

## Full Stack Java COURSE CONTENTS

The Course Content Includes

1. Core Java
2. MY- SQL
3. JDBC
4. HTML, CSS, BOOTSTRAP, JAVASCRIPTS
5. JSP
6. SERVLETS
7. SPRING
8. HIBERNATE

Imp Notes

- Assignments & Tests will be conducted after each topics
- Two Projects
  - One using C#,SQL SERVER, ADO.NET, HTML, CSS, BOOTSTRAP, ASP.NET
  - One using ASP.NET MVC, EF, WEB API, JQUERY

Java COURSE CONTENTS	
<b>Getting Started with Java</b> <ul style="list-style-type: none"><li>• What is Java</li><li>• Introduction</li><li>• History</li><li>• Java Applications</li><li>• Java Features</li><li>• JVM Architecture</li><li>• Java Tools(JDK)(JRE)</li></ul>	<b>Eclipse Software</b> <ul style="list-style-type: none"><li>• Introduction eclipse software</li><li>• Software Installation</li><li>• Simple eclipse Program</li><li>• How to Run a Program</li><li>• Java as an Object Oriented Language</li></ul>

<p><b>Variables and Data Types</b></p> <ul style="list-style-type: none"> <li>• What is variables</li> <li>• Types of Variables</li> <li>• How to Initialize variables</li> <li>• Data Types</li> <li>• Primitive and Non-primitive Data Type</li> <li>• How to initialize</li> <li>• Examples</li> </ul>	<p><b>Operators:</b></p> <ul style="list-style-type: none"> <li>• What is Operators</li> <li>• Types of Operators</li> <li>• Arithmetic Operators</li> <li>• Assignment Operators</li> <li>• Logical Operators</li> <li>• Relational Operators</li> <li>• Unary Operators/Bitwise Operators</li> <li>• Ternary Operators/Shift Operators</li> <li>• Assignment No:1</li> </ul>
<p><b>Decision Making Statements</b></p> <ul style="list-style-type: none"> <li>• Java Control Statement</li> <li>• Types of Statements</li> <li>• If Statement</li> <li>• If else statement</li> <li>• Nested if else</li> <li>• Assignment No:2</li> </ul>	<p><b>Switch Statements</b></p> <ul style="list-style-type: none"> <li>• What is Switch Statement</li> <li>• Syntax</li> <li>• Examples</li> <li>• Assignment No:3</li> </ul>
<p><b>Loops</b></p> <ul style="list-style-type: none"> <li>• What is Loops</li> <li>• Types of Loops</li> <li>• For Loop</li> <li>• Types of For Loop</li> <li>• While Loop</li> <li>• Do-While Loop</li> <li>• Assignment No:4</li> </ul>	<p><b>Array</b></p> <ul style="list-style-type: none"> <li>• What is array</li> <li>• Types of array</li> <li>• 1-D array</li> <li>• 2-D array</li> <li>• Assignments No:5</li> </ul>
<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>• What is Patterns</li> <li>• Types of patterns</li> <li>• Star patterns</li> <li>• Number patterns</li> <li>• Character Patterns</li> <li>• Assignment No:6</li> </ul>	<p><b>Object-Oriented Programming</b></p> <ul style="list-style-type: none"> <li>• Introduction to Object-Oriented Programming:</li> <li>• Classes and Objects</li> <li>• Fields and Methods</li> <li>• Encapsulation</li> <li>• Access Control</li> <li>• Inheritance:</li> <li>• Polymorphism</li> <li>• Interface:</li> <li>• Best Practices</li> </ul>
<p><b>Objects and Classes</b></p> <ul style="list-style-type: none"> <li>• Object</li> <li>• Classes:</li> <li>• References</li> <li>• Defining a Class</li> <li>• Instantiating and Creating an Object</li> <li>• Assignment of Objects</li> <li>• Instance Data and Class Data</li> </ul>	<p><b>Constructor/Inheritance</b></p> <p><b>Polymorphism</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• What is constructor</li> <li>• Types of Constructor</li> <li>• Default Constructor</li> <li>• Parameterized Constructor</li> <li>• Inheritance:</li> </ul>

