

## Java & J2EE

### 4 Weeks

#### Basics

- Introduction to OOP
- Introduction to JVM
- Components of Java EE for Web development
- Encapsulation, inheritance and polymorphism

#### Java object-oriented features

- Instantiating objects from classes
- Extending existing classes
- Overloading and overriding methods
- Methods (functions)
- Abstract classes and interfaces
- Organizing classes with packages and visibility modifiers

#### String & Exception in Java

- Strings in Java
- Exception Handling (use of try, catch, finally, creating own exception)

#### Storing and Retrieving Data with File I/O

- Java streams, Readers and Writers
- Accessing files and Directories
- Reading and writing files
- Creating, deleting and renaming files

#### Java Connectivity with Relational Databases Using JDBC

- Leveraging the JDBC API
- Choosing database drivers
- Connecting to a database
- Improving performance with prepared statements
- Submitting SQL statements
- Retrieving and processing results

## Generating Content with Servlets

- Integrating servlets into the Web application architecture
- Accessing servlet environment variables
- Linking forms to servlets
- Retrieving form data in the servlet

## User State Management in Java Web Applications

- Different session management techniques
- URL Rewriting
- Hidden Fields
- Cookies
- Session Object
- Knowing which technique to use

## Implementing Java Server Pages (JSP)

- JSP fundamentals
- Design goals of JSP
- Using JSP scriptlets, expressions and declarations
- Communicating with the client using built-in JSP server objects
- Storing common application data

## Front-End Functionalities

- Java Script
- Template Editing (HTML, CSS)

## Case Study

### Minor Project