

Java Interview Questions

Q: What is the difference between `==` and `.equals()` in Java?

A: `==` checks for reference equality; `.equals()` checks for value equality.

Q: What are the main features of Java 8?

A: Lambda Expressions, Stream API, Functional Interfaces, Optional, Default methods.

Q: What is a `HashMap` and how does it work?

A: Stores key-value pairs using hash function to locate values.

Q: What is the difference between `ArrayList` and `LinkedList`?

A: `ArrayList` is backed by array (fast access), `LinkedList` by a doubly-linked list (fast insert/delete).

Spring Framework Interview Questions

Q: Difference between `@Component`, `@Service`, `@Repository`, and `@Controller`?

A: `@Component` is generic, others are specialized stereotypes for services, DAOs, and MVC controllers.

Q: What is Dependency Injection in Spring?

A: Design pattern where Spring injects dependencies at runtime.

Q: What is the Spring Bean lifecycle?

A: Instantiation -> Properties -> Aware interfaces -> PostConstruct -> Initialization -> Ready -> PreDestroy -> Destruction

Q: Difference between `@Autowired` and `@Qualifier`?

A: `@Autowired` injects dependencies, `@Qualifier` specifies which bean to inject.

SQL Interview Questions

Q: Difference between `INNER JOIN`, `LEFT JOIN`, `RIGHT JOIN`?

A: `INNER` returns matches, `LEFT` returns all from left + matches, `RIGHT` does the opposite.

Q: What is normalization?

A: Process of organizing data to minimize redundancy (1NF, 2NF, 3NF).

Q: What is a foreign key?

A: Column that links two tables by referencing a primary key.

Q: How to find duplicates in a table?

A: Use GROUP BY and HAVING COUNT(*) > 1 on the column.

AWS Interview Questions

Q: Difference between EC2 and Lambda?

A: EC2 = virtual servers; Lambda = serverless, triggered code execution.

Q: What is an S3 bucket?

A: Object storage for files/data, scalable and durable.

Q: What is an IAM role?

A: Grants temporary permissions to AWS services/users, unlike IAM users.

Q: What is Auto Scaling in AWS?

A: Automatically adjusts EC2 instances to meet demand.