

# Core JAVA

**Prerequisite: Knowledge of OOP**

**Duration: 45 Days**

<p>1)The Java Language          What is JAVA?          Features of JAVA              Simple              Object –Oriented                  Object                  Class                  Inheritance                  Abstraction                  Polymorphism                  Encapsulation                  Dynamic Binding                  Message Passing              Robust              Multithreaded              Interpreted and high              Performance              Distributed              Dynamic          Java’s Magic              The Byte code          Importance of JAVA in internet              Java applet and application              Security              Portability</p> <p>2)An Overview of JAVA              A First Program                  Path setting                  Compiling the program                  Execution of the program                  A closer look at the first Program              Comment              JAVA keyword</p> <p>3) Data Types, Variables ,and Arrays              Integers                  Bytes                  Shorts                  Int                  Long              Floating – Point types                  Float                  Double              Characters              Boolean</p>	<p>Literals              Integers literals              Floating –point literals              Boolean Literals              Character literal              String literals</p> <p>Variable              Declaring a variable              The scope of Variable              Type conversion              Java’s automation conversion</p> <p>Casting              Incomputable type              The type promotion rule</p> <p>Array              One Dimensional array              Multi dimensional array              Alternative array declaration syntax</p> <p>4)Operator              Arithmetic operator              The Basic operator              The modulus operator              Arithmetic assignment operator              Increment and decrement Operator              The Bit-wise Operator                  Bitwise logical operator                  Left shift                  Right shift              Relational operator              Boolean Logical operator</p> <p>5) Control statement              JAVA ‘S selection statement                  If                  If –else                  Else- If                  Switch              Iteration statement                  For                  While                  Do-while                  Nested loop              Jump statement                  Using break                  Using continue</p>	<p>6)Introducing Classes              Class Fundamental                  A simple Class                  Declaring Object                  A closer look at new                  Assigning Object                  Reference variable              Introducing method                  Adding method to the class                  Returning a value                  Adding method that takes                  parameter              Constructor                  Parameterized constructor                  This keyword garbage                  collection                  Finalize method</p> <p>7) A closer look at method and classes              Method Overloading              Constructor overloading              Using object as a parameter              Returning object              Recursion              Understanding static              Introducing final</p> <p>8)Inheritance              Member basic                  Single inheritance                  A super class variable can                  reference a sub class object              Using super                  Using super to call super              class                  Constructor                  A second use of super                  Creating a multilevel                  Hierarchical                  When constructor calling                  Method overloading                  Using abstract classes                  Using final with inheritance</p>
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# Core JAVA

