

Java Viva Questions and Answers

1. What is Java? Why is it called platform-independent?

- Java is an object-oriented programming language developed by Sun Microsystems (now owned by Oracle).
- It is platform-independent because Java programs run on the Java Virtual Machine (JVM), making them executable on any OS.

2. Explain the difference between JDK, JRE, and JVM.

- JDK (Java Development Kit): Contains tools for developing and running Java programs.
- JRE (Java Runtime Environment): Includes libraries and JVM to run Java programs.
- JVM (Java Virtual Machine): Converts Java bytecode into machine code.

3. What are the four pillars of OOP in Java?

- Encapsulation: Wrapping data and methods in a single unit (class).
- Abstraction: Hiding implementation details and showing only essential features.
- Inheritance: One class acquiring properties of another.
- Polymorphism: Ability to take multiple forms (method overloading and overriding).

4. What is the difference between method overloading and method overriding?

Feature	Method Overloading	Method Overriding
Definition	Same name, different parameters	Re-defining parent class method
Class	Same class	Parent-child classes
Return Type	Can be different	Must be the same
Access Modifier	Can have any	Cannot be more restrictive

5. What is an abstract class? How is it different from an interface?

- Abstract Class: A class that cannot be instantiated; can have both abstract and concrete methods.
- Interface: A blueprint with only abstract methods (before Java 8).

6. Can an interface have a constructor?

- No, because interfaces cannot have instance variables and cannot be instantiated.

7. What is exception handling? Why do we need it?

- Exception handling ensures program stability by handling runtime errors using try-catch blocks.

8. What is the difference between checked and unchecked exceptions?

- Checked Exception: Caught at compile-time (IOException, SQLException).
- Unchecked Exception: Occurs at runtime (NullPointerException, ArithmeticException).

9. What is the synchronized keyword in Java?

- Ensures only one thread can access a method or block at a time.

10. Difference between HashMap and Hashtable?

- HashMap: Not synchronized, allows null keys, faster.
- Hashtable: Synchronized, no null keys, slower.