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Full Stack Java

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Behind Every Great Institute is a Great Founder



Mr. Kunal Sir

Director of CJC EdTech by Kunal Sir

Mr. Kunal Sonu, Director of **CJC EdTech by Kunal Sir**, holds a Master's degree in Computer Applications & has over **15+ years** of experience in Java/J2EE technologies. After resigning from Syntel, he pursued a career in teaching to provide in-depth knowledge and guidance to aspiring professionals. **Mr. Kunal** has delivered lectures at renowned institutions such as **Sinhgad Institutes, JSPM Group, & MMCOE, Pune**. With a passion for education, he is dedicated to helping **students achieve success in their careers**.

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FULL STACK & ADVANCED FRAMEWORK

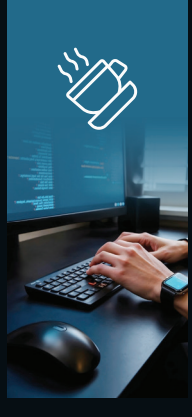
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Full Stack
Java

CORE JAVA

1. JDK 1.8 New Features

- ☕ Java 8 Interface Default Method
- ☕ Java 8 Interface Static Method
- ☕ Java 8 Functional Interface
- ☕ Java 8 Lambda Expression
- ☕ Java 8 forEach() Method
- ☕ Java 8 Stream API
- ☕ Java 8 Collection
- ☕ Important Features of Java 8



2. Introduction to Java

- ☕ History of Java
- ☕ Important Features of Java
- ☕ JVM Architecture
- ☕ JDK, JRE and JVM
- ☕ Java Keywords
- ☕ Simple Hello World Program
- ☕ Java Flow Control
- ☕ Source File Structure
- ☕ Class and Objects
- ☕ Data Types

Primitive Data Types | Non-Primitive Data Types

- ☕ Constructor
- ☕ Packages
- ☕ Instance & Static Variables
- ☕ Static Block
- ☕ Has-A Relationship (Secondary Reference)
- ☕ Setter and Getter Methods
- ☕ Method Return Type (Primitive type and Class type)

3. Object-Oriented Programming (OOPs) Concepts

- ▶ Inheritance (IS-A Relationship)
- ☕ Constructor and Inheritance
- ☕ Inheritance with Parent Reference & Child Constructor
- ☕ Covariant Return Types
- ☕ Inheritance and Type Casting
- ☕ `this` / `super` Keyword
- ▶ Polymorphism
- ☕ Method Overloading
- ☕ Constructor Overloading



-  Compile-Time Polymorphism
-  Method Overloading & Narrowing Concept
-  Method Overriding
-  `@Override` Annotation
-  Overriding & `toString()` Method

► Abstraction

-  Abstract Class
-  Interface
-  Marker Interface
-  Interface and Multiple Inheritance
-  Uses and Benefits of Interface with Example
-  Difference between Interface & Abstract Class

► Encapsulation

-  Access Modifiers
-  Data Hiding
-  `protected` Access Modifier

OOPs Project



4. Exception Handling

-  What and Why?
-  (Try, Catch, Finally, Throw, Throws, Try with Resources)
-  Try and Catch Block
-  Multiple Catch Blocks
-  Throw Keyword
-  Exception Propagation
-  Custom Exception
-  `AutoCloseable` Interface (JDK 1.7 Feature)
-  Try with Resources (JDK 1.7 Feature)
-  Nested Try
-  Finally Block

Finally Block with Return Statement

-  Throws Keyword

Throws with Method Throws with Constructor



5. String Handling

-  What and Why?
-  Immutable String
-  Methods of String Class
-  Creating an Immutable Class



6. Collection Framework

Collection Project

-  Java Collection
-  **Java List** - `ArrayList`, `Vector`, `LinkedList` | *Nested List* | *Sorting Lists* | *Handling Duplicates in List*
-  **Java Set** - `HashSet` | `TreeSet` | `LinkedHashSet` | *Nested Set*
-  **Java Map** - `HashMap` | `LinkedHashMap` | `WeakHashMap`
-  **Cursors** - `Iterator` | `ListIterator` | `Enumeration`
-  Java Collections Utility Class
-  **Comparable & Comparator** - *Custom Sorting* | *Difference between Comparable & Comparator*
-  Collection and Generics