<ul style="list-style-type: none"> <li>• Abstract Classes</li> <li>• Access Modifiers</li> <li>• Initialization</li> <li>• Garbage Collection</li> <li>• Methods:</li> </ul>	<ul style="list-style-type: none"> <li>• Types of inheritance</li> <li>• Polymorphism</li> <li>• Types of polymorphism</li> </ul>
<p><b>Interface</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Abstract class</li> <li>• Abstract method</li> <li>• Final Keyword</li> <li>• Static Keyword</li> <li>• Interface Examples</li> <li>• Anonymous Classes</li> <li>• Nested Classes</li> </ul>	<p><b>Exception Handling</b></p> <ul style="list-style-type: none"> <li>• Exceptions Overview</li> <li>• Declaring Exceptions</li> <li>• Defining and Throwing Exceptions</li> <li>• Errors and Runtime Exceptions</li> <li>• Catching Exceptions:</li> <li>• The finally Block</li> <li>• Exception Methods</li> <li>• Assertions</li> <li>• I/O Exceptions vs. Runtime Exceptions</li> </ul>
<p><b>Packages</b></p> <ul style="list-style-type: none"> <li>• Packages</li> <li>• Package Categories</li> <li>• Create your own Package</li> <li>• How to import a package</li> <li>• Create Sub packages</li> <li>• The import Statement</li> <li>• Static Imports</li> <li>• CLASSPATH and Import</li> <li>• Defining Packages</li> <li>• Package Scope</li> </ul> <p><b>Abstract Window Toolkit(AWT)</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• AWT Hierarchy</li> <li>• Components</li> <li>• How to Creating Window</li> <li>• Adding a Different Components</li> <li>• How to Create a Frame</li> <li>• Examples</li> </ul>	<p><b>File Handling(I/O Streams)</b></p> <ul style="list-style-type: none"> <li>• File Output Stream</li> <li>• File input Stream</li> <li>• Overview of Streams</li> <li>• Bytes vs. Characters</li> <li>• Converting Byte Streams to Character Streams</li> <li>• File Object</li> <li>• Binary Input and Output</li> <li>• Reading and Writing Objects</li> <li>• Printing to the Console</li> <li>• Scanner Method</li> </ul> <p><b>Swing</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Swing Hierarchy</li> <li>• Components</li> <li>• How to Creating Window</li> <li>• Adding a Different Components</li> <li>• How to Create a Frame</li> <li>• Examples</li> </ul>
<p><b>Applet</b></p> <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Applet Lifecycle</li> <li>• Graphical Components</li> <li>• How to Creating Components</li> <li>• Adding a Different Components</li> <li>• Examples</li> </ul>	

Advanced Java	
<p><b>CHAPTER 1: MY-SQL</b></p> <ul style="list-style-type: none"> <li>• Introduction to My-SQL</li> <li>• Introduction to DBMS</li> <li>• Configuration of My-SQL</li> <li>• create a simple MySQL database</li> <li>• Data Types of MySQL</li> <li>• Database Definition Language (DDL)</li> <li>• Creating Tables</li> <li>• Adding and Dropping Columns</li> <li>• Dropping Tables</li> <li>• Database Manipulation Language (DML)</li> <li>• Insert statements</li> <li>• Update statements</li> <li>• Delete statements</li> <li>• Select Statements</li> </ul>	<p><b>CHAPTER 2: JDBC</b></p> <ul style="list-style-type: none"> <li>• JDBC Introduction</li> <li>• JDBC Driver</li> <li>• DB Connectivity Steps</li> <li>• Connectivity with MySQL</li> <li>• DriverManager</li> <li>• Connection</li> <li>• Statement</li> <li>• ResultSet</li> <li>• PreparedStatement</li> <li>• ResultSetMetaData</li> <li>• DatabaseMetaData</li> <li>• Store image</li> <li>• Retrieve image</li> <li>• Store file</li> <li>• Retrieve file</li> <li>• CallableStatement</li> <li>• Transaction Management</li> <li>• Batch Processing</li> </ul>
<p><b>CHAPTER 3: THREADING</b></p> <ul style="list-style-type: none"> <li>• Overview of Thread</li> <li>• Life cycle of Thread</li> <li>• Creating Threads</li> <li>• Thread States</li> <li>• Multithreading</li> <li>• What is Multithreading</li> <li>• Life Cycle of a Thread</li> <li>• Creating Thread</li> <li>• Thread Scheduler</li> <li>• Sleeping a thread</li> <li>• Start a thread twice</li> <li>• Calling run() method</li> <li>• Joining a thread</li> <li>• Naming a thread</li> <li>• Thread Priority</li> <li>• Daemon Thread</li> <li>• Thread Pool</li> <li>• Thread Group</li> </ul>	<p><b>CHAPTER 4: SERVLET</b></p> <ul style="list-style-type: none"> <li>• What is Servlet</li> <li>• Web Terminology</li> <li>• Servlet API</li> <li>• Servlet Interface</li> <li>• GenericServlet</li> <li>• HttpServlet</li> <li>• Servlet Life Cycle</li> <li>• Servlet Example</li> <li>• How servlet works?</li> <li>• War File</li> <li>• welcome-file-list</li> <li>• Load on startup</li> <li>• Servlet with Eclipse</li> <li>• Servlet with NetBeans</li> <li>• ServletRequest</li> <li>• Servlet Collaboration</li> <li>• RequestDispatcher</li> <li>• sendRedirect</li> <li>• ServletConfig</li> <li>• ServletContext</li> <li>• Attribute in Servlet</li> <li>• Session Tracking</li> <li>• Cookies in Servlet</li> <li>• Hidden Form Field</li> <li>• URL Rewriting</li> <li>• HttpSession</li> <li>• Event and Listener</li> <li>• Servlet CRUD</li> </ul>

