

# Core Java Programming & Technologies

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## Session 1: Startup

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1. The Java Environment: History of java: comparison of java and c++.
2. Java as an object oriented language : Java Buzzwords
  - 2.1 A Simple Program
  - 2.2 Its compilation and execution
3. The concept of CLASSPATH: Basic idea of application and applets, Data types.
4. Operators – Precedence and associativity, Type conversion.
5. The decision making – if, if..else, switch, loops – for, while, do... while, Special statements – return, break, continue, labeled break, labeled continue.
6. Modular Programming method, Array, Memory allocation and garbage collection in java keywords. Object oriented programming in java: Class, Packages.
7. Scope and lifetime, Access Specifies, Constructors – Copy constructor, This pointer, finalize() methods.
8. Inheritance: Inheritance basics, method overriding, dynamics method dispatch, abstract classes.

## Session 2: Working with the User Interface

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1. Interfaces: defining an interface, implementation & applying interfaces, variables in interfaces, extending interfaces.
2. Multithreading and Exception Handling: Basic idea of multithreaded programming.
3. The lifecycle of thread, creating thread with the thread class and runnable interface.
4. Thread Synchronization: Thread Scheduling, Producer – consumer relationship.
5. Exception Handling: The try, catch and throws, Constructor and finalizers in exception handling.

## Session 3: Life cycle of Applets

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1. Applets
  - 1.1 Applets security restrictions
  - 1.2 The class hierarchy for applets
  - 1.3 Life cycle of applet
  - 1.4 HTML Tags for applets
2. The AWT: The class hierarchy of window fundamentals, The basic user interface components Label, Button, Check box, Radio Button, Choice menu, Text area, Scroll list, Scroll bar, Frame, Layout – Grid layout, Border Layout.
3. The Java Event Handling Model
  - 3.1 Ignoring the event
  - 3.2 Self contained events
  - 3.3 Delegating events
4. The relationship between interface, methods called, parameters and event source, Adapter classes, Event classes action Event, Adjustment Event, Focus Event, Item Event, Mouse Event, Window Event.

## Session 4: Input/output, Directories, Stream Classes

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1. The Byte Stream: Input stream, output stream.
  - 1.1 File input/ output stream
  - 1.2 Print stream
  - 1.3 Random access file
  - 1.4 Buffered reader/ writer
  - 1.5 Serialization
2. JDBC: JDBC-ODBC bridge.
3. The connectivity model: object contents, java.sql Package.

## Session 5: Networking & RMI

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1. Java Networking: Socket, Client server, reserved socket, proxy server, inet address, TCP sockets, UDP sockets.
2. RMI for distributed computing, RMI registry services.
3. Steps of creating RMI application and an example.
4. Collections: Framework, collection interfaces, Collection classes.

## Book References

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1. Naughton & Schildt “The Complete Reference Java 2”, Tata McGraw Hill.
2. Deitel “Java – How to Program” Person Education, Asia.
3. Ivan Bayross “Java 2.0” , BPB publications