DEEPCLOUDLABS

Training Programs and Consultancy Services

2022 Catalog

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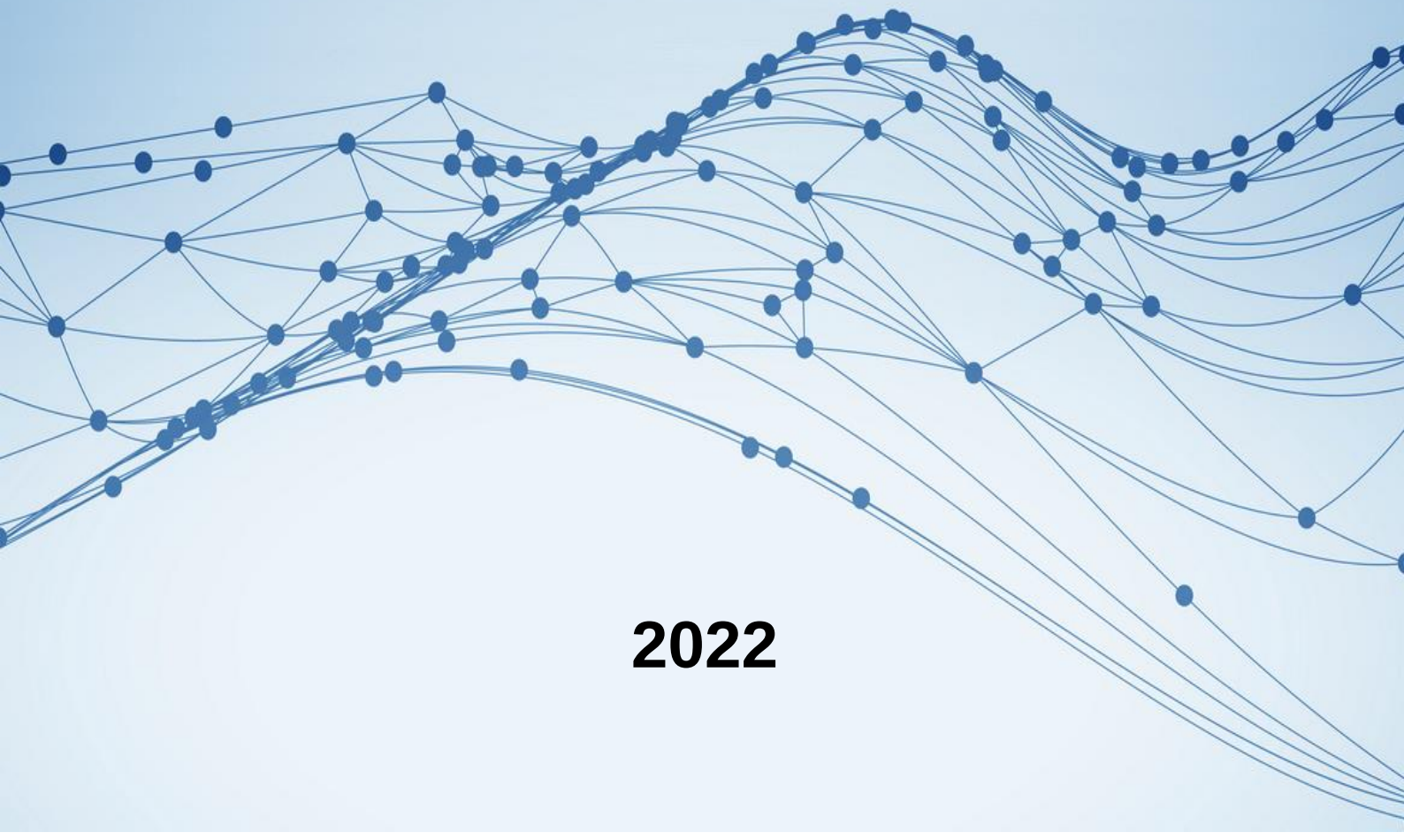

2022

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1 INTRODUCTION

DEEPCLOUDLABS offers instructor-led, technical classroom training for the Information Technology industry. This is the most effective way to learn and improve technical skills. Our proven training solution helps corporates enhancing organizational capabilities through empowering their employees with technical skills. Our fully configured lab environment provides students hands-on access to applications taught in our classrooms, enabling them to learn on their schedules. Our mentoring service help students to learn at their own pace with our highly skilled instructors in their workplace.

