

Cloud Cave Technologies

Java Full Stack Syllabus

Satyanna Kodimala

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HTML

1. HTML basics
2. DocType, Basic tags in HTML
3. Text Formatting Tags
4. Images
5. Hyperlinks
6. List tags
7. Tables
8. Forms
9. Advanced tags
 - a. Horizontal Ruler
 - b. Audio
 - c. Video
 - d. Details and summary
 - e. Data List
 - f. ProgressBar
 - g. Article
10. Semantic tags
 - a. Header
 - b. Nav
 - c. Section
 - d. Footer
 - e. Aside
11. Storages
 - a. Local storages
 - b. Session storages
12. Geo Location
13. Web Workers
14. Drag and Drop
15. Canvas
16. SVG

CSS3 (Cascading Style Sheet)

1. Introduction
2. CSS basic selectors and properties
3. Colors
4. Font styles
5. Text styles
6. Span
7. Background Image
8. Lists
9. Div (width, height, float and clear)
10. Box Model
11. Opacity, display, visibility and overflow Properties
12. Types of style sheets

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13. Advanced CSS

- a. Border radius
- b. Shadow
- c. Transformation
 - i. Rotate Transformations
 - ii. Skew Transformation
 - iii. Scale Transformation
 - iv. Translate Transformation

14. Responsive WebDesign

- a. Media Queries
- b. View Port meta Tag

JavaScript

- 1. Introduction and syntax
- 2. Types of javascript and First example
- 3. Variables, operators, Datatypes
- 4. Control statements
- 5. Functions
 - a. String functions
 - b. Date functions
 - c. User defined functions
- 6. Arrays
- 7. DOM
 - a. Window properties and functions
 - b. Document properties and functions
 - c. Element properties and functions
- 8. Validations
 - a. Regular expressions
- 9. OOPs in javascript
 - a. Creating objects
 - b. Object literals
 - c. Constructor function
 - d. JSON
 - e. Prototype
 - f. Inheritance
- 10. Advanced JavaScript(ES6)
 - a. Classes
 - b. Constructors
 - c. Static properties and methods
 - d. Method overriding
 - e. Set and Get methods
 - f. Default arguments
 - g. Arrow functions
 - h. Let
 - i. Const

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- j. Rest(...) operator
- k. Instanceof operator
- l. Destructuring
- m. Mixins
- n. Multiline string
- o. String interpolation
- p. Reading Elements from Array
 - i. For loop
 - ii. ForEach loop
 - iii. ForOf loop
 - iv. ForIn loop
- q. Error handling
 - i. Error handling try...catch
 - ii. Custom errors, extending Error
- r. Promises, async/await
 - i. Introduction : callbacks
 - ii. Promise
 - iii. Promise API
 - iv. Microtasks
 - v. Async/Await
- s. Modules
 - i. Introduction
 - ii. Export and import
 - iii. Dynamic imports
- 11. Introduction to Events
 - a) Introduction to browser events
 - b) Bubbling and capturing
 - c) Event delegation
 - d) Browser default actions
 - e) Dispatching custom events
- 12. UI Events
 - a) Mouse events
 - b) Moving the mouse: mouseover/out, mouseenter/leave
 - c) Drag'n'Drop with mouse events
 - d) Pointer events
 - e) Keyboard: keydown and keyup
 - f) Scrolling
- 13. Forms, controls
 - a) Form properties and methods
 - b) Focusing: focus/blur
 - c) Events: change, input, cut, copy, paste
 - d) Forms: event and method submit
- 14. Network requests
 - a) Fetch
 - b) FormData
 - c) Fetch: Download progress

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- d) Fetch: Abort
- e) Fetch: Cross-Origin Requests
- f) Fetch API
- g) URL objects
- h) XMLHttpRequest
- i) Resumable file upload
- j) Long polling
- k) WebSocket
- l) Server Sent Events