7. MultiThreading



-  Introduction
 -  Extending Thread Class
 -  Thread creation using Thread Class
 -  Implementing Runnable Interface
 -  Thread creation using Runnable Interface
 -  Callable Interface
 -  Thread Methods (sleep, join, yield, etc.)
-

8. Synchronization



-  What and Why?
 -  Synchronized Method
 -  Synchronized Block
 -  Static Synchronization
-

9. Input and Output

-  File
 -  FileWriter & FileReader
 -  BufferedWriter & BufferedReader
 -  Input from Keyboard by Console
 -  Input from Keyboard by Scanner Class
 -  PrintWriter Class
 -  Reading and Writing Data Simultaneously
-

10. JDBC API



-  What is JDBC?
-  JDBC Drivers
-  Steps to Connect to Database
-  Connectivity with Oracle & MySQL
-  DriverManager
-  Connection Interface
-  Statement Interface
-  PreparedStatement
-  CallableStatement
-  CRUD Operations

JDBC Project

11. Logic Building



-  Operator
-  Java ternary operator
-  if, else
-  if, else if
-  switch statement
-  Conditional Problem
-  Looping Control
-  Java for loop
-  Java while loop
-  Java do-while loop
-  Java break statement
-  Java continue statement
-  Array
-  Array problems
-  Logical Problems
-  Numeric logical problems
-  String logical problems (Palindrome, Duplicate removal)
-  Sorting problems
-  Searching problems
-  File-related problems

12. SQL



-  Database Introduction
-  SQL Introduction
-  MySQL Installation
-  MySQL Workbench Installation
-  Data Types
-  DDL, DML, TCL
-  Create Table
-  Select Statement
-  Insert, Delete, Update Queries
-  DISTINCT Clause
-  WHERE Clause
-  ORDER BY Clause
-  GROUP BY Clause
-  SQL Joins
-  Outer Join (Left, Right, Full)
-  Stored Procedure



13. Hibernate 6.X

- ☕ Introduction
- ☕ ORM (Object-Relational Mapping)
- ☕ Hibernate Architecture
- ☕ JPA (Java Persistence API)
- ☕ Installation and Directory Structure
- ☕ Hibernate Advantages
- ☕ Hibernate Annotations
- ☕ Hibernate Configuration File
- ☕ Hibernate with Java-based (Zero XML file)
- ☕ Hibernate Utility File
- ☕ Hibernate Methods
- ☕ Load vs Get Method
- ☕ save, saveOrUpdate, persist Methods
- ☕ Mapping (Has-A)
- ☕ Types of Hibernate Mapping
(One-to-One, One-to-Many, Many-to-One, Many-to-Many)
- ☕ Hibernate Query Language (HQL)
- ☕ Hibernate Annotations
- ☕ Caching in Hibernate
- ☕ First Level Cache
- ☕ Second Level Cache

Hibernate Project

14. Spring IoC

- ☕ Introduction Of Spring Framework.
- ☕ Spring Modules
- ☕ What Is Spring IOC Container
- ☕ Types Of IOC Container (Bean Factory & Application Context)
- ☕ Spring Bean Life Cycle
- ☕ Bean Scope (Singleton/Prototype Scope)
- ☕ Lazy And Eager Loading Concept
- ☕ Dependency Injection
- ☕ Setter Based & Constructor Based
- ☕ Primitive, Secondary and Collection Type
- ☕ Auto Wiring (XML, Annotation Based)
- ☕ Scope Combination

15. Spring Web MVC

- ☕ What is Spring MVC
- ☕ Features Of Web MVC
- ☕ Life Cycle Of Web MVC
- ☕ Create The Request & View Pages
- ☕ Create Controller
- ☕ Configure Dispatcher Servlet
- ☕ Configure View Resolver
- ☕ Stereotype Annotation In MVC
- ☕ Spring MVC Annotation
- ☕ CRUD Application On Spring MVC

