

Introduction to Java

- ❖ Getting Started with Java, ❖ History & Versioning
- ❖ How to Install Java & set Environments
- ❖ Overview of Architecture, ❖ Features Of Java

Programming Environments

- ❖ Java Development Kit
- ❖ JVM, JRE, JIT, JVM Architecture (With various Area like:-heap, stack .etc.)
- ❖ Commands & Tools (Javac, java, jconsole, javapetc)
- ❖ IDE's , (Eclipse, Netbeans, MyEclipse)

Basic Programming Concepts (Java Fundamental)

- ❖ Keyword and it Rule, ❖ Identifier(Making its Rule and Conventions)
- ❖ Variables(Local, static, Instance), ❖ Literal (Constant)
- ❖ Data type(primitive & Non-Primitive , Type Casting and Promotion)
- ❖ Method or Member Function, ❖ Operators(Precedence and Associativity)
- ❖ Static & Non-Static Properties
- ❖ Conditional Statement(If, If else,Nested If, Switch)
- ❖ Looping Statements(While, Do while,For, For-each)
- ❖ Continue & Break Statement
- ❖ Operators(Arithmetic, Logical, Comparisinal, Conditional, more...)

Object Oriented Concepts

- ❖ Advantage of OOPs, ❖ Naming Convention, ❖ Object & Class
- ❖ Encapsulation, ❖ Inheritance(Inheritance(IS-A), Aggregation(HAS-A), Delegation), ❖ Polymorphism(Method Overloading, Method Overriding, Up-casting & Down-casting, Static & Dynamic Binding, Virtual Method Invocation, Covariant Return Type), ❖ Abstraction (Abstract class, Interface, Marker Interface), ❖ Constructor (Private Constructor, Constructor Overloading, Constructor Chaining, Instance Initialize(Init) Block), ❖ this & super keyword, ❖ Package
- ❖ Access Modifiers or Access Specifies(Public, Protected, Default, Private)
- ❖ Non-Access Modifiers (Static, Abstract, Final, Transient, Synchronized, Native etc), ❖ Java Array(1-D Array, 2-D Array, Multi-dimensional Arrays, ,

Important Part of JSE()

- ❖ Garbage Collection, ❖ Throughput Garbage Collector
- ❖ Concurrent low pause Collector, ❖ Full GC & Concurrent Garbage collector
- ❖ The Incremental (Sometimes called train) low pause collector

String & String Handling

- ❖ String class, ❖ StringBuffer, ❖ StringBuilder, ❖ StringTokenizer
- ❖ String Constant Pool, ❖ Object Creation in String
- ❖ String Methods & Manipulation

Nested & Inner Class

- ❖ Local Inner Class, ❖ Static Inner Class, ❖ Non-Static Inner Class
- ❖ Anonymous Class, ❖ Object Creation, ❖ Nested Interface
- ❖ Nested Abstract Class

Feature of Java-7

- ❖ Customize the Exception, ❖ Provide Parameterise Try
- ❖ Provide Multi Parameterise Catch, ❖ Introduce nio package
- ❖ Switch with String Arguments, ❖ Initialize Variable with underscore etc

Feature of Java-8

- ❖ Passing method as arguments(Lambda Expressions)
- ❖ Integration of Stream API with Collection
- ❖ Enhanced Security, ❖ JDBC 4.2 with new Feature etc.

JEE (Advance Java) :

Web Component(Servlet, Jsp):-

- ❖ Servlet Technology(2.x and 3.x),❖ Introduction to Servlet
- ❖ Servlet Life Cycle, ❖ Servlet Hierarchy, ❖ SessionTracking
- ❖ Servlet API, ❖ Servlet Internal Structure, ❖ Flow Of Servlet
- ❖ Configuration File, ❖ RequestDispatcher, ❖ SendRedirect
- ❖ ServletContext&ServletConfig, ❖ Binding Variable & Attribute
- ❖ Event & Listener, ❖ Filter &FilterConfig, ❖ Upload & Download
- ❖ Mail Activity Using Servlet, ❖ Managing Attachment
- ❖ Sending Mail With & Without Attachment, ❖ Reading Mail

Jsp Technology

- ❖ Introduction to JSP, ❖ JSP API, ❖ Advantage of JSP Over Servlet
- ❖ Internal Structure of JSP, ❖ Implicit Object, ❖ Basic Tag of Jsp
- ❖ Action tag of Jsp, ❖ Exception Handling
- ❖ JSTL & Types, ❖ Custom Tag, ❖ MVC1 & MVC2, ❖ Upload & Download

Distributed Component Enterprise Java Bean(EJB 3.x)

- ❖ Message Driven Bean,❖ Session Bean (Stateless ,State full and Singleton)
- ❖ Implementing State full & stateless beans, ❖ Java messaging Services(JMS)
- ❖ Client Application for session & entity bean, ❖ Application of Message Driven Bean

