Full Stack Development Course

Syllabus

Module 1

Introduction to Programming with Java

Understand the basics of Java programming and its setup.

- **Core JAVA**

  ○ History and features of Java ○ Setting up the

  Java Development Kit (JDK) ○ Writing your first

  Java program ○ Understanding the Java Virtual

  Machine (JVM) ○ Data types and variables ○

  Operators and expressions ○ Control flow

  statements (if-else, switch-case) ○ Loops (for,

  while, do-while)

AI Module 2

AI-Driven Full Stack Development

How to use AI (ChatGPT, Microsoft copilot & deepseek) to solve business problems

- **AI in Excel** ○ Data Analysis and Insights

  - ▯ Analyse Data

  - ▯ Power Query

  - ▯ Forecasting ○ Data Types ○ Dynamic Array Functions ○

  Natural Language Queries ○ Insert Data from Pictures

- **AI in PowerPoint** ○ Data Analysis and

  Insights

  - ▯ Design Ideas

  - ▯ Smart Formatting ○ Content

  Generation

- ○ Visual Enhancements ○ Data Visualization ○

  AI-Powered Presentation Makers

- **AI in Programming** ○ How To Use AI To Learn

  For Developers ○ AI-Powered Code

  Generation and Debugging ○ AI Prompts for

  Enhanced User Interfaces (front end Designs)

  ○ Prompts For Learning To Code ○ AI

Prompting Practice ○ AI-Powered

Frameworks and Libraries ○ AI Prompting

CheatSheets

Module 3

HTML, CSS, and JavaScript

Learn the essential tools for front-end development.

- **Introduction to HTML** ○ Basic HTML

  tags and structure ○ Form Controls ○

  Image Controls ○ Button Controls ○

  HTML5 updates

- **Introduction to CSS** ○ Borders and

  Backgrounds

- ○

- ○

     Text Effects and Fonts

     Transforms and Transitions ○

  Animations in CSS ○ Multiple columns in

  CSS ○ User Interfaces with CSS ○

  Flexbox and Grid layout ○ Responsive

  design with media queries

- **Introduction to JavaScript** ○

  Variables, data types, and operators ○

  Functions and objects in JavaScript ○

  DOM Manipulation ○ Asynchronous

  JavaScript ○ Debugging and Error

  Handling ○ Web APIs in JavaScript

Module 4

Frontend Development with React

Understand the core concepts of React and build web apps.

Topics:

- ○

- ○

- - **Frontend Development with React** ○

What is React and why use it?

Setting up the development environment

Creating a new React project ○

Understanding JSX ○ Components

and props ○ State and lifecycle ○

Handling events ○ Conditional

rendering ○ Lists and keys ○ Context

API ○ Refs and the DOM ○ Higher-

order components ○ React Router

for navigation ○ Hooks (useState,

useEffect, etc.)

Module 5

Object-Oriented Programming

○

○

Master OOP concepts like inheritance, polymorphism, and abstraction.

Topics:

· - **Object-Oriented Programming**

Classes and objects

Constructors ○ Inheritance ○

Polymorphism ○ Encapsulation ○

Abstraction ○ Interfaces ○ Abstract

classes ○ Inner classes ○ Packages

and access modifiers

Module 6

Exception Handling and Collections

Master Java's exception handling and collections framework.

Topics:

· - **Exception handling and the collections framework.**

○

○

○ Types of exceptions ○

Try-catch block ○

Finally block

Throw and throws keyword

Custom exceptions ○ List, Set, and Map interfaces ○

ArrayList, LinkedList, HashSet, TreeSet, HashMap, TreeMap ○

Iterators and for-each loop

Module 7

Full Stack Application Development

Combine React and Java skills to build full-stack apps.

Topics:

- **- Building Full-Stack Applications** ○ Setting up Spring Boot Project ○ Creating RESTful APIs with Spring Boot ○ Connecting React frontend with Java backend using Axios or Fetch API ○ Handling CORS issues ○ CRUD operations with Spring Boot ○ User

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authentication and authorization ○ Building a full-stack application ○ Deployment of Java and React applications ○ CI/CD pipelines ○ Unit testing in Java (JUnit)

Testing React components (Jest, React Testing Library)

Debugging techniques for full-stack applications