<p>9)Package and interfaces</p> <ul style="list-style-type: none"> <li>Interfaces               <ul style="list-style-type: none"> <li>Defining an interfaces</li> <li>Implementing</li> </ul> </li> <li>Interfaces               <ul style="list-style-type: none"> <li>Applying interfaces</li> <li>Variable in interfaces</li> <li>Interfaces can be extended</li> </ul> </li> <li>Package               <ul style="list-style-type: none"> <li>Defining a package</li> <li>Finding package and</li> </ul> </li> </ul> <p>CLASSPATH</p> <ul style="list-style-type: none"> <li>A short package</li> </ul> <p>Example</p> <ul style="list-style-type: none"> <li>Access protection</li> <li>Importing packages</li> </ul> <p>10) Exception handling</p> <ul style="list-style-type: none"> <li>Exception handling</li> </ul> <p>Fundamentals</p> <ul style="list-style-type: none"> <li>Exception type</li> <li>Uncaught exception</li> <li>Using try and catch</li> <li>Multiple catch clauses</li> <li>Nested try catch</li> <li>Throw</li> <li>Throws</li> <li>Finally</li> </ul> <p>11) Multithreaded Programming</p> <ul style="list-style-type: none"> <li>What is thread</li> <li>Creating thread               <ul style="list-style-type: none"> <li>Extending thread</li> <li>Implementing run able</li> </ul> </li> <li>Creating multiple thread</li> <li>Using is Alive and join</li> <li>Thread property</li> </ul> <p>12) I/O</p> <ul style="list-style-type: none"> <li>I/O Basic               <ul style="list-style-type: none"> <li>Streams</li> <li>Byte Streams and</li> <li>Character Streams</li> </ul> </li> </ul>	<p>Reading Console Input</p> <ul style="list-style-type: none"> <li>Reading Characters</li> <li>Reading Strings</li> </ul> <p>Writing console output</p> <ul style="list-style-type: none"> <li>The print writer class</li> </ul> <p>Reading and writing files</p> <ul style="list-style-type: none"> <li>File writer</li> <li>File reader</li> </ul> <p>File Output Stream Reader</p> <p>File Input Stream Reader</p> <p>13) The Applet</p> <ul style="list-style-type: none"> <li>Apple basic               <ul style="list-style-type: none"> <li>The applet class</li> </ul> </li> <li>Applet architecture</li> <li>Paint and repaint method in applet</li> <li>HTML APPLET tag</li> <li>Get Document Base ()and get</li> <li>Code Base()</li> </ul> <p>14)Event handling</p> <ul style="list-style-type: none"> <li>Introduction of event handling</li> <li>Event listener interface</li> <li>The action listener interface</li> <li>The mouse listener interface</li> <li>The mouse motion listener</li> <li>interface</li> <li>The mouse wheel listener</li> <li>interface</li> <li>The Window focus listener</li> <li>interface</li> <li>Adapter classes</li> </ul> <p>15)Introducing the AWT</p> <ul style="list-style-type: none"> <li>AWT classes</li> <li>Windows fundamentals               <ul style="list-style-type: none"> <li>Component</li> <li>Container</li> <li>Panel</li> <li>Frame</li> </ul> </li> <li>Working with frame windows</li> <li>Setting the window's</li> <li>dimension</li> </ul>	<p>Hiding and showing window</p> <ul style="list-style-type: none"> <li>Setting window the closing</li> <li>a frame</li> </ul> <p>Working with graphics</p> <ul style="list-style-type: none"> <li>Drawing lines</li> <li>Drawing rectangle</li> <li>Drawing ellipse and circles</li> <li>Drawing arc</li> <li>Drawing polygons</li> </ul> <p>Working with color</p> <ul style="list-style-type: none"> <li>Setting the color</li> </ul> <p>Working with fonts</p> <ul style="list-style-type: none"> <li>Setting fonts</li> </ul> <p>16)Using AWT controls , layouts</p> <ul style="list-style-type: none"> <li>Managers and Menus</li> <li>Labels</li> <li>Using BUTTONS</li> <li>Applying Checkboxes</li> <li>Checkbox group</li> <li>Choice controls</li> <li>Using List</li> <li>Using text field</li> <li>Using text area</li> <li>Understanding Layouts Managers</li> <li>Flow layout</li> <li>Border layout</li> <li>Grid layout</li> <li>Menu Bars and Menus</li> <li>File dialog</li> </ul> <p>17)Introduction to swing</p> <ul style="list-style-type: none"> <li>Programming</li> <li>Swing and AWT Comparison</li> <li>Swing component               <ul style="list-style-type: none"> <li>Label</li> <li>Applet</li> <li>Button</li> <li>Text field</li> <li>Text Area</li> <li>Radio Button</li> <li>Check Box</li> <li>Checkbox group</li> </ul> </li> </ul>
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# Advance JAVA

