



Core Java

➤ Basics of Java

- Java - What, Where and Why?
- History and Features of Java
- Internals of Java Program
- Difference between JDK, JRE and JVM
- Internal Details of JVM
- Variable and Data Type
- Unicode System
- Naming Convention

➤ OOPS Concepts

- Advantage of OOPs
- Object and Class
- Method Overloading
- Constructor
- static variable, method and block
- this keyword
- Inheritance (IS-A)
- Aggregation and Composition (HASA)
- Method Overriding
- Covariant Return Type
- Super keyword
- Instance Initializer block
- Final keyword
- Runtime Polymorphism
- Static and Dynamic binding
- Abstract class and Interface

- Down casting with instance of Operator
- Package and Access Modifiers
- Encapsulation
- Object class
- Object Cloning
- Java Array
- Call By Value and call Reference
- Strictfp keyword
- Creating API Document

➤ String Handling

- String: What and Why?
- Immutable String
- String Comparison
- String Concatenation
- Substring
- Methods of String class
- String Buffer class
- String Builder class
- Creating Immutable class to String method
- String To kenizer class

➤ Exception Handling

- Exception Handling: What and Why?
- Why?
- Try and catch block
- multiple catch block
- Nested try



- finally block
- throw keyword
- Exception Propagation
- throws keyword
- Exception Handling with Method Overriding
- Custom Exception

➤ **Nested Classes**

- Nested Class: What and Why?
- Member Inner class
- Anonymous Inner class
- Java
- Core Java
- Tech Solutions
- Local Inner class
- static nested class
- Nested Interface

➤ **Multithreading**

- Multithreading: What and Why?
- Life Cycle of a Thread
- Creating Thread
- Thread Scheduler
- Sleeping a thread
- joining a thread
- Thread Priority
- Daemon Thread
- Thread Pooling
- Thread Group
- Shutdown Hook
- Performing multiple task by multiple thread
- Garbage Collection
- Runnable class

➤ **Synchronization**

- Synchronization: What and Why?
- Synchronized method
- synchronized block
- static synchronization
- Deadlock
- Inter - thread Communication
- Interrupting Thread

➤ **Input and output**

- FileOutputStream & FileInputStream
- ByteArrayOutputStream
- SequenceInputStream
- BufferedOutputStream & BufferedInputStream
- FileWriter & FileReader
- CharArrayWriter Input from
 - keyboard by
- InputStreamReader· Input from
 - keyboard by Console
- Input from keyboard by Scanner
- PrintStream class
- PrintWriter class
- Compressing and Uncompressing
 - File
- Reading and Writing data
 - simultaneously
- DataInputStream and DataOutputStream
- StreamTokenizer class



➤ **Serialization**

- Serialization & Deserialization
- Serialization with IS-A and Has-A
- transient keyword

➤ **Networking**

- Socket Programming
- URL class
- Displaying data of a web page
- InetAddress class
- DatagramSocket and DatagramPacket
- Two way communication

➤ **AWT and EventHandling**

- AWT Controls
- Event Handling by 3 ways
- Event classes and Listener Interfaces
- Adapter classes
- Creating Games and Applications

➤ **Swing**

- Basics of Swing
- JButton class
- JRadioButton class
- JTextArea class
- JComboBox class
- JTable class
- JColorChooser class
- JProgressBar class
- JSlider class
- Digital Watch
- Graphics in swing
- Displaying Image

- Edit Menu for Notepad
- Open Dialog Box
- Creating Notepad
- Creating Games and applications

➤ **LayoutManagers**

- BorderLayout
- GridLayout
- FlowLayout
- BoxLayout
- CardLayout

➤ **Applet**

- Life Cycle of Applet
- Graphics in Applet
- Displaying image in Applet
- Animation in Applet
- EventHandling in Applet
- JApplet class
- Painting in Applet
- Digital Clock in Applet
- Analog Clock in Applet
- Parameter in Applet
- Applet Communication
- Creating Games

➤ **Reflection API**

- Reflection API
- newInstance() & Determining the class object
- javap tool
- creating javap tool
- creating applet viewer
- Accessing private method from outside the class



➤ **Collection**

- Collection Framework
- Array List class
- Linked List class
- ListIterator interface
- Harshset class
- LinkedHashSet class
- TreeSet class
- PriorityQueue class
- ArrayDeque class
- Map interface
- Hash Map class
- LinkedHashMap class
- TreeMap class
- Hashtable class
- Comparable and Comparator
- Properties class

➤ **Java New Features**

- Assertion
- For - each loop
- Varargs
- Static Import
- Autoboxing and Unboxing
- Enum Type
- Annotation

➤ **Internationalization**

- Internationalization
- Resource Bundle class
- I18N with Date
- I18N with Time
- I18N with Number
- I18N with Currency

