

Core Java Industrial course

Course duration:3 months

Basic of Java

- What is Java?
- History and Features of Java
- C++ vs. Java
- Hello Java Program
- Internal How to set the path?
- JDK, JRE, and JVM (Java Virtual Machine)
- JVM Memory Management
- Internal Details of JVM

Data Types in Java

- Data types in Java
- Primitive data types
- Non-primitive data types
- Memory allocation of primitive and non-primitive data types

Variables, Constraints, and Literals

- Variable declaration and initialization
- Naming convention
- Types of variables such as local variables, instance variables, and static variables
- Scope and memory allocation of variables

Control statement

- Selection Statement (if, if else, if-else if, nested if, switch)
- Iteration/Looping Statements (for, while, do-while, for-each loop)
- Jump Statements (break, continue, return)

Class, Objects, and Types of Classes

- Classes, objects, and features
- Deep explanation object create in java
- Object declaration and initialization
- Inner class
- Nested class

Methods in Java

- **Methods in Java**
- **Use of method in Java**
- **Method declaration, the method signature**
- **Types of methods in Java: predefined method, user-defined methods: instance method, static method**
- **Calling of method**
- **Java main method**
- **Return type in Java**

Constructor in Java

- **What is Constructor in Java?**
- **Types of Constructors: Default and parameterized constructors**
- **Java constructor overloading**
- **Constructor chaining in java**
- **Copy constructor in Java**

Modifiers in Java

- **What is an Access modifier ad non-access modifier in Java?**
- **Types of access modifiers like private, default, protected, and public**
- **Types of non-access modifiers like abstract, final, native, static, Strictfp, synchronized modifier, transient, volatile.**

Static Keyword

- **What is Static Keyword**
- **Static variable**
- **Static method**
- **Static block, instance block**
- **Static Nested Class in Java**
- **Difference between static variable and instance variable, static method, and instance method, static block, and instance block**

Final Keyword

- **Final keyword**
- **Final variable**
- **Final method**
- **Final class**

Inner Class in Java

- **What is Inner Class in Java?**
- **Types of Inner class in Java**

Super and this keyword

- **Super Keyword**
- **Calling of superclass instance variable**
- **Superclass constructor**
- **Superclass method**

Encapsulation

- **Encapsulation in Java**
- **How to achieve encapsulation**
- **Data Hiding**
- **Tightly encapsulated class**
- **Getter and setter method in Java**
- **Naming convention of getter and setter method**

Inheritance

- **Inheritance in Java**
- **Is-A-Relationship**
- **HAS-A Relationship**
- **Aggregation and Composition**
- **Types of Inheritance**

Polymorphism

- **Polymorphism in Java**
- **Types of Polymorphism**
- **Static and Dynamic Binding**
- **Method overloading]**
- **Method Overriding**

Abstraction

- **Abstraction in Java**
- **Abstract Class**
- **Abstract method**
- **Interface in Java**
- **Nested interface, rules, and example programs**

Exception Handling in Java

- **Exception Handling in Java**
- **Try-catch block**
- **Multiple Catch Block**
- **Nested try block**
- **Finally block**
- **Throw Keyword**
- **Throws Keyword**
- **Throw vs Throws, Final vs Finally vs Finalize**
- **Exception Handling with Method Overriding Java Custom Exceptions**

Packages in Java

- **How to declare package in a company project**
- **Package naming conventions**
- **Sub packages**
- **Types of packages such as user-defined packages, built-in packages**
- **Importing packages in Java**

Java Array

- **Types of array: single dimensional array, multidimensional array, declaration, instantiation, and initialization of Java array**
- **Passing array to a method**
- **Anonymous array in Java**
- **Cloning an array in Java**

String, String Buffer, String Builder

- **String,**
- **Immutable String**
- **String Comparision, String concatenation**
- **Substring**
- **StringBuffer class**
- **StringBuilder class**
- **To String method**

Java Thread

- **Java multithreading**
- **Multithreading life cycle of a thread creating**
- **Thread scheduler**
- **Sleeping a thread, Start a thread twice**
- **Calling run() method**

- **Joining a thread**
- **Naming a thread**
- **Thread priority,**
- **Daemon thread**
- **Thread pool**
- **Thread group**
- **Shutdownhook**
- **Java Synchronization: synchronized method, synchronized block, static synchronization**
- **Deadlock**
- **Inter-thread Communication**
- **Interrupting Thread**

Input-Output Stream

- **FileOutputStream, FileInputStream**
- **BufferedOutputStream, BufferedInputStream**
- **SequenceInputStream**
- **ByteArrayOutputStream, ByteArrayInputStream**
- **DataOutputStream, DataInputStream**
- **Java FilterOutputStream, Java FilterInputStream**
- **Java ObjectStream, Java ObjectOutputStreamField**
- **Console**
- **FilePermissionWriter, Reader, FileWriter, FileReader**
- **BufferedWriter, BufferedReader**
- **CharArrayReader, CharArrayWriter**
- **PrintStream, PrintWriter**
- **OutputStreamWriter, InputStreamReader**
- **PushbackInputStream, PushbackReader**
- **StringWriter, StringReader**
- **PipedWriter, PipedReader**
- **FilterWriter, FilterReader, File FileDescriptor, RandomAccessFile, and java.util.Scanner.**

Collections Framework

The following significant Topics are covered in this chapter.

- **What is Collections Framework?**
- **List, Set, SortedSet, Queue, Deque, Map, Iterator, ListIterator, and Enumeration.**
- **ArrayList, LinkedList, HashSet, LinkedHashSet, TreeSet, ArrayDeque, PriorityDeque, EnumSet, AbstractCollection, AbstractList, AbstractQueue, AbstractSet, and AbstractSequentialList.**
- **Map, Map Entry, SortedMap, and NavigableMap**
- **HashMap, LinkedHashMap, TreeMap, IdentityHashMap, WeakHashMap, and EnumMap.**
- **Comparator, RandomAccess interfaces as well as Observable class.**

GUI Part

AWT & Swing in Java

Applet

- **Demonstration**

JDBC

- **JDBC Drivers**
- **Steps to connect to Database**
- **Connectivity with Oracle**
- **Connectivity with MySQL**
- **Connectivity with Access without DSN**
- **DriverManager**
- **Types of JDBC statements: Statement, Prepared statement, Callable statement**
- **Database Metadata, ResultSet Metadata**
- **ResultSet, types of ResultSet,**
- **Storing image, Retrieving image**
- **Storing file, Retrieving file, Stored procedures, and functions**
- **Transaction Management**
- **Batch Processing**

Database

Mysql

World real Project (Standalone Application)

Desktop application