

### 1. What is the Spring Framework?

Spring framework is wide used java framework for building enterprise grade application

It provides infrastructure support for building java based application

Dependency Injection

Transaction management

Data Access

AOP

Security

Web MVC

Testing Support

### 2. What are the main features of Spring?

IoC and dependency injection

Loose coupling and makes testing easier

Spring MVC

REST API

Data Access Support

Spring Security

AOP

Spring Boot

Integration Support with other systems like Kafka and web services

Testing Support

Modular architecture

### 3. What is dependency injection?

It is a design pattern used to achieve Inversion of Control between classes and their dependencies

Instead of class creating it's dependency ,they are provided from outside by a container/framework like spring

4. What are the types of dependency injection in Spring?

Constructor injection

Setter injection

Field injection

5. What is Inversion of Control (IoC)?

IoC is a design principle where the control of object creation and dependency management is transferred from the application code to a framework or container such as spring

6. What is the Spring IoC container?

Spring IoC container is the core of spring framework

# create objects

#manage their lifecycle

#Wiring dependencies

#Configuring dependencies based on XML configuration or annotation

7. What are the different types of Spring containers?

ApplicationContext

ClassPathXmlApplicationContext

FileSystemXmlApplicationContext

AnnotationConfigApplicationContext

WebApplicationContext

BeanFactory

8. What is a Spring Bean?

9. How do you define a bean in Spring?

A spring bean is a java object that is managed by Spring IoC container

Beans can have scopes

Singleton

Prototype

Request

Session

10. What is the difference between @Component, @Service, @Repository, and @Controller?

11. What is the default scope of a Spring bean?

Singleton

12. What are the different bean scopes in Spring?

13. What is the difference between ApplicationContext and BeanFactory?

14. What is autowiring in Spring?

It is a feature in spring framework for automatic dependency injection into other beans without requesting explicit configuration or manual wiring

15. What are the different modes of autowiring?

Byname

Bytype

Constructor

Autodetect

@Autowired uses autowiring of byType

16. What is the use of @Autowired annotation?

17. How do you configure Spring using XML?

18. How do you configure Spring using Java-based configuration?

19. What is annotation-based configuration in Spring?

20. What is the role of @Configuration and @Bean?

21. What is the use of @Qualifier?

22. What is the Spring Expression Language (SpEL)?

23. What is the purpose of @Value annotation?

It allows us to query and manipulate object graph at runtime

It is used to inject values into beans using expressions

```
@Value("#{56}")
```

```
Private int number
```

24. What is the difference between constructor and setter injection?

25. What is the use of @PostConstruct and @PreDestroy?

26. What is the purpose of @Primary annotation?

27. What is the use of @Lazy annotation?

28. What is the difference between @ComponentScan and @Import?

```
@ComponentScan
```

```
Autodetect beans via annotation
```

```
@Import
```

```
Used to import configuration or classes manually
```

29. What is the role of @PropertySource?

```
#####
```

```
App.properties
```

---

---

```
app.name=myapp
```

app.version=1.01.

@Configuration

@PropertySource{"classpath:application.properties"}

public class AppConfig

{

@Value("\${app.name}")

private String appName

}

30. How do you externalize configuration in Spring?

### ● Intermediate Level (31–70)

31. What is Spring AOP?

32. What are the different types of advice in Spring AOP?

33. What is a join point and pointcut?

34. What is the difference between Spring AOP and AspectJ?

35. What is the use of @Aspect and @Around?

36. What is the proxy pattern in Spring AOP?

37. What is Spring JDBC?

38. How do you use JdbcTemplate?

39. What is the difference  
between JdbcTemplate and NamedParameterJdbcTemplate?

40. What is Spring ORM?
41. How does Spring integrate with Hibernate?
42. What is the use of @Transactional?
43. What is transaction propagation in Spring?
44. What is transaction isolation in Spring?
45. What is the difference between programmatic and declarative transaction management?
46. What is Spring MVC?
47. What is the DispatcherServlet?
48. What are the components of Spring MVC?
49. What is the role of @RequestMapping?
50. What is the difference between @RequestParam and @PathVariable?
51. What is the use of @ModelAttribute?
52. What is the use of @ResponseBody and @RequestBody?
53. What is the role of ViewResolver?
54. What is Spring Boot?
55. What are the advantages of Spring Boot?
56. What is the Spring Boot starter?
57. What is the use of application.properties or application.yml?
58. What is Spring Boot auto-configuration?
59. What is the use of @SpringBootApplication?
60. What is the difference between Spring and Spring Boot?
61. How do you create a REST API using Spring Boot?
62. What is the use of @RestController?
63. What is Spring Data JPA?
64. What is the role of JpaRepository?
65. What is the difference between CrudRepository and JpaRepository?
66. How do you define entity relationships in Spring Data JPA?

67. What is the use of @Entity, @Table, @Id, and @GeneratedValue?

68. What is pagination and sorting in Spring Data?

69. What is the use of @Query annotation?

70. How do you handle exceptions in Spring Boot?

## ● **Advanced Level (71–100)**

71. What is Spring Security?

72. How do you implement authentication and authorization in Spring Security?

73. What is the difference between OAuth2 and JWT in Spring Security?

74. What is CSRF protection in Spring Security?

75. What is method-level security?

76. What is Spring Cloud?

77. What is service discovery in Spring Cloud?

78. What is Spring Cloud Config?

79. What is the use of Netflix Eureka?

80. What is Spring Cloud Gateway?

81. What is circuit breaker pattern in Spring Cloud?

82. What is Hystrix and how is it used?

83. What is the role of Feign in Spring Cloud?

84. What is the difference between synchronous and asynchronous communication in microservices?

85. How do you implement caching in Spring?

86. What is the use of @Cacheable, @CachePut, and @CacheEvict?

87. What is Spring Batch?

88. What are the components of Spring Batch?

89. How do you schedule tasks in Spring?

90. What is the use of @Scheduled?

91. What is reactive programming in Spring?

- 92. What is Spring WebFlux?
- 93. What is the difference between Spring MVC and WebFlux?
- 94. What is Mono and Flux in Project Reactor?
- 95. How do you test Spring applications?
- 96. What is the use of @SpringBootTest?
- 97. What is the role of MockMvc?
- 98. How do you profile environments in Spring?
- 99. What is the use of @Profile annotation?
- 100.       How do you monitor and manage Spring Boot applications?