

## JAVA Interview Questions

By

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## **Chapter 1: OOPS and CORE JAVA**

- What is JVM (Java Virtual Machine)?
- What is JIT (Just-in-Time) Compilation?
- What is Object Oriented Programming?
- What's a Class?
- What's an Object?
- What's the relation between Classes and Objects?

- What are different properties provided by Object-oriented systems?
- How do you implement inheritance in Java?
- How can we implement polymorphism in Java?
- What is an Abstract class?
- What are Abstract methods?
- What's the difference between "Abstract" classes and "Interfaces"?
- What's difference between Static and Non-Static fields of a class?
- What are inner classes and what's the practical implementation of inner classes?
- What are packages?
- What is a constructor in class?
- Can constructors be parameterized?
- What is the use of "instance of" keyword?
- What are Native methods in Java?
- How do refer to a current instance of object?
- Explain in depth Garbage collector?
- How does the garbage collector determine that the object has to be marked for deletion?
- Can you explain "finalize ()" method?
- How can we force the garbage collector to run?
- What's the main difference between "Switch" and "If" comparison?
- What's the use of JAVAP tool?
- What are applets?
- In which package is, the applet class located?
- What are native interfaces in Java?
- What are Class loaders?
- What is Bootstrap, Extension and System Class loader?
- Can you explain the flow between bootstrap, extension and system class loader?
- Can you explain how can you practically do dynamic loading?
- What is Reflection API in Java?
- What's the difference between static and dynamic class loading?
- How can you copy one array in to a different array?
- Can you explain the core collection interfaces?
- Can you explain in brief the collection classes which implement the collection interfaces?
- What's the difference between standard JAVA array and Array List class?
- What's the use of "ensure Capacity" in Array List class?
- How can we obtain an array from an Array List class?
- What is "Linked List" class for?
- Can you explain Hash Set class in collections?
- What is Linked Hash Set class?
- What is a Tree Set class?
- What's the use of Comparator Interface?
- How can we access elements of a collection?
- What is Map and SortedMap Interface?

- Have you used any collection algorithm?
- Why do we use collections when we had traditional ways for collection?
- Can you name the legacy classes and interface for collections?
- What is Enumeration Interface?
- What's the main difference between Array List / Hash Map and Vector / Hash table?
- Are String object Immutable, Can you explain the concept?
- What is a String Buffer class and how does it differs from String class?
- What is the difference between String Builder and String Buffer class?
- What is Pass by Value and Pass by reference? How does JAVA handle the same?
- What are access modifiers?
- What is Assertion?
- Can you explain the fundamentals of deep and shallow Cloning?
- How do we implement shallow cloning?
- How do we implement deep cloning?
- What's the impact of private constructor?
- What are the situations you will need a constructor to be private?
- Can you explain final modifier?
- What are static Initializes?
- If we have multiple static initialize blocks how are the sequence handled?
- Define casting? What are the different types of Casting?
- Can you explain Widening conversion and Narrowing conversion?
- Can we assign parent object to child objects?
- Define exceptions?
- Can you explain in short how JAVA exception handling works?
- Can you explain different exception types?
- Can you explain checked and unchecked exceptions?
- Can we create our own exception class?
- What are chained exceptions?
- What is serialization?
- How do we implement serialization actually?
- What's the use of Externalizable Interface?
- What is JAVA doc utility?

## Chapter 2: Threading

- What's difference between thread and process?
- What is thread safety and synchronization?
- What is semaphore?
- What are monitors?
- What's the importance of synchronized blocks?
- How do we create threads?
- What's the difference in using run able and extends in threads?

- Can you explain Thread. Sleep?
- How to stop a thread?
- What is wait () and notify ()?
- Can you explain how Scheduling and Priority works in threads?
- Can you explain Yielding in threading?
- What are daemon threads?
- How do we implement single threaded model in servlets?

