Introduction to Java\

Learning Objective

Get an introduction to Java and its key components

Topics

- Java Introduction
- Overview of Java
- JDK, JRE, JVM
- Installing the JDK
- Java IDEs
- Writing First Code

Java Language Features

Learning Objective

Understand the key features of Java

Topics

- Introduction to Java Language Features
- Class Files
- Compilation Process
- Comments
- Keywords

Basic Data Types

Learning Objective

Learn about the different data types in Java

Topics

- Introduction to Basic Data Types

- Variables
- Constants
- Integer
- Float
- Character
- String
- Boolean

Operators

Learning Objective

Understand the different operators that can be used in Java

Topics

- Introduction to Operators
- Arithmetic
- Relational
- Logical
- Other Operators

Flow Control

Learning Objective

Explore flow control and how to use it in Java

Topics

- Introduction to Flow Control
- If else
- For
- While and Do While
- Jump statements

Arrays

Learning Objective

Learn about the types of arrays and how to use them

Topics

- Introduction to Arrays
- Single Dimensional Arrays
- Multi-Dimensional Arrays
- For Each
- Fundamentals Project

Object Oriented Programming

Learning Objective

Explore how object-oriented programming is implemented in Java.

Topics

- Introduction to Classes and Objective
- Single Dimensional Arrays
- Class and Object Creation
- Constructors

Methods

Learning Objective

Learn about the different methods used in Java

Topics

- Introduction to Methods
- Needs for Methods
- Method Signatures

- Polymorphism

Inheritance

Learning Objective

Learn what inheritance means in Java and where it applies

Topics

- Introduction to Inheritance
- Extending Classes
- Super
- Run-time Polymorphism

Packages and Interfaces

Learning Objective

Learn how to use packages and interfaces in Java

Topics

- Introduction to Packages and Interface
- Packages
- Inner Classes
- Interfaces
- Classes Project

Exception Handling

Learning Objective

Understand how exception handling is performed in a Java environment

Topics

- Introduction to exception handling
- Java Exceptions
- Try-Catch
- Multiple Catch
- Nested Try
- Throw and Throws
- Finally
- Chaining Exceptions

Multi-Threading

Learning Objective

Understand Multi-Threading and how to work with it.

Topics

- Introduction to Multi-Threading
- Creating a Thread
- Thread Priorities
- Synchronization in Threads

Generics

Learning Objective

Learn about Java generics and how to use it.

Topics

- Introduction to Generics
- Creating Generics
- Constraints
- Comparable Interface

Lambda Expressions

Learning Objective

Learn about Java Lambda Expressions and when to use them

Topics

- Lambda Expressions
- Introduction to Lambda Expressions
- Passing Lambda Expressions as Arguments
- Lambda Expression and Variable Capture
- Method References

String Handling

Learning Objective

Learn how to perform String Handling in Java

Topics

- Introduction to String Handling
- String Basics
- String Methods
- StringBuilder Class

Data Structures in Java

Learning Objective

Explore Data Structures in Java

Topics

- Introduction to Data Structures in Java
- Lists, Sets, and Queues
- Maps
- Iterators and Comparators

Streams API

Learning Objective

Learn how to use Streams API in Java

Topics

- Introduction to Streams API
- Stream Basic
- Reduction Operations and Parallel Streams
- Mapping and Collecting
- Iterators and Streams

Input Output Streams (I/O)

Learning Objective

Understand what Input streams and Output Streams mean in Java

Topics

- Introduction to Input Output Streams
- Input and Output Streams
- Readers and Writers
- File Permissions
- Input Output Project

Networking

Learning Objective

Understand how to perform networking using Java

Topics

- Introduction to Networking
- Http URL Connection
- Http Client
- Http Cookies

Maven

Learning Objective

Learn to use Maven for Java projects

Topics

- Introduction to Maven

XML and JSON

Learning Objective

Learn how to use XML and JSON in Java

Topics

- Introduction to XML and JSON
- XML Parsing
- XML Creation and Modification
- JSON Serializing
- Networking Project

JDBC Basics

Learning Objective

Learn how to use JDBC to connect and execute queries in a database.

Topics

- Introduction to JDBC Basics
- Working with a MySQL database
- JDBC Project

Capstone

- Use the iTunes Search API to discover music information about a specific artist
- Use the Random user Generator API to create users in a MySQL database using XML format.