ABOUT DEEPCLOUDLABS

DEEPCLOUDLABS is an innovation company with Research and Development teams that focus on all aspects of the following topics

- Cloud Computing
- Big Data Analytics
- Artificial Intelligence and Machine Learning
- Image and Video Analytics
- Blockchain and crypto-currency
- Algorithmic and High-Frequency Trading
- Project Management and Software Process Enhancement

DEEPCLOUDLABS Services provide access to the talent and systems you need to innovate faster and deliver real business value. We offer a full range of professional services:

- **CONSULTING: DEEPCLOUDLABS** provides advice, expertise, and consulting services for Blockchain Technology, AI-Machine Learning, and Software Development.
- **CORPORATE TRAINING: DEEPCLOUDLABS** provides hands-on training for real-world problems. We offer in-house and external corporate training and teaching seminars, workshops, and talks.
- **RESEARCH & DEVELOPMENT: DEEPCLOUDLABS** can help you study new concepts around Data Analytics, AI-Machine Learning, and Blockchain Technologies.
- **SOFTWARE DEVELOPMENT:** Agile implementation of advanced Big Data Analytics applications. Increase accuracy and productivity using cognitive technology to process data.
- **OUTSOURCED DEVELOPERS:** Hire our talented developers for a certain period.

Our engineering team has been comprised of great individuals with Ph.D. and M.Sc. degrees and engineering experience, capable of making innovations and transforming these innovations into products.

2 OUR TRAINING & CONSULTANCY REFERENCES

Companies we have delivered **TRAININGS** and **CONSULTANCY** services:

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3 TRAINING OVERVIEW

DEEPCLOUDLABS offers training in the following fields:

- **BIG DATA AND MACHINE LEARNING TRAINING**

Course Code	Course Title	Duration (Days)
DCL-160	Introduction to Python Programming	4
DCL-162	Advanced Python Programming	3
DCL-700	Big Data Essentials	3
DCL-702	Data Analytics using Python	3
DCL-710	Practical Machine Learning using Python	4
DCL-722	Deep Learning for Computer Vision	4
DCL-724	Deep Learning for Medical Image Analysis	4
DCL-726	Deep Learning with PyTorch	4
DCL-728	Deep Learning with TensorFlow	4
DCL-730	Foundation of Deep Learning with Backbone Architecture Papers	4
DCL-732	Deep Learning with Backbone Learning Paradigm Papers	4
DCL-760	Edge Computing: Deployment & Inference with NVIDIA Jetson	4

- ## JAVA SE TRAINING

Course Code	Course Title	Duration (Days)
DCL-200	Java Performance Tuning and Optimization	3
DCL-204	Java SE 17 Programming	5
DCL-205	Preparation for OCA/OCP Java SE 11 Programmer Exams	3
DCL-208	Clean Architecture and Code (Java SE/Spring Boot/Jakarta EE)	2
DCL-210	Advanced Java Programming	4
DCL-215	Test Driven Development with JUnit 5	3
DCL-220	OOP Principles and Design Patterns (in Java)	2
DCL-222	Design Patterns in Java and UML 2	3
DCL-230	Object-Oriented Analysis and Design using UML 2	4
DCL-235	Effective Java Programming	4
DCL-252	New Features in Java SE 8-17	2
DCL-255	New Features of Java Platforms (Java SE 8-17, Jakarta EE 9)	3

- ## SPRING TRAINING

Course Code	Course Title	Duration (Days)
DCL-168	Kotlin Programming	3
DCL-370	Spring Framework 5	5
DCL-372	Spring Core 5	3
DCL-374	Developing Spring Boot 2 Applications	3
DCL-375	Developing Enterprise Applications using Spring Framework 5	5
DCL-376	Spring Data	3
DCL-378	Spring Security 5	2

- ## MICROSERVICE TRAINING

Course Code	Course Title	Duration
DCL-350	Implementing MicroService Architecture using Spring Cloud	5
DCL-352	Domain-Driven Design Essentials	2
DCL-355	MicroService Patterns with examples in Java and Spring	2
DCL-356	Cloud Architecture Patterns	2
DCL-358	Implementing Event-Driven MicroService Architecture using Spring Boot and Apache Kafka	3
DCL-640	Apache Kafka: Architecture and Development	2
DCL-642	RabbitMQ: Architecture and Administration	2

- ## JAVASCRIPT TRAINING

Course Code	Course Title	Duration (Days)
DCL-302	Node.js Programming	3
DCL-304	Advanced JavaScript Programming	4
DCL-305	Developing Angular Applications	3
DCL-306	Developing React Applications	3
DCL-308	Developing RIA using Spring Boot and Angular	5
DCL-310	Client-side and Server-side JavaScript Programming	4
DCL-314	Building Scalable Web Applications using Node.js and MondoDB	4
DCL-316	Developing Rich Internet Applications using HTML5, CSS3, and JS	5
DCL-318	Developing Vue 3 Applications	3

- ## JAKARTA EE TRAINING

Course Code	Course Title	Duration (Days)
DCL-342	Jakarta Persistence 3.0	3
DCL-364	Design Patterns and Best Practices in Jakarta EE 9	4
DCL-365	Architect Enterprise Applications with Jakarta EE 9	4
DCL-390	Developing Enterprise Applications on Jakarta EE 9	5
DCL-420	Developing SOAP and RESTful Web Services on Jakarta EE 9	4