## Chapter 3: JDBC

- How does JAVA interact with databases?
- Can we interact with non-relational sources using JDBC?
- Can you explain in depth the different sections in JDBC?
- Can you explain in short how you go about using JDBC API in code?
- How do you handle SQL exceptions?  
Twist: - (A) Can you explain “SQL Exception” class in detail?  
Twist: - (A) what is SQL State in SQL Exceptions?
- If there is more than one exception in SQL Exception” class how to go about displaying it?
- Explain Type1, Type2, Type3, and Type4 drivers in JDBC?
- What are the advantages and disadvantages of using JDBC-ODBC bridge driver?
- What are the advantages and disadvantages of using Native-API/ Partially Java Driver?
- What are the advantages and disadvantages of using Net-Protocol/ All-Java driver?
- What are the advantages and disadvantages of using Native-protocol/ All-Java driver?
- Advantages of using JDBC-ODBC bridge driver:-
- Disadvantages of using JDBC-ODBC bridge driver:-
- Advantages of using Native-API/ Partially Java Driver:-
- Dis-advantages of using Native-API/ Partially Java Driver:-
- Advantages of using Net-Protocol/ All-Java driver:-
- Disadvantages of using Net-Protocol/ All-Java driver:-
- Advantages of using Native-protocol/ All-Java driver:-
- Disadvantages of using Native-protocol/ All-Java driver:-
- Define meta-data?
- What is Database Metadata?
- Can you explain “Connection Factory” class?
- I want to display tables of a database how do I do it?
- Define “Result Set Meta Data”?
- What is the difference between “Result Set” and “Row Set”?
- Can “Result Set” objects be serialized?
- Explain “Result Set”, “Row Set”, “Cached Row set”, “JdbcRowset” and “Web Row Set”?
- What are the different types of result set?

- Explain the concept of “Prepared Statement” “statement interface”?
- What’s the difference between “Statement” and “Prepared Statement”?
- How can we call stored procedure using JDBC?
- Can you explain “Callable Statement” interface in detail?
- How do you get a result set object from stored procedure?
- (A) How can we do batch updates using “Callable Statement” Interface?
- Define transactions?
- What is ACID in transaction?
- What are the four essential properties of a transaction?
- Explain concurrency and locking?
- What are different types of locks?
- What are the different types of levels of resource on which locks can be placed?
- Define lock escalation?
- What is Table level and Row level locking?
- What are the problems that can occur if you do not implement locking properly?
- What are different transaction levels?
- Twist: - what are different types of locks?
- What is difference between optimistic and pessimistic locking?
- What are deadlocks?
- How can we set transaction level through JDBC API?
- Can you explain transaction control in JDBC?
- What are Save points in a transaction?

## **Chapter 4: Servlets and JSP**

- What are Servlets?
- What are advantages of servlets over CGI?
- Can you explain Servlet life cycle?
- What are the two important API’s in for Servlets?
- Can you explain in detail “javax.servlet” package?
- What’s the use of Servlet Context?
- How do we define an application level scope for servlet?
- What's the difference between Generic Servlet and Http Servlet?
- Can you explain in detail javax.servlet.http package?
- What’s the architecture of a Servlet package?
- Why is HTTP protocol called as a stateless protocol?
- What are the different ways we can maintain state between requests?
- What is URL rewriting?
- What are cookies?
- What are sessions in Servlets?
- What the difference is between get Session (true) and get Session (false)?
- What’s the difference between “do Post” and “do get” methods?
- Which are the different ways you can communicate between servlets?

- What is functionality of “Request Dispatcher” object?
- How do we share data using “get Servlet Context ()”?
- Explain the concept of SSI?
- What are filters in JAVA?
- Can you explain in short how do you go about implementing filters using Apache Tomcat?
- Twist: - Explain step by step of how to implement filters?
- What’s the difference between Authentication and authorization?
- Explain in brief the directory structure of a web application?
- Can you explain JSP page life cycle?
- What is EL?
- How does EL search for an attribute?
- What are the implicit EL objects in JSP?
- How can we disable EL?
- What is JSTL?
- Can you explain in short what the different types of JSTL tags are?
- (I) How can we use beans in JSP?
- What is the use of <jsp: include>?
- What is <jsp: forward> tag for?
- What are JSP directives?
- What are Page directives?
- What are including directives?
- Can you explain taglib directives?
- How does JSP engines instantiate tag handler classes’ instances?
- What’s the difference between JavaBeans and taglib directives?
- What are the different scopes an object can have in a JSP page?
- What are different implicit objects of JSP?
- What are different Authentication Options available in servlets?
- Can you explain how do we practically implement security on a resource?
- How do we practically implement form based authentication?
- How do we authenticate using JDBC?
- Can you explain JDBCRealm?
- Can you explain how do you configure JNDIRealm?
- How did you implement caching in JSP?
- What is the difference between ServletContext and ServletConfig?
- How do we prevent browser from caching output of my JSP pages?
- Can we explicitly destroy a servlet object?

