

Java Full Stack Development

-----Fundamental of JAVA-----

Decision Making ✓

Control Flow ✓

Methods ✓

Object-Oriented Concepts (Abstraction, Inheritance, Polymorphism, and Abstraction)

Arrays ✓

File Handling

Debugging

Collection Framework

Generics

Multithreading

Lambda-expression

Language syntax

Exception handling

Input/Output

-----Fundamental Of DSA-----

Arrays: Contiguous memory locations for storing elements.

Linked Lists: Elements linked together in a linear sequence.

Stacks: Follows Last In, First Out (LIFO) principle.

Queues: Follows First In, First Out (FIFO) principle.

Trees: Hierarchical structure with nodes connected by edges.

Graphs: Networks of nodes connected by edges.

Algorithms

Searching Algorithms: Find the location of a specific item in a collection.

Examples: Linear Search, Binary Search.

Sorting Algorithms: Arrange elements in a specific order.

Examples: Bubble Sort, Merge Sort, Quick Sort.

Graph Algorithms: Traverse or manipulate graphs.

Examples: Depth-First Search (DFS) and breadth-first Search (BFS).

Dynamic Programming: Solve complex problems by breaking them into simpler overlapping subproblems.

Example: Fibonacci Sequence calculation.

Greedy Algorithms: Make locally optimal choices to find a global optimum at each stage.

Example: Dijkstra's algorithm for finding the shortest path.

-----Front-End Development-----

HTML

CSS

JavaScript

Some of the popular front-end frameworks highly used are:

React Framework

Angular Framework

-----Backend Development with Java-----

Core Java

JSP and Servlets

Spring Framework

Spring Boot

Hibernate Framework

-----Database Management System-----

RDBMS

SQL(Structured Query Language)

NoSQL (Not Only SQL)

Java Build Tools and Dependency Management

Gradle

Maven

-----Web Services and Java APIs-----

SOAP

JSON

RESTful API

-----Explore Cloud Computing (Bonus)-----

AWS

Other Mandatory Tools and Skills for Java Developers

Git

GitHub

Docker

Kubernetes

Jira and Confluence

PROJECTS

Beginner Project Ideas for Full-Stack Java Developers:

To-Do App: Manage tasks with CRUD operations on a local database. Explore basic Java and front-end frameworks.

Personal Website: Showcase skills with a dynamic site using Java backend and front-end frameworks like Bootstrap or React.

Quiz Game: Build a fun quiz app with a Java backend and a responsive front-end like Angular or Vue.js. Implement scoring and interaction.

Intermediate Project Ideas for Full-Stack Java Developers:

E-commerce Store: Design a small online store with product listings, cart, and user authentication. Use Spring Boot backend and a front-end framework like React or Angular for a modern experience. Explore payment APIs.

Blog Platform: Create a platform for managing blog posts, including user registration, content editing, and comments. Use Java and a database like MySQL, and choose a front-end framework for the interface.

Social Media Clone: Develop a scaled-down version of a popular platform, focusing on key features like profiles, feeds, and basic interaction. Implement user authentication and WebSocket/Kafka communication for real-time updates.

Advanced Project Ideas for Full-Stack Java Developers:

Real-time Chat App: Build a chat application with real-time updates and group chat using WebSocket and Spring Kafka. Design a scalable architecture for high-user traffic.

Job Board Platform: Create a platform for job seekers and employers, including job posting, searching, and applications. Implement search algorithms, recommendation systems, and user roles with secure access control. Explore microservices and cloud deployment.

Project Management Tool: Build a collaborative tool with task management, team communication, and progress tracking. Use agile methodologies and integrate Kanban boards and Gantt charts. Design a user-friendly interface with file sharing and notifications.