



JAVA FULL STACK

Build a strong understanding of Java programming and web development technologies to become a Full-Stack Java Developer with React. Get hands-on experience with various Java frameworks for backend development and React for frontend development. Create a portfolio of projects by developing end-to-end web applications using Java and React frameworks.

Build Your Own Static Website

This course helps you build a strong foundation in web technologies such as HTML, CSS. With this, you will create and publish simple and beautiful websites from scratch. You will be learning by doing projects

Building Web Applications using Gen AI

- Introduction to GenAI in Web Development

Software Development Fundamentals

- Importance of Frontend
- Fundamentals
- Syntax
- Debugging
- Tweaking Code

HTML Basics

- Getting Started
- HTML Elements
- HTML Headings
- HTML Paragraphs
- HTML Button
- HTML Attributes
- HTML Images
- HTML Hyperlinks
- HTML Containers
- HTML Lists

CSS Basics

- CSS Rulesets
- CSS Colors
- CSS Box Model
- CSS Paddings
- CSS Properties
- CSS Units
- CSS Margins
- CSS Borders

Generative AI For Accelerated Learning

- Leveraging Gen AI for accelerated learning
- Leveraging Gen AI for debugging
 - Understanding Errors
 - Fixing Code with Errors
 - Code Explanation
 - Generating Code
- Building a static Website using Gen AI

Bootstrap Components

- Carousel
- Embedding Videos

Industry Readiness

- VS Code Setup
- Chrome Dev Tools
- Online Code Editors



Course Project

Tourism Website

Build your Tourism Website by using
HTML5, CSS3, and Bootstrap

Build Your Own Responsive Website

This course helps you build a strong foundation in web technologies such as HTML, CSS, and Bootstrap. With this, you can create a responsive web application that runs smoothly across all devices, like desktop, tablet, and mobile.

Intermediate CSS

- Block vs inline elements
- CSS Selectors
 - Class Selector
 - Id Selector
 - Type Selector
 - CSS Specificity
- CSS Inheritance
- CSS Cascading
- Pseudo-classes
 - : hover
 - : visited
 - : first-child
 - : last-child
 - : nth-child()

Generative AI For Accelerated Learning

- Building a Responsive Website using Gen AI



Course Project

Food Munch

Build a responsive Food Munch website using HTML5, CSS3, and Bootstrap Grid System.

Bootstrap

- Bootstrap Grid System
 - Container
 - Row
 - Column
- Bootstrap Utilities
 - Display Utilities
 - Flex Utilities
 - Sizing Utilities
 - Spacing Utilities
 - Colors
- Bootstrap Components
 - Navbar
 - Buttons

Industry Readiness

- Framer
- Chrome Dev Tools



Course Project

E-commerce Website

Build a responsive E-commerce website using HTML5, CSS3, and Bootstrap Grid System

Modern Responsive Web Design

CSS Layouting

CSS Flexbox

- Display
- Flex-direction
- Justify-content
- Flex-shrink
- Align-items
- Flex-wrap
- Flex-row
- Order
- Align-content
- Align-self
- Flex-grow

Sizing Elements

- Overflow
- Content Box
- Box Sizing
- Border Box

Generative AI For Accelerated Learning

- Leveraging Gen AI for accelerated learning
- Leveraging Gen AI for debugging
 - Understanding Errors
 - Code Explanation
 - Fixing Code with Errors
 - Generating Code
- Building a Responsive Website using Gen AI

CSS Media Queries

- Media Query
- Media Types
- Media Features
- Width, min-width, max-width
- Height, min-height, max-height
- Orientation
- Combining Multiple Media Queries
 - Logical Operators (and, or, not)

CSS Positioning

- CSS Position properties
- Changing Element's Position
- Changing Positioned Ancestor

Tailwind CSS

Introduction to Tailwind CSS

- Why Tailwind CSS?
- Advantages
- Setting up Tailwind CSS
- Common Utility Classes

Tailwind Display & Responsive Utilities

- flex-row, flex-col, justify-center, etc.
- Grid Utilities (grid grid-cols-, col-span-, etc.)
- Responsive Utilities(sm, md, lg, xl, etc.)

Core Java

In this course, you will learn the fundamental concepts of Java programming. Upon completing this course, you will be able to write high-quality and reusable code in Java.