## **Chapter 5: EJB**

- What is EJB?
- What are the different kind of Ebb’s?
- You are designing architecture for a project how do you decide whether you should use session, entity or message driven bean?
- Can you explain “EJBHome” and “EJBObject” in EJB?



- Can client directly create object of session or entity beans?
- Can you explain the concept of local interfaces?
- What are the limitations of using Local object?
- Which application server have you used for EJB?
- Can you explain step by step practically developing and deploying EJB component?
- What is Passivation and Activation in EJB?
- Can beans who are involved in transaction have “Passivation” process?
- How does the server decide which beans to passivity and activate?
- In what format is the conversational data written to the disk?
- Can you explain in brief Life cycle for Stateless and Stateful beans?

## **Chapter 6: Struts**

- (I)What’s MVC pattern?
- (B) Define struts?
- (A) Can you explain the directory structure for a struts folder in brief?
- (I) Can you give an overview of how a struts application flows?
- Twist: - What are action and action form classes in Struts?

## **Chapter 7: XML and Web Services**

- What is XML?
- What is the version information in XML?
- What is ROOT element in XML?
- If XML does not have closing tag will it work?
- Is XML case sensitive?
- What is the difference between XML and HTML?
- Is XML meant to replace HTML?
- Can you explain why your project needed XML?
- What is DTD (Document Type definition)?
- What is well formed XML?
- What is a valid XML?
- What is CDATA section in XML?
- What is CSS?
- What is XSL?
- What is element and attributes in XML?
- What are the standard ways of parsing XML document?
- In What scenarios will you use a DOM parser and SAX parser?
- What is XSLT?
- Define XPATH?
- What is the concept of XPOINTER?
- What is a Web Service?
- What is DISCO?
- What is SOAP?

- What is WSDL?
- Can you explain UDDI?
- Can you explain JAXP?
- What is a XML registry?
- What is JAXR?
- What is JAXM?
- Can you explain JAX-RPC?
- How do you practically implement Web Services?
- How do we consume a web service?
- Are web services Stateful?

## **Chapter 8: Internationalization**

- Can you explain i18n and l10n?
- Can you explain internationalization and localization?
- What is Locale?
- How do we display numbers, currency and Dates according to proper Locale format?
- what are resource bundles?
- How do we load a resource bundle file?
- How can we do inheritance in resource bundles?

## **Chapter 9: JNI**

- What is Native Interface in JAVA?
- Can you say in brief steps required to implement Native interfaces in Java?
- Can JNI be used for VB6, C# or VB.NET directly?
- What are JNI functions and pointers?
- How does the garbage collector know JNI objects are no more used?
- Twist: - What are the different types of references JNI supports?
- Twist: - How to do you delete global objects?
- How does the native language C or C++ understand data types in JAVA?
- Can you explain exception handling in JNI?
- What are limitations for “JNIEnv” pointer in multi-threading scenarios?
- What are the advantages and disadvantages of using “JNI”?

## **Chapter 10: Architecture**

- What are design patterns?
- Can you list down all patterns and their classification?
- What is the difference between Factory and Abstract Factory Patterns?
- What is MVC pattern?
- How can we implement singleton pattern in JAVA?
- How do you implement prototype pattern in JAVA?
- Can you give a practical implementation of FAÇADE patterns?
- How can we implement observer pattern in JAVA?

- What is three tier architecture?
- What is Service Oriented architecture?
- What is aspect oriented programming?
- How can you implement AOP practically in JAVA?
- What is Inversion of control?
- What is OR mapping?

## **Chapter 11: UML**

- What is UML?
- How many types of diagrams are there in UML?
- What are advantages of using UML?
- What is the sequence of UML diagrams in project?
- Give a small brief explanation of all Elements in activity diagrams?
- Explain Different elements of a collaboration diagram?
- Explain Component diagrams?
- Describe the various components in sequence diagrams?
- What are the elements in State Chart diagrams?
- Describe different elements in Static Chart diagrams?
- Explain the different elements of a Use Case?

