

Core JAVA

Core Java Programming Introduction of Java

- What is Java?
- Execution Model Of Java
- Java Bytecode
- How to Get Java?
- A First Java Program
- Compiling and Interpreting Applications
- The JDK Directory Structure
- Using Eclipse

Data types and Variables

- What are data types?
- Primitive Datatypes & Declarations
- Variables & Types
- Numeric & Character Literals
- String formatting and Parsing
- String Literals
- Arrays, Non-Primitive Datatypes
- Casting & Type Casting
- Widening & Narrowing Conversions

- The Dot Operator

Methods

- What are Methods?
- Method Structure
- Declaration Of Methods
- Calling Of Methods
- Defining Methods
- Method Parameters Scope
- Why static methods?

Operators and Expressions

- Expressions
- Assignment Operator
- Arithmetic Operators
- Relational Operators
- Logical Operators
- Increment and Decrement Operators
- Operate-Assign Operators (+=, etc.)
- The Conditional Operator
- Operator Precedence
- The Cast Operator

Control Flow Statements

- What are Control Flow Statements?
- Conditional (if) Statements
- Adding an else if
- Conditional (switch) Statements

while and do-while Loops

- for Loops
- A for Loop Diagram
- Enhanced for Loop
- The continue Statement
- The break Statement

Object Oriented Programming

- Fundamentals of Object Oriented Programming
- Classes & Objects
- OOPS concepts and terminology
- Encapsulation
- Data Abstraction
- Advantages of OOPS

Implementing JAVA with OOPS

- Concept & Syntax Of Class
- Concept & Syntax Of Methods
- Fields and Methods
- Access Specifiers

Objects and Classes

- Defining a Class
- Creating an Object
- Accessing Class Members
- Instance Data and Class Data
- Defining Methods
- Constructors
- Access Modifiers

Using Java Objects

- StringBuilder and StringBuffer
- Methods and Messages
- Parameter Passing
- Comparing and Identifying Objects
- Using This

Inheritance & Polymorphism

- Inheritance in Java
- Why use Inheritance?
- Types Of Inheritance
- Method Overloading
- Run-time Polymorphism
- Method Overriding
- Polymorphism in Java
- super keyword
- The Object Class & Methods

Java Files and I/O

- What is a Stream
- Reading and Writing to Files (only txt files)
- Input and Output Stream
- Manipulating input data
- Reading Lines
- Opening & Closing Streams
- Using Reader & Writer classes

Interface & Abstract Classes

- What is an Interface
- Defining Interfaces
- Separating Interface and Implementation
- Implementing and Extending Interfaces
- Abstract Classes

Packages

- What is a Package?
- Advantages of using a Package
- Naming Convention
- Steps For Creating Packages
- The import Statement
- CLASSPATH and Import
- Defining Packages
- Package Scope
- Scope of modifiers

Exception Handling

- Exceptions Overview
- Exception Keywords

- Catching Exceptions
- The finally Block
- Exception Methods
- Declaring Exceptions
- Defining and Throwing Exceptions
- Errors and Runtime Exceptions

Collection Framework

- The Collections Framework
- The Set Interface
- Set Interface Methods
- Set Implementation Classes
- The List Interface
- List Implementation Classes
- The Map Interfaces
- Map Implementation Classes
- Utility classes
- Generics in Java
- Primitive wrapper classes

Inner Classes

- Concept of inner class
- Nested Classes
- Anonymous Inner Classes

Threads

- Non-Threaded Applications
- Introduction to Threads
- Threaded Applications
- Creating threads
- Lifecycle Of A Thread
- Runnable Interface
- Priority Of Threads

Applet

- Introduction to Applet
- The Applet Heirarchy
- Life Cycle of an Applet
- Lifecycle Methods for Applet
- A "Hello World" Applet
- Passing parameter to Applets