Java Environment & Basics

- JVM, JRE, JDK, History, Features
- Data Types
- Operators
 - Unary Operator
 - Arithmetic Operator
 - Relational Operator
 - Assignment Operator
 - Logical Operator
 - Bitwise Operator
 - Shift Operator

Generative AI For Accelerated Learning

- Code Explanation
- Maximize Your Learning with AI
- Generating Code
- Quiz Generation
- Coding Problem Generation

Control Flow

- if/else
- switch
- Ternary Operator
- while loop
- do-while loop
- for
- Loop Control Statements
 - break
 - continue
- Nested Loops

Generative AI For Accelerated Learning

- Role of Gen AI in Learning
- Leveraging Gen AI for Enhanced Learning(prompts)
 - Understanding Errors
 - Fixing Code with Errors
 - Concept-wise Interview Preparation

Object-Oriented Programming (OOP)

- Classes, Objects, Constructors
- Methods
- Inheritance
- Polymorphism
 - Overloading
 - Overriding
- Abstraction
 - Abstract Classes
 - Interfaces
- Encapsulation
 - Access Modifiers

Arrays

- Types of Arrays
- Array Methods
- ForEach loop

String Handling

- The String class
- StringBuffer, StringBuilder
- Immutability

Collections Framework

- Interfaces (List, Set, Map)
- Implementations (ArrayList, HashMap, HashSet, TreeSet, Stack, Queue, Dequeue)
- Iterators, Generics

Exception Handling

- try-catch-finally
- throws and throw
- Checked vs. Unchecked Exceptions
- Custom Exceptions
- Garbage Collection

Multithreading

- Creating Threads (Thread, Runnable)
- Thread Lifecycle
- Synchronization (synchronized methods/blocks)
- Inter-thread communication

I/O Streams (Optional)

- File handling
- Byte Streams vs. Character Streams

Java 8 Features

- Lambda Expressions
- Stream API for collection processing
- Functional Interfaces

Introduction to Databases

Learn about the incredibly prevalent databases today. Through this course, you'll develop strong fundamentals and be proficient in concepts related to Databases and DBMS. Most importantly, you'll also be able to perform powerful queries on databases using SQL.

Relational Databases

- Introduction to SQL
- Database Design
- ACID Properties

Generative AI For Accelerated Learning

- Maximize Your Learning with AI
- Query Explanation
- Concept Explanation
- Generating Query

SQL Operations

- CREATE
- UPDATE
- INSERT
- DELETE
- SELECT

Advanced SQL Modeling

- ER Model
- Creating a Relational Database

Advanced SQL

- Joins
- Subqueries
- Indexes
- Views

GenAI for SQL Development

- Translating business requirements to SQL with AI
- Debugging with AI Assistance
- Query optimization with AI assistance

Industry Readiness

- Setting up a local database server
- Querying in VS Code

Advanced Java

In this course, you will deepen your knowledge of Java and web development. You will learn how to connect to databases, handle web requests, and implement a variety of Java technologies in real-world applications.

Database Connectivity (JDBC)

- JDBC Architecture
- JDBC Drivers
- Establishing Connection with SQLite
- Executing SQL (Statement, PreparedStatement)
- ResultSet, Transaction Management

Servlets

- Web Application Architecture
- Servlet Lifecycle
- Request Dispatcher
- URL Mapping
- Context and Config objects
- Session Management (Cookies, HttpSession)

JSP (JavaServer Pages)

- JSP Architecture, Lifecycle
- Directives, Scripting Elements
- Implicit Objects
- JSP Standard Tag Library (JSTL)
- Expression Language (EL)

MVC (Model-View-Controller) pattern introduction

- Project Build Tool
- Maven or Gradle (POM, dependencies, build phases)
- Version Control with Git and GitHub

Session Management (Cookies, HttpSession)

Using Maven for Project Build



Course Project Online Library Management System

Build a web-based library system to manage book catalogs, user registrations, and borrowing transactions, using JDBC, Servlets, and JSP

Hibernate and Spring

In this course, you will learn how to use Hibernate for Object-Relational Mapping (ORM) and Spring for dependency injection and web application development.