15. Storing data in the browser

- a) Cookies, document.cookie
- b) LocalStorage, sessionStorage

ReactJs: Introduction to React

- 1. SPA: Single Page Application
- 2. Create app using create-react-app
- 3. React App Structure and Hello World
- 4. Running and debugging first react-app
- 5. JSX
- 6. Components and reuse
 - a) Functional
 - b) Class
 - c) Pure
- 7. State and Props
- 8. Working with css in react
- 9. Rendering lists
- 10. Event handling in react
 - a) Understanding React event system
 - b) Understanding Synthetic event
 - c) Passing arguments to event handlers
- 11. component lifecycle and handling errors
 - a) Understand the lifecycle methods
 - b) Handle errors using error boundaries
- 12. Working with forms
 - a) Controlled components
 - b) Uncontrolled components
 - c) Understand the significance to default Value prop
 - d) Using react ref prop to get access to DOM element
- 13. React Routing
- 14. Context
 - a) What is context
 - b) When to use context
 - c) Create Context
 - d) Context.Provider
 - e) Context.Consumer

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- f) Reading context in class
- 15. Code-Splitting
 - a) What is code splitting
 - b) React.lazy
 - c) Suspense
 - d) Route-based code splitting
- 16. Hooks
 - a) What are hooks
 - b) Different types of hooks
 - c) Usestate , and useEffect hooks
 - d) Rules of hooks
- 17. React Redux
- 18. Immutable data structures
- 19. Material UI
- 20. Fetch API
- 21. Axios AP

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Core Java Syllabus

I. Introduction

1. Why Java
2. Paradigms
3. Diff b/w Java & Other (C,C++)
4. Java history
5. Java features
6. Java programming format
7. Java Tokens
8. Java Statements
9. Java Data Types
10. Typecasting
11. Arrays

II. OOPS

1. Introduction
2. Class
3. Object
4. Static Keywords
5. Constructors
6. This Key Word
7. Inheritance
8. Super Key Word
9. Polymorphism (Over Loading & Over Riding)
10. Abstraction
11. Encapsulation
12. Abstract Classes
13. Interfaces

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III. STRING MANIPULATIONS

1. String
2. String Buffer & String Builder
3. String Tokenizer

IV. PACKAGES

1. Introduction to all predefined packages
2. User Defined Packages
3. Access Specifiers

V. EXCEPTION HANDLING

1. Introduction
2. Pre Defined Exceptions
3. Try-Catch-Finally
4. Throws, throw
5. Try with resources
6. User Defined Exception examples

VI. MULTITHREADING

1. Thread Creations
2. Thread Life Cycle
3. Life Cycle Methods
4. Synchronization
5. Wait() notify() notify all() methods

VII. I/O STREAMS

1. Introduction
2. Byte-oriented streams
3. Character – oriented streams
4. File
5. Random-access file
6. Serialization

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VIII. WRAPPERCLASSES

1. Introduction
2. Byte, Short, Integer, Long, Float, Double, Character, Boolean classes.

IX. INNER CLASSES

1. Introduction
2. Member inner class
3. Static inner class
4. Local inner class
5. Anonymous inner class

X. COLLECTION FRAME WORK

1. Introduction
2. Util Package interfaces, List, Set, Map
3. List interface & its classes
4. Set interface & its classes
5. Map interface & its classes

XI. Java 8 and java 11 Features

XII. AWT

1. Introduction
2. Components
3. Event-Delegation-Model
4. Listeners
5. Layouts
6. Individual components Lable, Button, CheckBox, Radio Button.
7. Choice, List, Menu, Text Field, Text Area

XIII. SWING(JFC)

1. Introduction Diff b/w awt and swing
2. Components hierarchy
3. Panes
4. Individual Swings components Jlabel
5. JButton, JtextField, JTextAres.