## **Chapter 12: Project Management**

- What is project management?
- Is spending in IT projects constant through out the project?
- Who is a stakeholder?
- Can you explain project life cycle?
- Are risk constant through out the project?
- Can you explain different software development life cycles?
- What is triple constraint triangle in project management?
- What is a project baseline?
- What is effort variance?
- How is normally a project management plan document organized?
- (I)How do you estimate a project?
- What is CAR (Causal Analysis and Resolution)?
- What is DAR (Decision Analysis and Resolution)?
- What is a fish bone diagram?
- What is pare to principle?
- How do you handle change request?
- What is internal change request?
- What is difference between SITP and UTP in testing?
- What is the software you have used for project management?
- What are the metrics followed in project management?
- You have people in your team who do not meet there deadlines or do not perform what are the actions you will take?

- What is black box testing and White box testing?
- What's the difference between Unit testing, Assembly testing and Regression testing?
- What is V model in testing?
- How do you start a project?
- How did you do resource allocations?
- How will you do code reviews?
- What is CMMI?
- What are the five levels in CMMI?
- What is continuous and staged representation?
- Can you explain the process areas?
- What is SIX sigma?
- What is DMAIC and DMADV?
- What are the various roles in Six Sigma implementation?
- What are function points?
- What are the different types of elementary process in FPA?
- What are the different elements in Functions points?
- Can you explain in GSC and VAF in function points?
- What are unadjusted function points and how is it calculated?
- Can you explain steps in function points?
- What is the FP per day in your current company?
- Do you know Use Case points?
- What is COCOMO I, COCOMOII and COCOMOIII?
- What is SMC approach of estimation?
- How do you estimate maintenance project and change requests?

## **Chapter 13: Database**

- What is database or database management systems (DBMS)?
- What is SQL?
- What's difference between DBMS and RDBMS?
- What are CODD rules?
- What are E-R diagrams?
- How many types of relationship exist in database designing? What is normalization? What are different type of normalization?
- What is denormalization?
- Can you explain Fourth Normal Form?
- Can you explain Fifth Normal Form?
- What's the difference between Fourth and Fifth normal form?
- Have you heard about sixth normal form?
- What are DML and DDL statements?
- How do we select distinct values from a table?
- What is like operator for and what are wild cards?
- Can you explain Insert, Update and Delete query?
- What is order by clause?

- What is the SQL In clause?
- Can you explain the between clause?
- I have an employee salary table how do we find the second highest from it?
- What are different types of joins in SQL?
- What is "CROSS JOIN"?
- You want to select the first record in a given set of rows?
- What is the default "SORT" order for a SQL?
- What is a self-join?
- What's the difference between DELETE and TRUNCATE?
- .What are Wildcard operators?
- Twist: - What is like clause in SQL?
- What's the difference between "UNION" and "UNION ALL"?
- What are cursors and what are the situations you will use them?
- What are the steps to create a cursor?
- What is "Group by" clause?
- What is the difference between "HAVING" and "WHERE" clause?
- What is a Sub-Query?
- What are Aggregate and Scalar Functions?
- Can you explain the SELECT INTO Statement?
- What is a View?
- What is "Correlated Sub queries"?
- What is SQL injection?
- What is "Data Warehousing"?
- What are Data Marts?
- What are Fact tables and Dimension Tables?
- Twist: - What is Dimensional Modeling?
- Twist: - What is Star Schema Design?
- What is Snow Flake Schema design in database?
- Twist: - What's the difference between Star and Snow flake schema?
- What is ETL process in Data warehousing?
- Twist: - What are the different stages in "Data warehousing"?
- What is "Data mining"?
- Compare "Data mining" and "Data Warehousing"?
- What are indexes?
- What are B-Trees?
- I have a table which has lot of inserts, is it a good database design to create indexes on that table?
- Twist: - Insert's are slower on tables which have indexes, justify it?
- Twist: - Why do page splitting happen?
- What are "Table Scan's" and "Index Scan's"?
- What are the two types of indexes and explain them in detail?
- Twist: - What's the difference between clustered and non-clustered indexes?

