

Lesson 4: Introduction to Java

- Responsibilities of Bytecode verifier, class loader, JIT compiler, JVM

Lesson 5: Language Fundamentals

- Discuss illegal assignments for float, char, byte data types
- What happens when you ignore break in switch, Discuss the valid data types that w.r.t switch case

Lesson 8: Classes and Objects

- Discuss all the important points of enum
- What is the default value of all instance variables
- What will happen if you don't initialize a local variable and try to print it?
- Garbage collector points
 - Not assured even if you call System.gc() method, least priority daemon thread, calls finalize method
- Static methods – discuss all the points
- What is created in heap?
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Lesson 9: Exploring Basic Java Class Libraries

- What are wrapper classes list all the wrapper classes
- What are the possible modifiers for the top level class, instance variables, local variables
- (example final is the only modifier used for local variables and public, private and static is used for class)
- Which type of variables must be initialized-mandatory (ans: final variable)
- String, StringBuffer and StringBuilder – discuss which is mutable and methods (append, concat, etc), equals and == w.r.t String?
- Methods of Object class- list out
- Scanner, use delimiter method
- All new date features, LocalDate methods to get current date, tomorrow's date, yesterday's
- Discuss equals and hashCode()

Lesson 10: Inheritance and Polymorphism

- Difference between overriding and overloading
- Abstract class, interfaces (modifiers of the data members in an interface) – discuss the points
- Aggregation relationship – how will you implement in Java
- instanceof – discuss
- Discuss all points about key word "this" and "super" (while writing constructors)
- How will you write varargs (what conditions must be followed)
- All the points w.r.t final variable, method and class
- Can the final classes be instantiated, inherited?
- Key words that can't be used for final – abstract/extends

Lesson 11: Abstract Classes and Interfaces

- By default interface data members are _____

Lesson 12 : Exception Handling

- List all the checked exception and unchecked exception (discuss on `ClassNotFoundException`, `ClassCastException`, `NumberFormatException`, `SQLException`, `ArrayIndexOutOfBoundsException`, `NullPointerException`, `IOException`)
- Base class of all exception
- How will you create checked and unchecked userdefined exception
- Try catch finally throw throws – all points
- Significance of Try-with-resource feature in exception handling
- Any null reference with method invocation will create null pointer exception example(very important)
 - Example `String var=null , s.op.(var.length())`
- Difference between enhanced for loop and iterator
- Layered architecture with exception handling

Lesson 13: Array

- Declare int array , Boolean array syntax

Lesson 14: Collection

- Printing the collection using for loop and iterator.
- `LinkedList`, `ArrayList`- all collections comparison for ordered,sorted,duplicates ,allows null
- `Hashtable` and `Vector` are synchronized,
- `SortedMap`(entries are stored using `Comparator`,duplicate entries replace original entries,stored as key/value pair)
- Discuss- `LinkedList`,`LinkedHashSet`
- `Collections.sort()`,`Arrays.sort(array)`,ways of iterating the collection, Diff between `HashMap` and `Hashtable` (key/value pair, not sorted and not ordered)
- `TreeSet` discuss -(key/value pair,elements in the `TreeSet` should be of the type that implements `Comparable`.Need to implement either `Comparable` or `Comparator` interface to sort user defined objects)
- Go through `Comparator` and `Comparable` interface methods
- Discuss `clear()`,`removeAll()`,`isEmpty()`

Lesson 15: Generics

- Use of Generics (introduced in JDK 1.5, used to avoid runtime exceptions like ClassCastException and casting)
- Why Generics (Is used to avoid runtime cast exceptions and it was introduced in JDK 1.5 version)

Lesson 16: Multithreading

- Thread API's eg: static method to obtain the current thread, start(), run(), join()-waits for the other thread to terminate), Thread class constructors - discuss
- Thread Lifecycle (Thread States), Thread priority(integer values)
- 2 ways of Creating thread.
- Wait(), notify and notifyAll() are in Object class
- Which exception is thrown by Sleep()

Lesson 17 : File IO and Lesson 18: Property Files

- Different types of streams in File IO, LineNumberReader, Buffered Streams, flush(), Serialization and Deserialization
- Below classes are in java.io package
Reader, Write, InputStream, OutputStream, FileInputStream, FileOutputStream, ObjectInputStream
- Discuss isFile()

Lesson 19: Introduction to Junit 4 & Advanced Testing

- Explain @Test with all attributes like timeout ,expected...
- @ignore- explain
- Explain static import of Assert class
- Explain- '@RunWith(Suite.class) ,@Suite.SuiteClasses
- @Before, @After ,@BeforeClass, @AfterClass-explain
- What is parameterized test?

Lesson 20: LambdaExpressions

- Discuss Simple lambda expressions, how to write the functional interface
- Printing the list using lambda expression

Lesson 21: Stream API

- Consumer, BiFunctional, Predicate Functional interfaces – discuss with code snippets from the slides or solved examples
- Discuss below stream operations:
Array.stream(), list.stream(), Map, filter, forEach(System.out::println), count(), sorted(), distinct(), limit(), reduce
- Which method used to implement parallel stream operation
- How to display lowest 3 values from a list by using stream methods . i.e stream().sorted().limit()

