Core Java Syllabus

Chapter No.	Chapter	Details to be covered
1.	Introduction to Java	• Features Of Java, • Architecture Of Java Virtual Machine, • Java Concepts, Object Oriented Programming Principles, • Java Identifiers, Java Keywords, Java Data Types, Java Operators, Java Modifiers, Java Variables, • Explanation of First Java Program
2.	Classes, Constructors and Methods	• Class, Constructors, Constructor Overloading, • Method-definition,use of methods, • Creating An Object, Accessing Instance Variables And Methods, Parameter Passing, Java instanceOf Operator • Polymorphism, Compile time and Runtime Polymorphism, Method Overloading, • Static Binding And Dynamic Binding, • Instance Initializer Block
3.	Static variables, methods and blocks	• Static variables-properties, difference between static and non-static variables, • Static methods-properties, conditions, • Static blocks- use of static blocks, syntax
4.	Inheritance	• Definition, Use and Types of inheritance, • Use of super keyword, • Method overriding- Definition,Resolving and Avoiding, • Up casting and Down casting, • IS-A relationship and HAS-A relationship, • Difference between Method Overloading and Overriding
5.	Packages	• Visibility control, Use of packages, • Defining a package, Finding packages and CLASSPATH example, Importing packages

6.	Abstract classes	• Abstract methods- definition, abstract classes- partial implementation, abstract class properties
7.	Interfaces	• Definition, Use and Implementation, • Properties of interfaces. • Functional interfaces, Nested interfaces, Extended interfaces, Marker interfaces, • Difference between Abstract classes and Interfaces
8.	Inner classes	• Nested classes, static and non static nested classes, • Types of Inner classes- Member, Local and Anonymous Inner classes
9.	String Handling	• Creating Strings, Special string operators • String methods – length, character extraction, index extraction, String comparison, • StringBuffer and StringBuilder classes, • Use of intern method
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10.	Exception Handling	• Fundamental Exception types, Uncaught Exceptions, Use of- try, catch, finally, throw and throws, • Checked and Unchecked exceptions, • Handling built in exceptions, • Generating and handling user defined exceptions, Chained exceptions, Exception Propagation
11.	Multi threading	• Thread model, main thread, • creating a thread by using Runnable interface and Thread class, Thread priorities, Thread groups, • Creating multiple threads,Thread Synchronization, • Inter-thread Communication, Deadlocks, Suspending, Resuming and Stopping the threads
12.	File Handling	• Hierarchy of classes in I/O package • Byte streams, Character streams, Byte Stream classes and Character Stream classes, • Reading and writing the files using both types, • use of Scanner and PrintWriter in File Handling

13.	Serialization	• Need, Advantages of Object Serialization, • Serializing the object, De-serializing the object
14.	SWING and Event Handling	• SWINGS - Difference between AWT and SWING, • Exploring swing package, User Interface Elements, Swing Components, Layout Managers, Frames, • Event Handling - Mechanism, MVC model, Events, Source and Listener, Event Listener interfaces
15.	Collections Framework	• Collection Hierarchy, List, Set and Queue interfaces and implementations, • Map interface and implementation, • Collections class algorithms, • Iterator, ListIterator, Enumerator, enhanced for, • Comparable and Comparable interfaces,
16.	MySQL basics	• DDL,DML,DQL,DCL,TCL, • Commands to create, alter, drop the tables, • Commands to insert, delete, update and truncate the data, • Command to select the data, • Joins, Aliases • MySQL functions- Scalar functions and Aggregate functions, • Clauses-group by, order by, • Triggers and Stored Procedures
17.	Java Database Connectivity (JDBC)	• Types of drivers • Types of statements • How to connect with database using Java, Statements, executing queries.
18.	Core Java Project	• Project Explanation, basic flow, Requirements. • Use of dao, pojo, utility packages, • Implementing the project, testing the project