Client and Swagger inbuilt tool.
30. Adding bean or pojo class validation with javax validator.
31. Writing custom response mechanism in API
32. Introduce custom exception handler mechanism.
33. Monitoring APIs with Spring Boot Actuator.

34. Introduction and commonly used operation of Git-Repository for working with multiple team member
35. Understand Spring cloud and micro service
36. Eureka Discovery service creation & start up
37. User micro service creation (enable discovery client cloud)
38. Access user webservice endpoint via Discovery service
39. Create account management micro service creation (enable discovery client cloud)
40. Access account management webservice endpoint via Discovery service
41. Introduction of ZULL API Gateway and Create ZULL API gateway micro service
42. what is load balancer and how it's work by ZULL
43. User micro service login mechanism
44. Enable Spring security on API Gateway (ZULL)
45. Inter micro service communication ways: direct API call/ JMS implementation / netflix Feign client
46. Demonstrate with feign client
47. Introduction of Hystrix circuit breaker for micro service error handling
48. Introduction of Zipkin
49. Setting up account in AWS
50. Creating in AWS EC2 instance, Connect to EC2 instance
51. Basic introduction of docker and installation in AWS EC2 instance
52. Run micro service in EC2 docker container
53. Miscellaneous (Like- JVM Performance Tuning, Java 8 Features, Code Analysis)
54. Bonus Spring Batch + Realtime Project Experience + Interview QA
55. Linux Command Cheat Sheet
56. Git Cheat Sheet
57. SQL Query & Join Cheat Sheet
58. Interview Question Guide
59. Record Session, Documents Guide
60. Q/A

Include: Setting up the development environment and required application

Thank You