Web Services

- ❖ Introduction to WebServices
- ❖ Why Web Services?, ❖ Service oriented Architecture
- ❖ Web Services Types and their diffrences: SOAP and REST
- ❖ SOAP Web Services Standard for Java : JAX-WS (2.2.8)
- ❖ REST Web Services Standard for Java : JAX-RS (2.0)

Java Frameworks

Struts Framework(2.x)

- ❖ Introduction to Struts
- ❖ Difference b/w Struts-1 & Struts-2, ❖ Advantage of Struts
- ❖ Advantage of Struts-1 over Struts-2, ❖ Flow of Struts
- ❖ Configuration File, ❖ Action &ActionSupport,❖ Result type
- ❖ Ognl&ValueStack, ❖ ActionContext& Action Invocation
- ❖ Validation Framework, ❖ Aware Interfaces,
- ❖ Interceptors & Cross Cutting Concerns, ❖ Use of Interceptors

Hibernate 3.0 (ORM Implementation)

- ❖ Introduction to Hibernate ❖ Advantage of Hibernate

Spring 3.0

- ❖ Spring Core, ❖ Spring JDBC, ❖ Spring ORM, ❖ Spring AOP, ❖ Spring MVC
- ❖ Design Pattern

Working on Database

Project Work

- ❖ Creating static websites(Via:-Html-5,css3)
- ❖ Creating responsive Websites Via Framework like-tutor bootstrap
- Tools like- web builder, Dreamweaver

Exception & Error

- ❖ Introduction to Exception, ❖ Throwable Interface,
- ❖ Type Of Exception, ❖ Checked & Unchecked Exception
- ❖ Exception Handling Mechanism, ❖ Block & Clause
- ❖ Parameterise Try, ❖ Multi Parameterise Catch
- ❖ Custom Exception Class, ❖ Overloading & Exception,
- ❖ Assertion & Error

Thread

- ❖ Thread Introduction, ❖ Life Cycle & States
- ❖ Thread Methods & Working, ❖ Thread & Runnable,
- ❖ Thread Creation, ❖ Synchronization, ❖ Thread & Runnable,
- ❖ Inter Thread Communication, ❖ Dead Lock, ❖ Thread Priority
- ❖ Thread Scheduler, ❖ Thread Constant Pool, ❖ Multi-tasking
- ❖ Daemon Thread, ❖ Thread vs Process,❖ Exceptions in Thread

File Handling(Input/Output In java)

- ❖ Char Stream & Byte Stream, ❖ InputStream&OutputStream
- ❖ Reader & Writer, ❖ FileInputStream&FileOutputStream
- ❖ InputStreamReader&BufferedReader, ❖ FileReader&FileWriter
- ❖ SequenceInputStream, ❖ Serialization &DeSerialization
- ❖ Externalizable, ❖ ObjectInputStrean&ObjectOutputStream
- ❖ Reading & Writing File, ❖ Copy & Paste File
- ❖ Cut & Paste File, ❖ Divert Out From Console to File
- ❖ Creating PDF, ❖ Encrypt & Decrypt File

Networking

- ❖ Introduction to Network, ❖ Networks terminology
- ❖ Ports & Protocols, ❖ Socket Programming
- ❖ Url Class & Methods, ❖ Working with Web-app
- ❖ DatagramSocket&DatagramPacket, ❖ Implementing Chat-Serve

RMI

- ❖ Introduction of RMI, ❖ Stub & Skelton, ❖ Distribution Application
- ❖ Steps For RMI Implementation, ❖ RMI with Window App
- ❖ RMI with Web-App

JDBC

- ❖ Introduction to Jdbc, ❖ Drivers of Jdbc, ❖ Jdbc API
- ❖ Java-Database Connectivity, ❖ Steps for Connectivity
- ❖ Statements &ResultSet
- ❖ PreparedStatement and CallableStatement
- ❖ Working on DML & DDL Query, ❖ Creating Batch Query

Collection

- ❖ Introduction to Collection, ❖ History Of Collection
- ❖ Advantage of Collection, ❖ Collection Interface & Its Methods
- ❖ List & Its Sub Class, ❖ Set & Its Sub Class
- ❖ Map & Its Sub Class, ❖ Queue Interface and Its Sub-Classes
- ❖ Iterator, ListIterator& Enumeration, ❖ Use of For –Each loop
- ❖ Internal Working of Collection Classes, ❖ Hashing Technics

Internationalization (I18N)

Reflection

AWT & Swing

Event & Layout Management

Feature of Java-5

- ❖ Static Import, ❖ Auto boxing, ❖ Covariant Return Type
- ❖ Annotation, ❖ Var Arguments, ❖ For-Each Loop, ❖ Enum