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Advanced-Java

I. JDBC

1. Introduction
2. Jdbc Architecture
3. Types of Drivers
4. Statement
5. ResultSet
 - 1.Read Only ResultSet
 - 2.Updatable ResultSet
 - 3.Forward Only ResultSet
 - 4.Scrollable ResultSet
6. PreparedStatement
7. Connection Modes
8. SavePoint
9. Batch Updations
10. CallableStatement
11. BLOB & CLOB

II. SERVLETS

1. Introduction
2. Web application Architecture
3. Http Protocol & Http Methods
4. Web Server & Web Container
5. Servlet Interface
6. GenericServlet
7. HttpServlet
8. Servlet Life Cycle
9. ServletConfig
10. ServletContext

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11. Servlet Communication

a) . Servlet-Browser communication

- i. sendError
- ii. setHeader
- iii. sendRedirect

b). Web-component Communication

- i. Forward
- ii. Include

c). Servlet-Applet Communication

12. Session Tracking Mechanisms

- a) HttpSession
- b) Cookies
- c) URL-Rewriting
- d) Hidden-Form Fields

13.Filters & Wrappers

14.Listeners

15.Web-Security

III. JSP

1. Introduction

2. Jsp LifeCycle

3. Jsp Implicit Objects & Scopes

4. Jsp Directives

- a. page
- b. include
- c. taglib

5. Jsp Scripting Elements

- a. declaratives
- b. scriptlets
- c. expressions

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6. Jsp Actions

a). Standard Actions

- i. useBean tag
- ii. setProperty tag
- iii. getProperty tag
- iv. include tag
- v. forward tag
- vi. param tag
- vii. plug-in tag
- viii. params tag
- ix. fallback tag
- x. directives tag
- xi. scriptlet tag
- xii. expression tag

b).Custom Actions

- i. Classic Tags
- ii. Simple Tags

7. JSTL & Tag Library

IV. IDE

1. Eclipse

V. SERVERS

1. Tomcat

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DATABASE -MYSQL

I. Introduction to MySQL

1. Structured Query Language
2. Introduction to SQL
3. Predefined Data Types
4. Introduction to database Objects
5. Table

II. Commands in SQL

1. Data definition language (DDL)
2. Data manipulation language (DML)
3. Transaction control language (TCL)

III. Functions

1. Date
2. Number
3. Character
4. Group by ,Having clause
5. Aggregate Functions
6. Order By

IV. Integrity Constraint

1. Different Types of Integrity Constraint
2. Use of Integrity constraint in table

V. Joins

1. Usage of joins
2. Different Types of joins
3. Inner join, left ,right and cross join
4. Outer join

VI. Sub queries

1. Need of sub queries
2. Simple sub queries
3. Co-related sub quires

VII. Views

1. Importance of views
2. Creating, Drop views

VIII. PL/SQL

1. Introduction to Programs
2. Advantages of Programs
3. Variable and constants
4. Conditional statements
5. Cursors
6. Introduction to Triggers
7. Before and after, instead of triggers
8. Stored Procedures
9. User Defined Functions
10. Dropping triggers, procedures, functions

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Spring Framework -Syllabus

S.NO	Topics Detailed	Content
1	Introduction to Spring	i. What is Spring ii. How Spring fits into the Enterprise world iii. Spring Modules
2	Spring Core (Basic Concepts)	Theory/Practical i. What is a Core Container ii. Introduction to IOC iii. Types of DI iv. Setter VS Constructor v. Resolving Constructor Confusion vi. Collection DI vii. Bean Inheritance viii. Collection Merging ix. Inner Beans x. Using IDRef xi. Bean Aliasing xii. Bean Scopes xiii. Inner Beans xiv. Null String xv. Bean Auto wiring xvi. Nested Bean Factories
3	Spring Core (Advanced Concepts)	Theory/Practical i. P – Namespace ii. Dependency Check iii. Depends On iv. Factory Beans v. Static Factory Method vi. Instance Factory Method vii. Aware Interfaces viii. Bean Lifecycle ix. Method Replacement x. Lookup Method Injection xi. Property Editors xii. Bean Factory Postproces
4	Spring Core (Annotations)	Theory/Practical i. Spring VS Java Config Project annotations ii. @Required iii. @Autowire