	<ul style="list-style-type: none"> <li>• CRUD Example</li> <li>• Annotation Servlet</li> <li>• Servlet Development</li> </ul>
<p><b>Assignments / Case Studies will be provided on above topics which needs to be completed</b></p>	
<p><b>CHAPTER 7: JAVA SERVER PAGES</b></p> <p>Life cycle of JSP          JSP API          JSP in Eclipse          JSP scripting elements          JSP script let tag          JSP expression tag          JSP declaration tag  <b>9 Implicit Objects</b></p> <ul style="list-style-type: none"> <li>• <b>JSP Request</b></li> <li>• JSP Response</li> <li>• JSP Config</li> <li>• JSP Page</li> <li>• JSP Application</li> <li>• JSP Session</li> <li>• JSP PageContext</li> <li>• SP Exception</li> </ul>	<p><b>CHAPTER 7: JAVA SERVER PAGES</b></p> <p>JSP Directive Elements</p> <ul style="list-style-type: none"> <li>• JSP page directive</li> <li>• JSP include directive</li> <li>• JSP taglib directive</li> </ul> <p>JSP Exception          Action Elements</p> <ul style="list-style-type: none"> <li>• JSp:forward</li> <li>• JSp:include</li> </ul> <p>JSP CRUD Example          Creating CRUD Application using JSP</p>
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Advanced Java	
<p><b>CHAPTER 1: HIBERNATE</b></p> <ul style="list-style-type: none"> <li>• What is Hibernate?</li> <li>• Object Relational Mapping (ORM)</li> <li>• Hibernate Resources</li> <li>• Hibernate Architecture</li> <li>• Installation and Directory Structure</li> <li>• Hibernate Data Type</li> <li>• Hibernate Features</li> <li>• Hibernate DataType</li> <li>• Create Hibernate Application</li> <li>• Hibernate Development</li> <li>• Hibernate Tools</li> </ul>	<p><b>CHAPTER 2: SPRING</b></p> <ul style="list-style-type: none"> <li>• What is Spring?</li> <li>• Spring Modules</li> <li>• Spring Framework</li> <li>• Steps for Creating Spring Application</li> <li>• Web Application Layering</li> <li>• Inversion of Control (IoC)</li> <li>• IOC Container</li> <li>• Crosscutting Concern</li> <li>• Aspect-Oriented Programming (AOP)</li> </ul>

- Hibernate with Eclipse
- HB using xml
- HB using Annotation
- Hibernate Example
- Hibernate Web Application
- Hibernate Generator Classes
- Hibernate Dialects
- Hibernate Mapping (HBM) File
- Hibernate Template
- Inheritance Mapping
- Table Per Hierarchy
- TPH Per Annotation
- Table per Concrete
- TPC using Annotation
- Collection Mapping
- Mapping List
- One-to-Many By List
- OTM Annotation
- Mapping Bag
- One to Many By Bag
- Mapping Set
- One - by - Many By Map
- Component Mapping
- Association Mapping
- Hibernate Query Language (HQL)
- Hibernate Caching
- Second Level Cache
- Integration Hibernate with Web Application
- using Servlet / JSP with Hibenate

- Dependency Injection in Spring
- Constructor Injection
- Constructir Injection with Collection Having Dependent Object
- Constructor Injection with Map
- Setter Injection
- Setter Injection with Dependent Object
- Setter Injection with Collection
- Setter Injection with Collection having Dependent Object
- Setter Injection with Map
- Constructor Injection vs Setter Injection
- Spring AOP
- Spring JDBC
- JDBC Template Example
- Prepared Statement
- ResultSetExtractor
- RowMapper
- NamedParameterJDBCTemplateClass
- Simple JDBC Template Class
- Spring with ORM Frameworks
- Spring with Hibernate
- Spring with JPA
- Spring with Java Mail
- Spring Integration with Hibernate using web Application
- Spring Modules
- Spring Beans
- Sprint Transaction
- Spring DAO Templates
- Spring Components

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