



Backend Java

Syllabus



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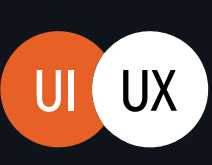
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Mr. Kunal Sir

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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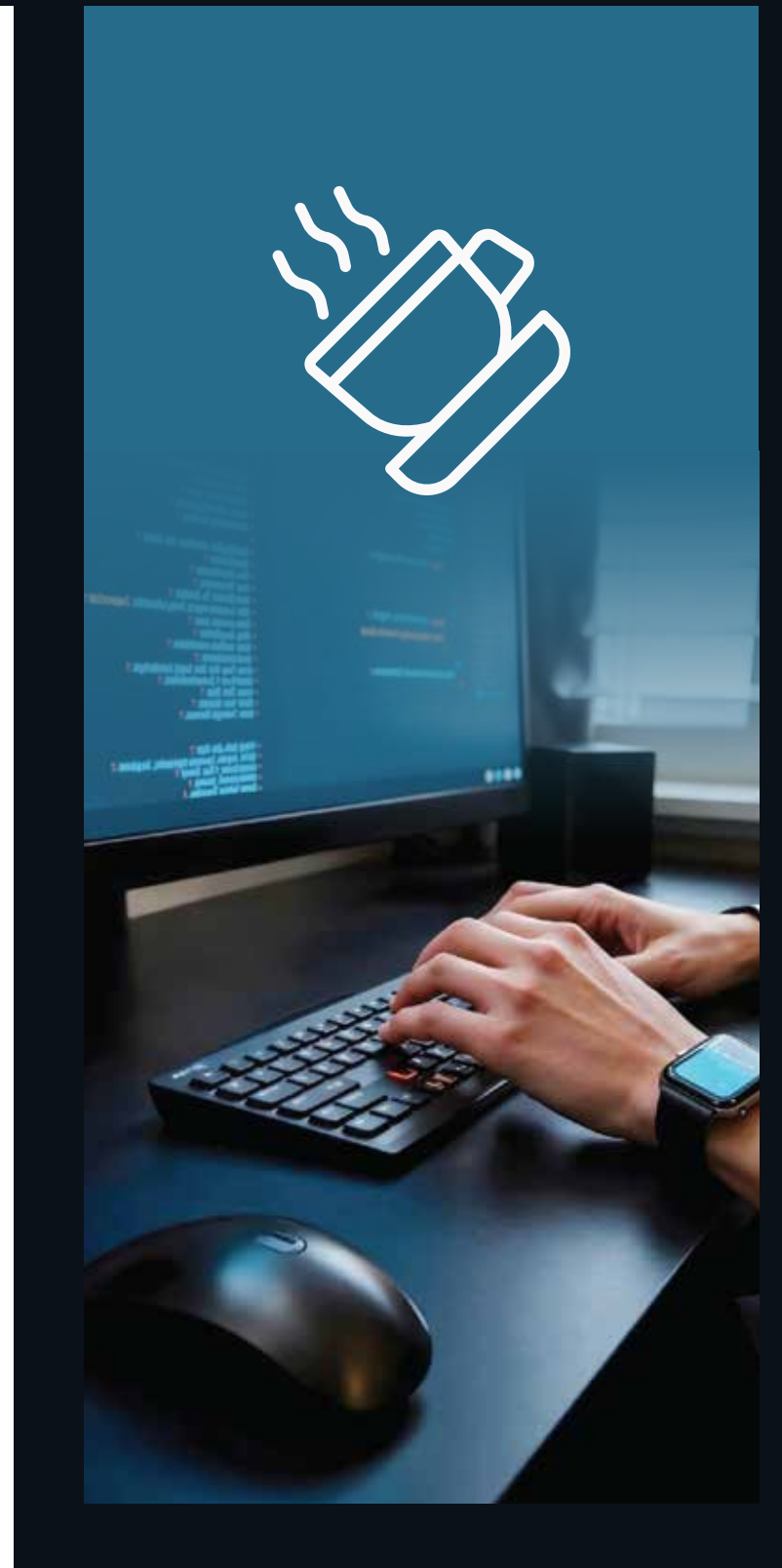
FULL STACK & ADVANCED FRAMEWORK

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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

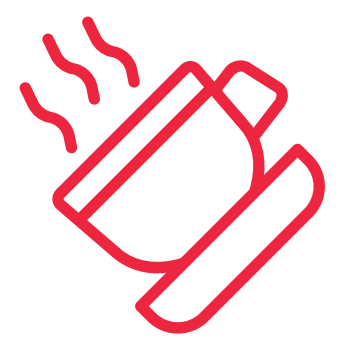


2. Introduction to Java

- ☕ 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

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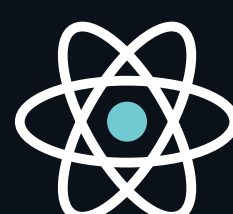
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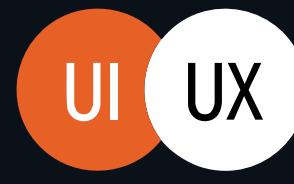
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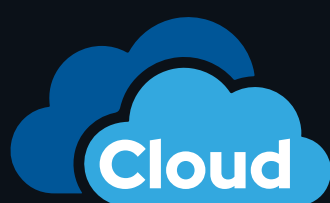
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