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		iv. @PostConstruct v. @PreDestroy vi. @Qualifier vii. @Resource viii. @Component ix. @Service x. @Controller xi. @Named xii. Various Annotation based Post Processors (AutowiredAnnotationBeanPostProcessor, CommonAnnotationBeanPostProcessor, PersistenceAnnotationBeanPostProcessor, RequiredAnnotationBeanPostProcessor)
5	Spring AOP	Theory/Practical a. AOP Concepts b. Programmatic VS Declarative AOP c. Programmatic AOP i. Types of Advices ii. Types of Pointcuts iii. Working with proxies d. Declarative AOP i. Using AOP 2.0 Config element ii. OGNL Expressions e. Aspect J AOP
6	Spring Tx	Theory/Practical i. Aop Configuration driven Transaction Management ii. Aspect J annotation based Transaction Management
7	Spring JDBC	Theory/Practical i. What is DAO pattern? ii. Ways to implement Spring DAO iii. Choosing an approach for JDBC database access iv. JDBC Template v. Executing Statements vi. Running Queries vii. SQL Parameters
8	Spring MVC	Theory/Practical i. Spring features ii. Introduction to Spring MVC iii. Handler Mapping iv. Controllers

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		v. Validations vi. Handler Interceptors vii. Views viii. Form tags
9	Spring ORM	i. Spring Integration with ORM ii. Integrating with Hibernate iii. Creating and Injecting Hibernate Session Factory iv. Managing Transaction

Hibernate Syllabus

1. Advantages of Hibernate compared to JDBC
2. Introduction.
3. ORM (Object Relational Mapping)
4. Configuration xml file and Mapping xml file along with dttds.
5. Hibernate architecture
6. Installation and Directory Structure
7. Hibernate Data Types.
8. First Application using Hibernate.
9. Hibernate API
10. CRUD operations
11. Primary key Generators
12. Hibernate Query Language (HQL)
13. Native SQL
14. Criteria API
15. Inheritance in Hibernate
16. Relations
(one to one, one to many, many to one, many to many)
17. Caching
18. Connecting with Multiple Databases
19. Integrating Hibernate with Servlets and Struts
20. Hibernate Annotations

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Spring Boot – Syllabus

Chapter1: Introduction to Spring Boot

1. Creating spring Boot using Spring Initializer
2. Creating SpringBoot application using STS

Chapter2. Spring Boot Core

1. Spring Boot runners
2. Spring Boot starter class
3. Spring Boot input data
 - i. Using properties file
 - ii. Using yaml file
 - iii. Locations of properties files
4. POM.xml(Maven Process)
 - i. Dependency scopes

Chapter3: Spring Boot Data JPA

1. Introduction
2. Repository interface
3. Query method
4. Select and non-select operations
5. Projections
6. Using NoSql database(MongoDb)

Chapter4: Spring Boot Web-MVC

1. Introduction & MVC architecture
2. Model & Model Map
3. View Layer as JSP(UI)
4. Dev tools
5. View layer as Thymleaf(UI)
6. Cache management
7. Pagination
8. Lombok
9. Logging(SLF4J)

Chapter5: Spring Boot Email

1. Introduction
2. Email configuration

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Chapter6: Spring Boot Batch Processing

1. Introduction
2. Batch processing: Converting .csv file data to DB table

Chapter7: Spring Boot Rest (provider & consumer)

1. Introduction
2. Passing input to Rest Controller
3. Method return type
4. Using postman

Chapter8: SPRING BOOT WEB SECURITY

1. Spring Web MVC Security Architecture and components
2. Understanding the components of Spring Web MVC Security
3. Implementing Spring Boot Web Security with Annotation Approach
 - i. Basic Authentication
 - ii. Form Authentication
 - iii. Database Authentication

Note: Project on creating end-to-end application