

# Core Java Programming

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**Duration: 40-45 Hours**

**Prerequisites**

- Knowledge of C Programming
- Knowledge of any object oriented language is advantageous

**Core Java**

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**1. Introduction to Java**

- History of Java
- Features of Java

**2. Overview of Java**

- OOP's Concept
- Data types and Variables
- Operators
- Control Structures
- Strings
- Arrays

**3. Objects and Classes**

- Object, Classes and Methods
- Method Overloading
- Constructors
- Object class

**4. Inheritance**

- Types of Inheritance
- Method Overriding
- Dynamic method dispatch

**5. Packages and Interfaces**

- Defining Packages
- Extending Interfaces

**6. Exception Handling**

- Fundamentals of Exception Handling
- Exception types
- Try and Catch and finally
- Throw , throws
- Custom Exception

**7. Inner Class and Wrapper classes**

- Inner Classes
- Static Nested Classes
- Wrapper Classes
- Anonymous Inner Classes

**8. String Handling**

- Creating Strings
- String handling methods
- String Buffer and String Builder

**9. Input and Output in Java**

- Byte streams
- Character streams
- File
- Serialization

**10. Collections Framework**

- Collection Interfaces and Classes
- Iterators
- Comparators

**11. Multithreading**

- Basics of java thread
- The Thread Scheduler
- Sleeping a thread
- Joining a thread
- Naming a thread
- Daemon thread
- Perform single /multiple task by multiple threads
- Life Cycle of a Thread
- Major Thread Concepts
- Garbage Collection

**12. Reflection API**

- Overview of Reflection
- Use of newInstance() method and determining the class Object
- Accessing private method or member from outside the class

**13. Lambda Built-in Functional Interfaces**

- Use primitive versions of functional Interface
  - java.util.function package
  - Use binary versions of functional Interface
  - Use the UnaryOperator Interface
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