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Training Duration : 100 hrs

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JAVA FULLSTACK DEVELOPMENT

A Java full stack web developer is a developer with extensive knowledge and expertise in full stack tools and frameworks that works with java. The java suite of technologies include working with servlets, core java, REST API and more tools that make the building of web apps easy.

Java Full Stack Developer Course Syllabus

Core Java

Introduction To Java

- History of Java
- What is Java , Java Flavors, characteristics
- JVM Architecture
- Bytecode
- Class Loader
- Unicode
- Class path
- Path

Fundamentals of Java Programming

- Object oriented concepts (OOP)
- Keywords, Datatypes, Variables, Operators, Casting
- Selection statement (if, switch)
- Control statements (while,



- do while , for)
- Conditional statements (if, else, elseif, ?
- static
- Arrays

Object Oriented Programming with Java

- Classes and Objects
- Structure of a class – its internals (Data Members, methods)
- Using static
- Constructor
- this keyword
- modifiers
- playing with the object (copying, casting)
- Garbage collection
- Abstract class



Inheritance

- Basics (extends keyword)
- Modifiers and their scope
- Deriving a class
- super, final keyword
- why java does not support multiple inheritance?

Polymorphism

- overloading a method
- overloading a constructor
- method overriding
- accessing base class method

Packages and Interfaces



- basics
- modifiers and their scope chart
- setting classpath
- compiling and accessing a packaged class
- types of packages
- user defined package

Exploring java.lang package

- String, StringBuffer, Arrays,
- Wrapper classes

Exception Handling

- Basics
- Hierarchy of exceptions
- Handling exception – Try, catch, finally, throw, throws
- User defined exceptions

Threads

- Basics, Thread class , Runnable Interface
- Thread model
- Life cycle – start(), run()
- Scheduling
- Deadlocks / concurrency

issues

- Synchronization – as a block, as a modifier
- Daemon thread

I/O Streams

- Introduction
- Hierarchy of streams
- IO Stream, Byte Stream, Character Streams
- BufferedInputStream, BufferedOutputStream
- Reader and Writer class
- BufferedReader, PrintWriter
- Serialization

Collection Framework

- basics, hierarchy
- legacy classes – Vector, Queue, Stack, Enumeration, Dictionary, Properties
- List, ArrayList, LinkedList



- Set, HashSet, TreeSet,
- Map, HashMap, TreeMap,
- Generics
- Annotations
- Boxing / Unboxing
- Enums

Introduction to functional style of programming

- Mini application – discussion / implementation – 10 hrs
- Tools
- Javadoc
- javap
- jar
- IDE Tools
- eclipse
- myeclipse



Spring

Spring core

- Types of containers
- Xml configuration
- Core annotations
- Component – scan
- What can be injected into a bean
- Understanding core annotations

Spring MVC

- Handler Mapping
- Controllers
- View resolvers
- Validators
- interceptors

Spring DAO

- Jdbc templates
- Exception hierarchy

Spring ORM

- Hibernate template
- Integration with hibernate

Spring AOP

- Point cut
- Advisors
- Types of advices

Spring – webservices (Restful API)

Spring security

Spring JPA



Introduction

- Introduction to ORM (Object Relational Management)
- Benefits of ORM
- Contrast JDBC with ORM
- Hibernate Jar files
- Hibernate Architecture
- SessionFactory , Session, Transaction, Query
- Understanding config files .hibernate.xml, .hbm.xml
- Performing CRUD operations
- load, get, save, saveOrUpdate, delete

HQL

- working with various SQL commands
- accessing more than one object from the table

Mapping

- Inheritance
- Collection
- Composition
- Association

Cache

- Level – I and II
- Using third party to configure L2 cache



Criteria

- Interfaces / classes
- implementation
- Note : an application using the above technologies –
- Domains : Telecom , LMS, etc...



Spring Boot

Introduction



- Spring Boot overview
- Bootstrapping an Boot application –
- Initializer
- Auto Configuration
- Spring Boot annotations
- Spring Boot properties

Spring Boot profiles

- Accessing data with Spring Boot and h2 database
- Configuring Spring Boot with spring MVC application
- Building a Restful web application with Spring Boot
- Highlights of Training

An application based on Spring boot – Either migration / new one

- Industry experienced Professional
- Hands-on experience with Project orientation
- Interview based Questions
- Advanced Java Training Syl-

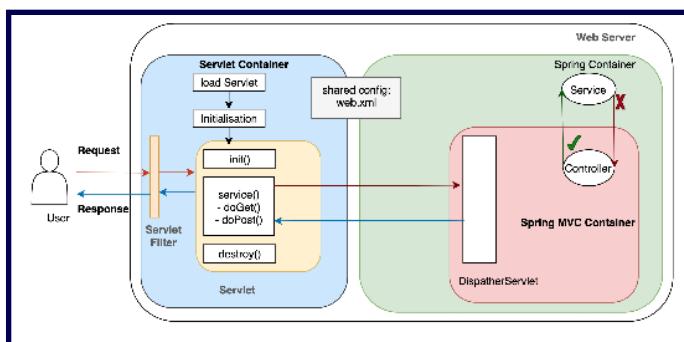
abus

Fundamentals

- Client, Server, Port, Application, Web Server, Application Server, Web Client and Web Application
- Installation of Java and Understanding PATH and CLASSPATH
- Installation of Eclipse
- Installation of Tomcat and structure of Tomcat
- Linking any Web Server with Eclipse
- Static Resource Access from Tomcat

