

Java Syllabus

- Introduction to Sun Technologies
- Pre-requirements of Java Development
- JDK Installation and setting the Classpath
- Java source file structure
- Basics of Java Programming
 - Compiling the Program
 - The main() method
 - Data Types
 - Variables
 - Arrays
 - Operators
 - Precedence and Associativity rules for operators
 - Evaluation order of operands
 - Casting
 - Literals
 - Conditional and Looping statements
- Introduction to Classes and Objects
 - Classes
 - Declaring Members: Fields and Methods
 - Objects
 - Class instantiation
 - Object references
 - Assigning object reference variables
 - Introducing methods
 - Overloading methods
 - Static methods
 - Final methods
 - Overriding methods
 - Constructors
 - Garbage collection
 - Modifiers
 - Data input methods
 - OOP Concepts
- Introduction to Packages
- Distributing packages
 - As ZIP file
 - As JAR file
- Interfaces

- Exception Handling
 - Stack based execution and exception propagation
 - Exception Types
 - Exception handling: try, catch, finally
 - Throw statement
 - Throws clause
 - Assertions
- Nested classes and interfaces
 - Overview
 - Static member classes and interfaces
 - Local classes
 - Anonymous classes
- Threads
 - Multitasking
 - Overview of threads
 - Thread creation
 - Implementing the Runnable interface
 - Extending the Thread class
 - Synchronization
- Generics
 - Introduction
 - Defining simple generics
 - Generics and subtyping
 - Generic methods
 - Interoperating with Legacy code
- Fundamental Classes
 - The Object class
 - The wrapper classes
 - The Math class
 - The String class
 - The StringBuffer class
- Collections and Maps
 - Collection Framework
 - Collections
 - Sets
 - Lists
 - Maps
- Utility classes
- Networking
 - Basics: Sockets, Ports, URL
 - TCP/IP Server Sockets
 - Datagrams

- AWT
 - Understanding containers and components
 - AWT classes
 - Creating windows
 - Frames
 - Graphics
 - AWT Controls, Layout Managers, Menus
 - Event Handling
 - Applets

JDBC - Java Database Connectivity

- Connection to Oracle using different types of drivers
- Using Statement and PreparedStatement
- Working with ResultSet and ResultSetMetaData
- Scrollable and updatable ResultSet
- Calling stored procedures using CallableStatement
- Understanding relationship between JDBC API and drivers
- Transaction management
- Batch update
- Pros and cons of different types of drivers
- RowSets
- Using Connection pool and data sources
- Working with LOBs

HTML,CSS, JavaScript and XML

- Understanding HTML tags
- Creating HTML forms
- Working with Cascading style sheet
- Understanding JavaScript objects “ window, document etc.
- Using JavaScript to validate user input
- What is XML and where is it used

Java Servlets

- Understanding web application structure
- Creating a Servlet and calling it
- Understanding HTTP methods “ doGet(), doPost()
- Life cycle of servlet and init parameters
- Creating and using Cookies

- Creating and using Http sessions
- Working with headers
- Request dispatching
- File uploading
- Working with Listeners
- Using filters

JSP (Java Server Pages)

- Structure of Java server page
- JSP containing code and form
- Using implicit objects in JSP
- Using JavaBeans with JSP
- Accessing database from JSP
- Working with expression language
- Creating custom tags
- Custom tags with attributes and body
- Communication between custom tags and jsp

JSTL (Java Server Pages Tag Library)

- Understanding JSTL tags
- Working with core and formatting tags
- Working with sql and xml tags

Java Mail

- Understanding mail server “ SMTP, POP3 and IMAP
- Understanding mail agents like Outlook express
- Using JavaMail API to send mail
- Sending mail with HTML as body
- Sending mail with attachments
- Connection to mail server with authentication

Java API for JSON

- What is JSON
- What is JSON processing in Java EE
- Using the Object Model API
- Using the Streaming API

Java API for WebSocket

- Introduction to WebSocket
- Understanding and creating endpoint
- Sending and receiving messages using endpoint

AJAX and JQUERY

- What is AJAX
- Using XMLHttpRequest object to make request
- Servlet/JSP sending XML & JSON
- Using JavaScript to process XML DOM and JSON
- Using JQuery to make AJAX request

Web Services

- What is a web service
- How web service uses SOAP, HTTP, XML and WSDL
- Understanding SOAP envelope and message
- Creating a web service and consuming it using JAX-WS
- Understanding XML marshalling and unmarshalling
- Understanding RESTful web services
- Accessing RESTful web services using AJAX through JQuery

JSF (JavaServer Faces)

- Understanding Front-controller design pattern
- Creating user interface using JSF UI elements
- Defining page navigation using faces-config.xml
- Working with Managed/Backing beans
- Validating and converting user input
- Working with events and listeners
- Working with internationalization
- Ajax and JSF
- Integrating Bean Validation and JSF
- Using dataTable and repeat tags
- Templating
- Integrating HTML 5 with JSF
- Integrating JQuery with JSF
- Upload Files

- Controlling flow with Faces Flow

Project

- How to understand a requirement and design solution
- Creating a web application for the requirements
- Understanding deploying options