Advance Java

- JDBC Drivers
- Steps to connect to the database
- Connectivity with Oracle
- Connectivity with MySQL
- Connectivity with Access without DSN
- DriverManager
- Connection interface
- Statement interface
- ResultSet interface
- PreparedStatement
- ResultSetMetaData
- DatabaseMetaData
- Storing image
- Retrieving image
- Storing file
- Retrieving file
- Stored procedures and functions
- Transaction Management
- Batch Processing
- JDBC New Features
- Mini Project

➤ **Basics of Servlet**

- Servlet: What and Why?
- Basics of Web
- Servlet API
- Servlet Interface
- GenericServlet
- HttpServlet
- Servlet Life Cycle
- Working with Apache Tomcat Server



- Steps to create a servlet in Tomcat
- How servlet works?
- Servlet in Myeclipse
- Servlet in Eclipse
- Servlet in Netbeans
- **Servlet Request**
 - Servlet Request methods
 - Registration example with DB
- **Servlet Collaboration**
 - RequestDispatcher
 - SendRedirect
- **Servlet Config**
 - ServletConfig methods
 - ServletConfig example
- **Servlet Context**
 - ServletContext methods
 - ServletContext example
- **Attribute**
 - How to set, get and remove example?
- **Session Tracking**
 - Cookies
 - Hidden Form Field
 - URL Rewriting
 - HttpSession
- **Event and Listener**
 - Filter
 - Filter
 - Authentication Filter
 - FilterConfig
 - Useful examples

ServletInputStream and ServletOutputStream

Annotation Servlet

Project Development

- **Basics of JSP**
 - Life cycle of JSP
 - JSP API
 - JSP in Eclipse and other IDE's
- **Scripting elements**
 - scriptlet tag
 - expression tag
 - declaration tag
- **9 Implicit Objects**
 - Out
 - Request
 - response
 - config
 - application
 - session
 - pageContext
 - page
 - exception
- **Directive Elements**
 - Page directive
 - Include directive
 - Taglib directive
- **Exception Handling**
- Action Elements**
 - jsp:forward
 - jsp:include
 - Bean class
 - jsp:useBean



- jsp:setProperty & jsp:getProperty
- Displaying applet in JSP
- **Expression Language**
- **MVC in JSP JSTL Custom tags**
 - Custom Tag: What and Why?
 - Custom Tag API?
 - Custom Tag Example
 - Attributes
 - Iteration
 - Custom URI
- **Project Development in JSP RMI**
 - RMI Architecture
 - Design RMI Application
 - Execute RMI Application
- **EJB 3 Introduction to JavaEE**
 - The Need for JavaEE.
 - Overview on the JavaEE Architecture
 - 1 tier
 - 2 tier
 - 3 tier
 - N tier
 - JavaEE Key Standards
- **Introduction to EJB3**
 - The EJB Model
 - Key Services of the Application Server
- **Developing Session Beans**
 - Stateless Session Beans
 - Stateful Session Beans
- Packaging
- Writing Clients
- **Using Dependency Injection**
 - No More JNDI
 - Injection of EJBContext
- **JMS**
 - JMS Overview
 - JMS Messaging Domains
 - Example of JMS using Queue
 - Example of JMS using Topic
- **Message Driven Beans Persistence Introduction to JPA**
 - Object Relational
 - Mapping Mapping configurations
 - Embedded Objects
 - EJBQL
- **JavaMail API**
 - Sending Email
 - Sending email through Gmail server
 - Receiving Email
 - Sending HTML content
- **XML**
 - What is XML?
 - XML Syntax Rules
- **WEB SERVICES**
 - DTO
 - MVC
 - Front Controller
 - Factory Method



➤ Struts 2 Basics of

Struts2

- Struts: What and Why?
- Model1 Vs Model2
- Struts2 Features
- Steps to create Struts2 application
- Understanding Action class
- Understanding struts.xml file
- Struts2 in Eclipse IDE
- Struts2 in My eclipse IDE

➤ Core Components

- Interceptors
- Value Stack
- Action Context
- Action Invocation
- OGNL

➤ Struts 2 Architecture

Struts 2 Action

- Action Interface
- Action Support class

➤ Struts2 Configuration

- Multiconfiguration
- Multinamespace

➤ Interceptors

- Custom Interceptor : Life Cycle of Interceptor

- Params interceptor
- Pxec And Wait interceptor
- Prepare interceptor
- Model Driven interceptor
- exception interceptor
- file Upload interceptor

➤ Struts 2 Validation

- Custom Validation: work flow interceptor
- Input Validation: validation interceptor
- Ajax Validation: json Validation interceptor

➤ Aware Interfaces

- Servlet Action Context
- Session Aware
- Login and Log out Application
- Servlet Context Aware

➤ Struts2 with I18N Zero Configurations

- By convention
- B y annotation

Struts2 with Tiles2

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