Servlets

- Servlet Internals and Servlet Programming
- What are Servlets and why do we need Servlets?
- Servlet Development with



Eclipse
– Developing Servlets
– Compiling Servlets

- Deployment and Invoking of Servlets
 - Purpose of Servlet Mapping and web.xml
 - Servlet Architecture
- Detailed Architecture of Servlets
- Discussion of GenericServlet, HttpServlet Interfaces
- Programming examples
 - Servlet Life Cycle
 - HTTP Internals
 - Detailed discussion of all parameters of request and response packets
 - Discussion of HttpServletRequest and HttpServletResponse interfaces
 - Session Tracking API
- Practical visualization of HttpSession objects and Session table
- Session Tracking API
- Session Tracking Programming
 - Cookies, URL Rewriting and Hidden Form Fields
 - ServletConfig Object
 - ServletContext Object
 - RequestDispatcher Object

Filters



- Why do we need filters?
- Filter, FilterChain, FilterConfig interfaces
- Programming examples
 - Application / Attribute Lifecycle Listeners
 - Why do we need Lifecycle Listeners?
 - ServletContext and ServletContext Attribute Listeners
 - Session and Session Attribute Listeners
 - Programming examples

JSP

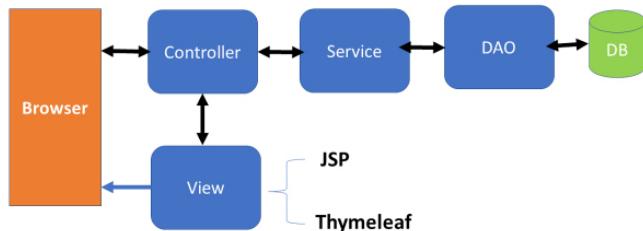
- Java Server Pages(JSP) Internals and Programming
- What is JSP? Why do we



need JSP?

- JSP development with Eclipse
- JSP Life Cycle
- Predefined Objects of JSP
- request, response, out and session objects
- config, application, page-context objects
- Scripting Tags (Writing Java code inside JSP)
- Directives
- @page, @include directives

- Action tags of JSP
- Difference between jsp:forward, jsp:include and @include tags
- Programming examples to illustrate each tag
- Expression Language
- Why do we need EL?



- Reading scoped attributes using EL
- Reading bean properties using EL
- Reading collections using EL
- Operators of EL
- Programming examples to illustrate each usage
- JSTL (JSP standard tag library)
- Why do we need JSTL?
- Looping tags
- Control tags
- Database tags
- I18N tags
- Programming examples to illustrate each category of tags
- Custom tags
- Custom tag creation based on Servlets
- Custom tag creation based on JSP

- concept of tld file
- programming examples to illustrate each concept

Java Beans

- What are Java beans and why do we need Java beans?
- Action tags for java beans
- Application of Java beans

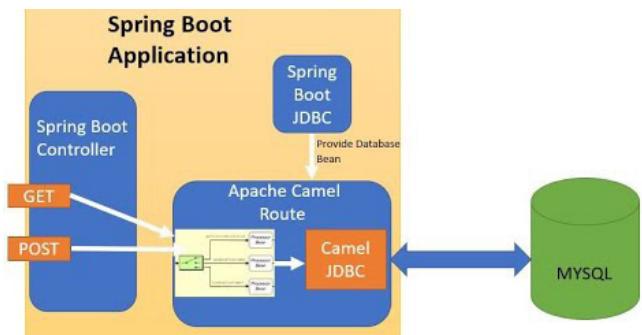
MVC Architecture

- Why do we need MVC?
- Discussion of pros and cons of Servlets, JSP and JavaBeans
- Programming example to illustrate Business logic, Controller logic, Presentation logic and Bean creation

JDBC

- Java Data Base Connectivity (JDBC) internals and programming
- What is JDBC ? Why do we need JDBC ?

Discussion of JDBC driver



types and Driver Manager

- Connection object
- Statement types and Discussion of each type of Statement Objects
- ResultSet Types and Discussion of each type
- Stored Procedure Access from java applications
- Transaction Programming with JDBC
- Savepoint and RowSet
- DataSource and Connection Pooling
- Batch Updates
- JNDI
- Explanation on Usage of important Practical Tools
- Eclipse
- Jboss, Weblogic, Tomcat



Database

Introduction to MySQL

- MySQL Installation
- DDL Commands
- DML Commands
- Operators
- Functions
- Constraints
- Joins
- Views
- Indexes
- DCL Commands
- TCL Commands
- MySQL Cursors
- Exception Handling
- Stored Procedure
- Stored Functions

MicroServices

- MicroServices Introduction
- Principle and Characteristics
- Use cases and Benefits
- Challenges
- Design standards
- Micro Services Communication
- Pitfalls

UI Development

- HTML

- CSS 3
- JavaScript
- Advanced JavaScript
- BootStrap
- Angular
- jQuery
- Ajax

DevSecOps Tools

- Docker
- Agile with Jira
- Chef
- LOG4J / SLF4J
- GitHub
- Gradle
- Maven
- Heroku
- SonarQube
- Amazon Cloud Watch
- Datadog

Cloud – Application Deployment on Cloud

- AWS Cloud
- What is AWS
- Introduction to AWS Services
- Amazon Cloud Services
- Create EC2 Instance in AWS
- Deploy Spring Boot Application on AWS | Elastic Beanstalk
- AWS Advanced Research and Development- Live Deployment

FULL STACK JAVA DEVELOPER TRAINING WITH REALTIME PROJECTS

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