Core Java Course Curriculum

Introduction

- Introduction to computer languages?
- Need of computer languages
- Java V/S other languagesPlatform dependencies?
- Introduction to Java?
- History of JavaJDK software includes…
- Platform Independency?
- Structure of Java-application?

Introduction to variables Blocks and Methods

- Introduction to variables and identifiers
- Type of variables
- Memory construction and destruction of variables
- Rules to create variables
- Naming conventions of variables
- Blocks introduction
- Methods introduction.

Data Types

- Primitive types
- Reference types

Operators

Control Statements

Methods

- Introduction
- Need
- Classification of functions

First JAVA Application?

- Class keyword and its naming convention
- Class naming convention
- Why main has public access
- Why main has static modifier
- Why return type is void
- System.out.println() description
- Naming convention of methods and packages.
- Overloading main method

Class Member in JAVA

- Static members(class level)
- Non-static members(object level)

Wrapper Classes

- Introduction
- Why wrapping
- Boxing and Unboxing
- Auto Boxing and Auto Unboxing
- Primitive to String conversion (using valueOf()and toString() methods)
- String to Primitive conversion (using valueOf() and xxxValue() methods)

Access Modifies Introduction

- Usage of access modifiers in packages

Packages

- Introduction
- How to create user defined package

- Calling members of same package
- Calling members of another package
- Need of import statement
- Need of fully qualified name
- Difference between import and include
- Creating Sub packages
- Importing sub packages

Command Line Argument

- Introduction
- Advantage and disadvantages
- parseXxx methods
- Scanner class
- Random class

OOPS

- Introduction to OOPS
- Introduction to class, object
- Encapsulation, Abstraction
- Inheritance
- final keyword
- Polymorphism
- Abstract classes
- Interfaces
- Aggregation
- Association
- Composition
- Singleton class
- Factory class.

Multi Threading

- Introduction to multi tasking and multi threading
- Drawbacks in multi tasking
- Creation of Thread
- Life cycle of Thread
- Threads Using Thread class
- Threads Using Runnable interfaces
- Constructors of Thread class.
- Time management in multi tasking and multi threading
- Priorities of threads.
- Naming to threads via constructors or via setters.
- Synchronization
- sleep(),join(), wait(), notify(), notifyAll(),

Garbage collections

- Introduction GC
- Introduction to daemon threads
- Drawbacks of
- finalize()
- gc()
- gc()
- exec();
- JVM memory increment
- Process class.

IO Streams

- Byte streams
- Character streams
- Object streams (Serialization)
- Why serialization
- Transient keyword
- What is persistent state of an object

- Marker interface
- Can we serialize subclass object if super class is not Serializable
- Can we serialize an object contains reference to non-Serializable object
- Byte array streams
- Data input streams
- Buffered streams
- Working with files

Reflection API and INNER Classes

- Static inner classes
- Non-static inner classes
- Local inner classes
- Anonymous inner classes

Strings

- Introduction to Strings
- Creating objects to String
- String library functions
- Mutable objects
- Immutable objects
- String/StringBuffer/StringReader
- Creating Immutable class

Networking

- Introduction to network programming
- Classes and interfaces of java.net packages
- Difference between TCP and UDP
- What is Port?
- What is IP address? Types?
- What is Socket?
- Finding IP address.

- Creating URLs
- Exception classes of java.net packages
- Reading data from URL's openStream(from local server, global server)
- Writing data through URLConnection
- InetAddress class
- UDP classes introduction
- Simple chatting program

Collections

- Introduction to collections
- Introduction to generics
- Difference between arrays and Collections
- Collection interfaces
- List Interface
- Set Interface
- Map Interface
- Queue Interface
- Time management over collection classes
- Memory management over collection classes
- Deleting duplicate objects from collections
- equals() method
- Iterator class
- Enumeration class
- for-each loop
- influence of generics in collections

AWT, Applets and Swings

- Introduction to AWT
- AWT library classes and interfaces
- Introduction to Applets
- Creating Applets
- Applet Life cycle

- Drawing shapes and colors in Applets
- Creating components
- Layout Management
- Event Listeners
- Calculator program
- Introduction to swings
- Swings API
- Light weight components(independent)
- Heavy weight components(native or dependant)
- Components creation
- Menu creation
- Sub menu creation
- Setting Listeners to components
- Project Creation using APPLETS, SWINGS,AWT and JDBC

Application Services

- SES
- SQS
- SWF
- SNS
- Cloud Formation
- Elastic Transcoder