**Prerequisite: Knowledge of core JAVA**

**Duration: 30 Days**

<p>1)Data structure using collection API</p> <ul style="list-style-type: none"> <li>1.1 Collection framework</li> <li>1.2 Interface in collection API</li> <li>1.3 Classes in collection API</li> <li>1.4 Collection API interfaces and classes in details               <ul style="list-style-type: none"> <li>1.4.1 Listeterator</li> <li>1.4.2 Map</li> <li>1.4.3 Linked list</li> <li>1.4.4 Vector</li> <li>1.4.5 Stack</li> <li>1.4.6 Hash map</li> <li>1.4.7 Hash set</li> </ul> </li> </ul> <p>2)Introduction to swing programming</p> <ul style="list-style-type: none"> <li>Swing and AWT comparison</li> <li>Swing Component           <ul style="list-style-type: none"> <li>Label</li> <li>JApplet</li> <li>Button</li> <li>Text field</li> <li>Text Area</li> <li>Radio Button</li> <li>Check Box</li> <li>Checkbox group</li> </ul> </li> <li>Layout manager           <ul style="list-style-type: none"> <li>Flow Layout</li> <li>Border layout</li> <li>Grid layout</li> </ul> </li> </ul> <p>3) Advanced Swing Programming</p> <ul style="list-style-type: none"> <li>List Control</li> <li>Combo Box</li> <li>Menus           <ul style="list-style-type: none"> <li>Menu items</li> <li>Shortcut</li> </ul> </li> <li>Tabbed Pane</li> <li>Tool Bar</li> <li>Progress Bar</li> <li>Dialog Boxes</li> <li>Tables</li> <li>Tree</li> </ul> <p>4)JDBC</p> <ul style="list-style-type: none"> <li>What is JDBC</li> <li>Classification of JDBC Driver</li> <li>JDBC implementation</li> </ul>	<p>Loading driver</p> <ul style="list-style-type: none"> <li>Making the connection           <ul style="list-style-type: none"> <li>Creating and executing</li> </ul> </li> <li>JDBC statements           <ul style="list-style-type: none"> <li>Retrieving Data from Result set</li> </ul> </li> </ul> <p>5) URL and sockets</p> <ul style="list-style-type: none"> <li>Introduction to URL</li> <li>TCP Socket           <ul style="list-style-type: none"> <li>Server socket</li> <li>Client socket</li> </ul> </li> <li>UDP Socket           <ul style="list-style-type: none"> <li>Server socket</li> <li>Client socket</li> </ul> </li> <li>Multithreading communication           <ul style="list-style-type: none"> <li>Threaded server</li> <li>Multi threaded server</li> </ul> </li> <li>Passing Object between client and server</li> </ul> <p>6)Distributed Programming in JAVA</p> <ul style="list-style-type: none"> <li>What is Distributed Programming</li> <li>Remote method innovation</li> <li>RMI API</li> <li>Implementation RMI</li> </ul> <p>7)Introduction of web application</p> <ul style="list-style-type: none"> <li>Introduction to web</li> <li>A journey to the web           <ul style="list-style-type: none"> <li>Common gateway interface</li> <li>JAVA Server</li> <li>Active server pages</li> <li>JAVA server pages</li> <li>A comparison between ASP and JSP</li> </ul> </li> <li>JSP implementation environment           <ul style="list-style-type: none"> <li>TWO Tire architecture</li> <li>Three Tier architecture</li> <li>N- Tier architecture</li> <li>Life cycle of JSP</li> </ul> </li> </ul> <p>8) JSP programming Concept</p> <ul style="list-style-type: none"> <li>JSP basic syntax</li> <li>JSP Scripting elements           <ul style="list-style-type: none"> <li>JSP declaration</li> <li>JSP expressions</li> <li>JSP Script lets</li> </ul> </li> <li>A complete Example using declaration , expressions and script lets</li> </ul>	<p>JSP implicit object</p> <ul style="list-style-type: none"> <li>Response object</li> <li>Request object</li> <li>Processing from data using request and Request object</li> <li>Page object</li> <li>Page context object</li> <li>Session object           <ul style="list-style-type: none"> <li>Application object</li> <li>Out object</li> <li>Config object</li> <li>Exception object</li> </ul> </li> <li>JSP standard Actions           <ul style="list-style-type: none"> <li>&lt;jsp:use Beans&gt;</li> <li>&lt;jsp:forward &gt;</li> <li>&lt;jsp:include&gt;</li> <li>&lt;jsp:param&gt;</li> </ul> </li> </ul> <p>9)JSP and Beans</p> <ul style="list-style-type: none"> <li>Purpose of JSP Beans</li> <li>Introduction to beans</li> <li>How to use beans in JSP</li> <li>Setting property of beans</li> <li>Getting property of beans</li> <li>HTML form and JAVA beans</li> <li>Beans scope           <ul style="list-style-type: none"> <li>Local and instance scope</li> <li>Page scope</li> <li>Request scope</li> <li>Session scope</li> <li>Application scope</li> </ul> </li> <li>Conditional bean creation</li> </ul> <p>10)JSP ,Servlet and session</p> <ul style="list-style-type: none"> <li>An overview of servlet</li> <li>JAVA servlet architecture</li> <li>GenericServlet and HttpServlet Basic</li> <li>Servlet structure</li> <li>First Servlet example</li> <li>The html required for invoking servlet</li> <li>Session tracking           <ul style="list-style-type: none"> <li>Stateless protocol</li> <li>State full protocol</li> </ul> </li> <li>Methods foe session           <ul style="list-style-type: none"> <li>Tracking</li> <li>Cookies</li> </ul> </li> <li>Session creation and tracking</li> </ul>
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