

# ADVANCE JAVA

## 1. Java EE Introduction

- Java EE Overview
- Java EE Technologies
- Java EE Architecture
- MVC
- Servlets and JSP with the JSP Standard Tag Library (JSTL)
- How the Web works, Thin Clients, TCP/IP • Web Application Basics
- 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: Generic Servlet, Servlet Request, and Servlet Response
- HTTP Servlets: Http Servlet Request, Http Servlet Response and Http Servlet
- Accessing Parameters
- Additional Servlet Capabilities
- HTTP headers and MIME types
- Request Dispatcher: Including and forwarding

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- Sharing data with the request object attributes
- Sharing data with Servlet Context attributes
- Error Handling
- Java Server Pages
- Basics and Overview
- JSP architecture
- JSP tags and JSP expressions
- Fixed Template Data
- Lifecycle of a JSP
- Model View Controller (MVC)
- Model 1/Model 2 Architecture
- 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

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

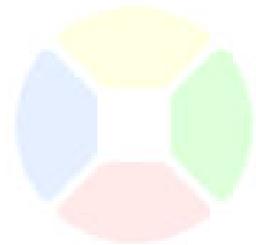
Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- 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
- Http Session
- 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)
- Import declarations
- Multi threading considerations and data safety
- Single Thread Model interface
- Additional JSP Capabilities
- JSP Directives
- JSP Error Pages
- JSP and Java
- Declarations, Scriptlet overview, Scriptlet syntax



Crush IT Techno  
TRAINING & PLACEMENT

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- More JSTL
- Overview of JSTL libraries
- The JSTL Expression Language
- Expressions, Type Coercion, Operators, String concatenation, Implicit Objects
- The Core JSTL Library
- General Purpose: c:out, c:set, c:catch
- Conditional: c:if, c:choose,
- Overview of other capabilities
- Additional Topics

## 2. Servlet Filter overview

- Filtering examples, lifecycle, & filter chains
- Filter API, Modifying a request, Modifying a response
- JDBC
- Introduction Relational Database and JDBC Overview
- Overview, Table Relationships, Web Based Data Access, JDBC Characteristics
- JDBC Architecture, JDBC API Overview
- Driver Manager, JDBC Drivers
- Naming databases with JDBC URLs
- Connecting to a database
- Connection interface, Establishing a connection
- DataBase MetaData
- Handling Database Exceptions
- Data Access
- DAO – Data Access Objects, O-R Mapping, Value Objects Processing Database Data

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- Executing statements, precompiled statements and stored procedures Processing ResultSets,

#### Dealing with Null data

- Updating, inserting, retrieving data
- Controlling Transactions
- JDBC Driver Types
- Data Source
- Java EE and DataSource, Using JNDI
- Connection Pooling
- Overview, Usage, Advantages

### 3. Overview of Spring Technology

- Shortcomings of Java EE, Spring Architecture

### 4. Spring Introduction

- Managing Beans, The Spring Container, IoC, DI
- Configuration Metadata – XML, @Component, Auto-Detecting Beans

### 5. Dependencies and Dependency Injection (DI)

- Dependency Inversion, Dependency Injection (DI) in Spring, DI Configuration – XML, @Resource

### 6. Working with Bean Properties

- Configuring Value Properties, Property Conversions, Setter / Constructor Injection

### 7. Spring Expression Language for Configuration

- Configuring and using lists, sets, etc

### 8. Additional Capabilities

- Factory Methods, Bean Aliases, Definition Inheritance (Parent Beans)

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service Road of Apollo Premier (Vijay Nagar Square) Indore (MP) 452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

## 9.The Spring Container and API

- Application Context
- Class Path Xml Application Context
- File System Xml Application Context, Constructors, Usage
- Resource Access – Overview, Resource Implementations
- Validation
- Overview, JSR-303
- Declarative Validation, @NotNull, @Size, @Min, etc
- Configuration, Injection
- Bean Scope and Lifecycle
- Bean Scope Defined, Configuring, Inner Beans, Bean Creation
- Lifecycle, Lifecycle Call backs

## 10.Bean Post Processor, Event Handling

- Message Sources
- Defining and Using Resource Bundles, Localization/I18N

## 11.Annotation Driven Configuration

- Stereotypes: @Component, @Service, @Controller, @Repository
- Java EE 5 Annotation Support
- Defining Custom Annotation
- Java Based Bean Metadata (JavaConfig)
- Overview – code-centric Configuration
- @Configuration, @Bean, and @Value
- Importing and @Import

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- Autowiring in Configuration Classes
- Mixing XML Configuration and @Configuration
- XML vs Annotation Based Configuration
- SpEL – Spring Expression Language
- Validation

## 12.Database Access with Spring

- Introduction to Spring DAO Support
- Spring Database API, (Simple)JdbcTemplate, (Simple)JdbcDaoSupport, DataSources
- Row Mapper, Parameterized Row Mapper, Passing Arguments, query For Object, query, update
- Additional API Capabilities
- Additional query methods, Passing Type Arguments, query For List, Fetch Size, Max Rows