Introduction to ORM & JPA

- What is ORM
- Advantages of ORM
- Introduction to JPA (Java Persistence API)

Hibernate Core

- Hibernate Architecture
- Configuration (XML/Annotation)
- SessionFactory, Session
- Entity and Persistent Class
- Hibernate Query Language (HQL)
- CRUD Operations

Entity Mappings

- Annotations for mapping
- Primary Keys
 - ID generation strategies
- Relationships
 - One-to-One
 - One-to-Many
 - Many-to-One
 - Many-to-Many mappings

Spring Fundamentals

- Introduction to the Spring Framework
- Core Container
- Inversion of Control (IoC) principle
- Dependency Injection (DI)
- Spring Beans (Scopes and Lifecycle)
- Java-based and Annotation-based Configuration
- Spring Data JPA Integration with Hibernate



Course Project Employee Management System

Build a web-based system for managing employee records, departments, roles, and generating reports, using Hibernate ORM and Spring for dependency injection and database management.

Spring Boot and RESTful Web Services

In this course, you will learn how to create and deploy a backend web application using Spring Boot. You will also dive into the world of RESTful web services and how to handle API security.

Spring Boot Basics

- Introduction to Spring Boot
- Spring Boot Starters & Auto Configuration
- Query Methods in Repository
- Pagination & Sorting in Repository

Building RESTful APIs

- Creating RESTful APIs
- Spring Data JPA
 - CRUD
 - Pagination
 - Relationships
- DTOs and Entity Mapping
- Query Methods in Repository
 - Custom queries
 - QueryDSL
 - specifications
- Pagination & Sorting in Repository
 - Using Pageable and Sort

Security & Validation

- Validation & Exception Handling
- JWT Authentication & Authorization
- Security
 - OAuth2
 - JWT token-based authentication

Microservices with Spring Boot

- Monolithic vs. Microservices Architecture
- Creating Independent Services with Spring Boot
- Inter-Service Communication
 - REST, Feign
- Service Discovery
 - Eureka Server
- Testing Microservices
 - Postman

Monitoring & Documentation

- Actuator & Application Monitoring
- API Documentation
 - Swagger

Application Deployment

- Application Packaging & Deployment
 - Local
- Ind



Course Project E-commerce Application

Build an Ecommerce backend application
using Spring boot

Build Your Own Dynamic Web Application

Introduction to JavaScript

- Data Types, Variables, Basic Operators
- Conditionals, Loops, Functions
- Arrays, Objects, Control Flow
- Comments, Math Function

DOM Manipulation

- Introduction to the DOM
- Select and Manipulate DOM Elements
- Manipulating Style, Text, and Content

Forms

- HTML Form Elements (input, select, button)
 - Form validations and Input

Array Methods

- Push, Unshift, Pop, Shift
- Find, IndexOf, Concat

Events, Fetch & Callbacks

- Event Listeners
- Callbacks, setTimeout, clearTimeout
- HTTP Requests using Fetch
- Working with JSON data



Course Project

Todos Application

Build a Todos Application using HTML5, CSS3, and JavaScript

JavaScript Essentials

In this course, you will learn key JavaScript concepts such as events, scope, hoisting, classes, error handling, and asynchronous JavaScript.

Rest Parameters and Spread Syntax

- Destructuring Arrays and Objects

Asynchronous JS

- Async/Await
- Promises

Array Methods

- map, filter, reduce

String Manipulations

- trim, split, toUpperCase, toLowerCase, includes

React JS

In this course, you will learn how to build stateful web applications with the ReactJS library. Upon completion, you will be comfortable creating an application in ReactJS from scratch.

Introduction to React JS

- Why React?
- Introducing JSX
- Rendering Elements, Components, and Props

State and Effect Hooks

- `useState()`, `useEffect()`
- Handling Events
- Component Life Cycle

Routing

- `useParams()`, `useNavigate()`
- Protected Route with JWT Authentication

React Context

- use() Provider Component



Course Project

E-commerce Application

Build an e-commerce application using React JS

Java and React Integration

- Setting Up React–Spring Boot Integration
- Understanding CORS and Proxy Configuration
- API Consumption using Axios
- JWT Handling between Frontend and Backend
- State Persistence (Cookies vs Local Storage)
- Global Error Handling Across Layers
- Testing Integration using Postman & Browser Tools
- Optimizing API Calls & Rendering
- Deploying Integrated Application (Local Host Environment)

Capstone Project - Social Networking Web App

In this project, you will develop a Social networking web app with popular features like posts and comments.

Workshops

Gen AI

- Explore Generative AI, understanding its principles and applications.

Git Basics

- Learn the fundamentals of Git and how to manage code efficiently in software development.

AWS Hackathon

- Build a backend using Java and deploy applications to AWS.