❖ **Introduction to Java**
- Features of Java
- Java Virtual Machine
- C , C++ & Java : A comparison
- Platforms of Java & Versions
- First Java Program

❖ **Data Types & Identifiers**
- 8 Data types in java, complete overview.
- Types of variables Operators & statements
- Reading input from java.util.Scanner class
- Displaying output with System.out.printf()
- Displaying formatted output with String
- format()

❖ **Classes & objects**
- Oops concepts
- Creating an object
- Initializing an instance variable
- Access modified
- Constructors & its types

❖ **Methods in Java**
- Method prototype, static keyword
- Static methods
- Mutators & Accessors
- Passing parameters in methods (primitives & Objects)

❖ **Relationship B/W objects**
- Relating objects using references
- Inner classes

❖ **Encapsulation, Inheritance & Polymorphism**
- Concept of inheritance
- The keyword 'super and final'
- Abstract classes
- Interface
- Packages

❖ **Abstract Classes & Interfaces**
- Abstract Method & Classes
- Interface
- Multiple Inheritance using Interfaces
- Abstract Classes vs. Interfaces

❖ **ARRAYS**
- Why java arrays are different from the array of C and C++
- How array can be created in java
- How is array iterated in java
- The zigzag array
- How array can be used in software development.

❖ **Strings**
- Creating Strings
- String class methods
- String comparison
- Immutability of strings
- Spring 3 Architecture
- Introduction to Inversion Of Control

❖ **String buffer & string Builder**
- Creating string buffer object
- String buffer class methods
- String builder class

❖ **Packages**
- Concept of Packages
- Need to packages
- How to creat packages using copiler
- How to use packeges
- Concept of JAR file
- How to creat the JAR file

❖ **Exception handling**
- Errors in java program
- Concepts of exceptions
- Keywords: throw,throws,
- Multiple exceptions

❖ **Wrapper Classes**
- Number Class
- Character Class
- Byte, Short, Integer, Long, Float, Double, Boolean Classes
- Math Classes

❖ **MULTI THREADING**
- What is a Java thread
- Need of thread in Java
- The constructor and methods of Thread class
- Life cycle of Java thread
- Writing Thread using Thread Class and Runnable Interface
- Daemon and Non-Daemon threads
- Synchronization in java
- Thread collaboration
- Writing a real life application using multi-threads

❖ **Concurrency**
- Creating Atomic variables
- Using Read-Write Locks
- Thread-safe collections
- Concurrent synchronizers (Semaphore and others)

- Executors and ThreadPools to concurrently schedule tasks
- Parallelism and the Fork-Join framework

❖ **Strems & Files**
- Creating a File
- Reading & Writting data from a File
- Zipping & Unzipping File
- Serialization/de-serialization of Objects

❖ **File I/O with NIO 2**
- The Path interface
- The Files class
- Directory and File operations
- Managing file system attributes
- Reading, writing, and creating files
- Watching for file system changes

❖ **Networking**
- Develop code to set up the network connection Understand TCP/IP
- Use Server Socket and Socket classes to implement TCP/IP clients and servers
- Understand UDP
- Use Datagram Socket and Datagram Packet classes to implement UDP based clients and servers
- RMI (Remote Method Invocation)
- JNDI (Java Naming Directory Interface)

❖ **GENERICS**
- Generic classes
- Generic Interfaces
- Generic Methods

❖ **COLLECTION FRAMEWORK**
- Introduction of Collection Framework
- Need of Collection
- Collection API (the classes and interfaces)
- The methods of Collection interface
- List Interface (the Array List, Vector, Linked List, and Stack classes)
- The Iterator, ListIterator, and Enumeration interfaces
- Set Interface (the HashSet, LinkedHashSet classes)
- Map Interface (the Hashtable, HashMap, LinkedHashMap, classes)
- The Comparable and Comparator interfaces
- The TreeMap and TreeSet classes
- How Collection Framework is used in industry (the real Project Development)
- Writing an application using Collection API and JDBC

❖ **DATABASE CONNECTIVITY (THE JDBC)**
- Concepts of JDBC
- Need Of JDBC
- Types Of JDBC Drivers
- Type1: Jdbc-Odbc bridge Driver
- Type2: Native API Driver
- Type3: Middleware layer Driver
- Type4: Pure Java Driver
- Difference between the JDBC drivers
- Connecting with Databases (MS Access, My Sql, and Oracle)
- Executing query in database
- Other miscellaneous topics in JDBC

❖ **Graphics Programming Using**
- AWT
- Swing
- Applets

❖ **Localization**
- Advantages of localization
- Defining locale
- Read and set locale using the Locale object
- Resource bundles
- Format messages, dates and numbers

❖ **SERVLETS AND JSP**

- Introduction of Servlet
- Difference b/w CGI, PHP, ASP, and Servlet
- Lifecycle (callback) Methods Of Servlet
- Servlet Implementation & Configuration
- ServletRequest and ServletResponse Interface and their method
- SevletConfig and ServletContext Interface and their method
- Introduction of Web server i.e. Sun Glassfish, Apache Tomcat, Oracle Weblogic
- Introduction to IDE (Integrated Development Environment) like: Eclipse, NetBeans
- The JSP (Java Server Pages)
- The concept of Java Beans
- Using Java Beans with the JSP.

❖ STRUTS 2.X

- Introduction Of MVC Design Pattern
- Introduction of Sututs2
- Struts2.x Architecture
- Introduction of Component of Struts 2 like: Action, Results & Interceptors
- Heart of Struts2.x i.e. Interceptor
- Working of Param Interceptor
- Working of model Driven Interceptor
- Working of I18N(Internationalization) Interceptor
- Working of execAndwait Interceptor
- Working of exception Interceptor
- Working of Validation Interceptor
- Object Graph Navigation Language(OGNL)
- Struts 2 Dynamic Method Invocation
- Struts 2 Tags
- Struts 2 UI Tags
- Struts 2 Control Tags
- Struts 2 Tile Introduction
- Integrating Struts2 and Hibernate

❖ SPRING 3.X

- Spring 3.x Overview
- Spring 3 Architecture
- Introduction to Inversion Of Control
- Dependency Injection
- Constructor Injection
- Setter Injection
- Factory Method Creation
- Introduction to Aspect Oriented Programming (AOP)
- Auto wiring
- JDBC templates
- Introduction of Spring MVC
- Architecture of Spring MVC
- Developing application through Spring MVC

❖ HIBERNATE 3.X

- Introduction of Hibernate Framework
- Introduction of Session Factory & Session Interface
- Data Base Persistence Using Hibernate
- Is-A Mapping
- Has-A Mapping
- HQL in hibernate