

Java & J2EE

Duration: 4 Months

Java Basics

- OOPS
- Object
- Class
- Inheritance
- Polymorphism
- Abstract
- Encapsulation
- Exception Handling
- Interface

JAVA BEANS

- Beans Introduction
- Properties
- Methods

Java EE Introduction

- Java EE Overview
- Java EE Technologies
- Java EE Architecture

Servlets and JSP with the JSP Standard Tag Library (JSTL)

- Web Application Basics
 - How the Web works, Thin Clients, TCP/IP
 - HTTP overview, Brief HTML review
 - Overview of Java EE, servlets & Web applications.
 - Servlet Basics
- Servlet API
 - HTML Forms
 - HTTP: Request-response, headers, GET, POST
 - Overview: How Servlets Work
 - Servlet Lifecycle: init(), service(), destroy()
 - Requests and responses
 - Core Servlet API: GenericServlet, ServletRequest, and ServletResponse
 - HTTP Servlets: HttpServletRequest, HttpServletResponse and HttpServlet

Java Server Pages

- Basics and Overview
- JSP architecture
- JSP tags and JSP expressions
- Fixed Template Data
- Lifecycle of a JSP

Data Sharing among servlets & JSP

- Object scopes or “buckets”
- Request, application, session and page scope
- Predefined JSP implicit objects (request, session, application, page)
- `<jsp:useBean>`
- `<jsp:getProperty>`, `<jsp:setProperty>`
- `<jsp:include>`, `<jsp:forward>`

Using Custom Tags

- Custom tags overview
- Reducing JSP complexity
- Tag Libraries
- Tag Library Descriptor (TLD)
- Loading a tag library in a web app
- The JSTL
- JSP Expression Language (EL)
- Using custom tags
- The `c:url`, `c:param`, `c:forEach`, `c:out` tags

More JSP Capabilities and Session Management

- HTTP as a stateless protocol
- Hidden form fields
- Cookies: Overview, API, Using cookies
- Session overview: Cookies and session tracking
- HttpSession
- Putting data into a session object
- Retrieving data from a session object
- Using session data in servlets and JSPs
- Additional JSP Capabilities
- Exception handling and error pages
- Directives (page, include, others)

Additional JSP Capabilities

- JSP Directives
- JSP Error Pages
- JSP and Java
- Declarations, Scriptlet overview, Scriptlet syntax

JDBC

- Introduction
- Relational Database and JDBC Overview
- Overview, Table Relationships, Web Based Data Access, JDBC Characteristics
- JDBC Architecture, JDBC API Overview
- DriverManager, JDBC Drivers
- Naming databases with JDBC URLs
- Connecting to a database
- Connection interface, Establishing a connection
- DataBaseMetaData
- Handling Database Exceptions
- JDBC Driver Types
- DataSource
- Java EE and DataSource, Using JNDI
- Connection Pooling
- Overview, Usage, Advantages

Maintaining State in Java Web Applications

- Different session management techniques
- URL Rewriting
- Hidden Fields
- Cookies
- Session Object
- Knowing which technique to use

Framework (EJB / Spring & Hibernate / Struts)

Labs

- Accessing a database from a JSP
- Template Editing



Case Study

- Website Editing (CMS)
- Photo Gallery
- Community forum
- Feedback Forms
- Store/Shopping Cart
- Classifieds
- File/Image Uploading