### Using Spring with Hibernate

- Overview of Template Approach, Session Factory configuration
- Using Contextual Sessions
- Local Entity Manager Factory Bean, Local Container Entity Manager Factory Bean, JNDI, Persistence Unit Manager
- DAO Support – @PersistenceUnit, @PersistenceContext
- AOP Basics, Aspect, Joinpoint, Advice, Pointcut
- Capabilities, Configuration (Annotation Based and XML), Weaving, Joinpoints

### Using Aspects

- Defining Advice, Configuring Pointcuts, Targets and Proxies
- XML Configuration with

## 13.Aspect Oriented Programming (AOP)

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service Road of Apollo Premier (Vijay Nagar Square) Indore (MP) 452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- AOP Basics, Aspect, Joinpoint, Advice, Pointcut
- Introduction to Spring AOP
- Capabilities, Configuration (Annotation Based and XML), Weaving, Joinpoints

Using Aspects

- Defining Advice, Configuring Pointcuts, Targets and Proxies
- XML Configuration with

## 14.AspectJ Pointcuts, Autoproxies

- Using @AspectJ Annotations

## 15.Spring Transaction (TX) Management

- Intro to Spring Transaction Management
- Overview, Component TX Model, TX Propagation, Declarative Transactions, Transaction Managers

Using Spring Transactions

- Annotation Configured Transactions
- @Transactional and its settings
- XML Configured Transactions
- new <tx:\*> elements, Configuring tx:advice, and tx:attributes
- Defining the TX advisor

## 16.Introduction to Spring Web Integration and Spring MVC

- Integrating Spring with Java EE Web Apps, Context Loader Listener, Web Application Context
- Spring Web MVC Overview, Capabilities, Architecture
- Spring MVC Basics
- Dispatcher Servlet, Configuration, mvc Namespace

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- Controllers, @Controller, Handler Methods
- @RequestParam and Parameter Binding
- View Resolvers
- Writing Controllers, @Controller, @RequestMapping, @RequestParam, @PathVariable
- Forms and Binding, Spring Form Tags, @ModelAttribute

## 17. Overview of Spring Security

- Overview – Capabilities, Architecture
- Introduction to Spring Security
- HTTP Security
- Method Security
- Annotation-Based Security
- Expression-Based Access Control
- Authentication Providers

## 18. Introduction to Hibernate

- Issues with Persistence layers and Object-Relational Mapping (ORM)
- Hibernate architecture overview
- POJO (Plain Old Java Object) Based Mapping
- Getting started with Hibernate quickly
- Overview of the Hibernate distribution
- hibernate.cfg.xml file
- Session Factory configuration
- Connection properties, Database dialect
- Configuration class, Session Interface
- Hello World Program for Hibernate

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- Mapping a Class
- Persistent Entity Class, Hibernate Mapping
- File, Mapping the Entity Class
- Primary keys: Id property, Generated Id
- Hibernate Type System
- Working with sessions and Persistent Objects
- Logging – log4j Overview and configuration for Hibernate

## 19. Optimistic Locking / Versioning

- Detached Objects and Optimistic Locking
- Versioning overview and Using Versioning
- Locking Objects

## 20. Relationships

- Object Relationship Overview
- Mapping Collections of Value Objects
- Entity Relationships: 1-N, N-1, N-N, 1-1
- Mapping Entity Relationships
- Uni and Bi-directional Relationships
- The Relationship “inverse”
- Cascading Over Relationships
- Queries Across Relationships (Lazy and Eager)

## 21. Inheritance Mapping

- Entity Inheritance with Hibernate
- Table-per-class mapping

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- Table per Subclass mapping
- Table per Concrete Class mapping

## 22. Additional Querying Capabilities

- Projection Queries, Aggregate queries
- Bulk updates and deletes
- Native SQL Queries
- Query Filters

## 23. The Criteria API

- Overview of the Criteria API
- Working Querying with the Criteria API
- Query by Example

## 24. Overview of Java Persistence / EJB 3

- Relationship between Java Persistence and Hibernate
- Overview of Annotations
- Mapping Entities with Hibernate Annotations
- The EntityManager, Persistence Context and Persistence Unit
- Working with Transactions – EntityTransaction, Managed, and Unmanaged Environments
- Inserts and Updates
- JPQL – Java Persistence Query Language
- Versioning
- Relationships

## 25. Advanced Topics

- Components and Multi-Table Mapping

Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>

- equals() and hashCode()
- Caching and Efficiency
- Design Considerations



Crush IT Techno

Add: 84 B, Sheetal Nagar, Above Uchchariya Stationary, Service  
Road of Apollo Premier (Vijay Nagar Square) Indore (MP)  
452001

Contact: 9993049572/8827049572

Web: [www.crushittechno.com](http://www.crushittechno.com) , Email: [crushittechno@gmail.com](mailto:crushittechno@gmail.com)

LinkedIn - <https://tinyurl.com/crushittechno> Facebook- <https://www.facebook.com/crushittechno>

Instagram - <https://www.instagram.com/crushittechno> Youtube- <https://tinyurl.com/crushittechnoEclasses>