16. Spring Boot



-  Spring Boot Introduction
-  Spring Boot Features
-  Advantages Over Spring Framew
-  Way to creating spring boot Application
-  Spring Boot Using Maven
-  Spring_INITIALIZER
-  Spring STS IDE
-  Spring Boot CLI Tool
-  Simple Appln Using Spring Boot
-  Spring Boot Starters
-  @Spring Boot Application Annotation
-  Spring Application Class
-  Embaded Servlet Containers
-  Spring Boot Profiles
-  Spring Boot Actuator
-  Spring Boot-MVC
-  RESTful Web Service
-  Spring Boot RESTful Web Service

17. Spring Data JPA

-  Spring Boot Data-base
-  Create Project Structure
-  Configure DataSource
-  DAO Class with JDBCTemplate
-  Spring Boot JPA annotations
-  CRUDRepository
-  PagingAndSortingRepository
-  JPARepository
-  Custom Queries. (Using Method Name, JPA Named
-  Queries, @Query Annotation)
-  CRUD Appln on Spring Boot



Spring Boot Data JPA Project

18. Maven

-  Introduction to Maven
 -  Maven Repositories
 -  Maven Life Cycle
 -  POM Concept
 -  Maven Dependencies
 -  Spring Boot Project with Maven
-

19. Git

-  Git Introduction
 -  Git Setup
 -  Basic Git Commands
 -  Understanding Git Branches
 -  Git Remotes
 -  Resolving Git Merge Conflicts
-

20. HTML

-  Introduction to HTML
-  Basic Formatting Tags
-  Grouping Using `<div>`, `<span>`
-  Lists
-  Images
-  Hyperlinks
-  Tables
-  Iframes
-  Forms
-  Headers
-  Miscellaneous Topics (etc.)

21. CSS

-  Introduction to CSS
 -  CSS Syntax
 -  Selectors
 -  Color, Background, Cursor, Text, Fonts
 -  Lists, Tables
 -  Box Model
 -  Display, Positioning
 -  Floats
-

22. Java Script

-  Introduction to JavaScript
 -  Data Types in JavaScript
 -  Arrays in JavaScript
 -  Objects in JavaScript
 -  Functions in JavaScript
 -  Control Statements
 -  Looping Statements
 -  Arrow Functions
 -  JavaScript with HTML
 -  JavaScript Events
 -  DOM Objects
 -  DOM Methods
-

23. Webservices

-  What is an API?
 -  What are Web Services
 -  Why web services
 -  Web Services-Architecture
 -  Type of Web Services
 -  RESTful web services
 -  Java Web Services API
 -  Database connection for API
 -  Web Service Producer and Consumer
-

24. Spring Security

-  Introduction to Spring Security
 -  Authentication & Authorization
 -  Security Configuration
 -  Password Encoding (BCrypt)
 -  User Authentication (In-Memory & Database)
 -  Role-Based Authorization
 -  Login and Registration
 -  JWT (JSON Web Token)
 -  Spring Security with REST APIs
 -  CSRF & CORS
-



25. Kafka

-  Introduction to Kafka
-  Kafka Architecture
-  Topics & Partitions
-  Producers & Consumers
-  Consumer Groups
-  Spring Boot with Kafka
-  Real-Time Messaging



26. React JS

-  Introduction to ReactJS
-  Limitations of HTML & JS
-  SPA (Single Page Application)
-  React Elements & JSX Purpose
-  React Libraries
-  Environment Setup for React & NPM
-  React App Project Folder Structure (Vite)
-  Inline CSS in JSX
-  Class & Functional Components
-  State & Props
-  useState(), useEffect() Hooks
-  map() Function
-  Component Relationships
-  Context API
-  API Calls with Axios
-  Form Handling (useState, useForm)
-  Form Validations
-  Conditional Rendering
-  Bootstrap + Icons with React
-  Routing & Child Routing
-  Lifecycle Methods
-  JSON Server & DB
-  Store Management Project

React Project

27. AI Integration

-  **Module 1:** Introduction to Spring AI.
-  **Module 2:** Spring AI Setup.
-  **Module 3:** AI Chat Application.
-  **Module 4:** Prompt Engineering with Spring AI.
-  **Module 5:** AI Applications.
-  **Module 6:** Document AI.



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