- ## C/C++ TRAINING

Course Code	Course Title	Duration (Days)
DCL-100	C Programming Language	4
DCL-112	Object-Oriented Programming using C++20	4
DCL-113	Functional Programming in C++20	2
DCL-115	Multi-Threaded Programming in C++20	3
DCL-118	Advanced C++ Programming	3
DCL-120	OOP Principles and Design Patterns (*in* C++)	2
DCL-140	Linux System Programming	4

- ## MySQL TRAINING

Course Code	Course Title	Duration (Days)
DCL-600	MySQL 5.7/8 Workshop	3
DCL-605	MySQL High Availability Workshop	3
DCL-608	MySQL Cluster Workshop	3

- ## APPLICATION SERVER TRAINING

Course Code	Course Title	Duration (Days)
DCL-632	JBoss EAP 7: Administration	4
DCL-640	Weblogic 12c Administration Workshop	3

- ## KAFKA AND RABBITMQ TRAINING

Course Code	Course Title	Duration (Days)
DCL-640	Apache Kafka: Architecture and Development	2
DCL-642	RabbitMQ: Architecture and Administration	2

4 BIG DATA AND MACHINE LEARNING TRAININGS

Course Code	Course Title	Duration (Days)
DCL-160	Introduction to Python Programming	4
DCL-162	Advanced Python Programming	3
DCL-700	Big Data Essentials	3
DCL-702	Data Analytics using Python	3
DCL-710	Practical Machine Learning using Python	4
DCL-722	Deep Learning for Computer Vision	4
DCL-724	Deep Learning for Medical Image Analysis	4
DCL-726	Deep Learning with PyTorch	4
DCL-728	Deep Learning with TensorFlow	4
DCL-730	Foundation of Deep Learning with Backbone Architecture Papers	4
DCL-732	Deep Learning with Backbone Learning Paradigm Papers	4
DCL-760	Edge Computing: Deployment & Inference with NVIDIA Jetson	4

4.1 Introduction to Python Programming

Course Code : DCL-160
Course Title : Introduction to Python Programming
Duration : 4 Days

Course Overview

This course provides an introduction to Python programming. The main goal of this course is to become a Python programmer, to truly understand basics of Python, data structures, conditionals, loops, variables, file operations, functions and usage of Python Standard Library modules.

DCL-160 is suitable for beginners to programming and Python and minimal prior programming exposure may be helpful but not needed for this course.

Course Modules

Module 1 - Introduction to Programming

Module 2 - Basics of Python

Module 3 - Variables and Expressions

Module 4 - Python Data Types

Module 5 - Conditional Control Statements

Module 6 - Loop Control Statements

Module 7 - Defining Functions for Code Reuse

Module 8 - Error and Exception Handling

Module 9 - File Operations

Module 10 - Object Oriented Programming

Module 11 - Modules and Packages

Module 12 - Fundamental Functions from Python Standard Library

4.2 Advanced Python Programming

Course Code : DCL-162
Course Title : Advanced Python Programming
Duration : 3 Days

Course Overview

This training picks up where Python Programming left off, covering some topics in more detail and adding new ones. For instance, classes are covered in greater detail, functional programming, file data, unit testing, database connectivity, writing RESTful services, numerical processing, and analyzing streaming data with PySpark.

Course Modules

Module 1 - Object-Oriented Programming in Python

Module 2 - Functional Programming in Python

Module 3 - Unit Testing in Python using PyTest

Module 4 - File Operations in Python

Module 5 - XML Processing in Python

Module 6 – Thread Programming

Module 7 - MySQL Programming in Python

Module 8 - MongoDB Programming in Python

Module 9 - Introduction Web Architectures

Module 10 - Designing and implementing RESTful services in Python using Flask

Module 11 - Introduction to Graphical User Interface with Python

4.3 Big Data Essentials

Course Code : DCL-700
Course Title : Big Data Essentials
Duration : 3 Days

Course Modules

Module 1 – Understanding Big Data
Module 2 – Understanding Hadoop
Module 3 – HDFS
Module 4 – MapReduce
Module 5 – Hadoop Ecosystem
Module 6 – Planning Hadoop Cluster
Module 7 – Hadoop Installation
Module 8 – Managing Jobs
Module 9 – Apache Hive
Module 10 – Apache Spark
Module 11 – Apache Spark SQL
Module 12 – Apache Spark Streaming
Module 13 – Data Science
Module 14 – Machine Learning
Module 15 – Machine Learning with Spark

4.4 Data Analytics using Python

Course Code : DCL-702
Course Title : Data Analytics using Python
Duration : 3 Days

Course Modules

Module 1 - Python Language Basics

Module 2 - Built-in Data Structures, Functions, and Files

Module 3 - NumPy Basics: Arrays & Vectorized Computation

Module 4 - Pandas

Module 5 - Data Loading, Storage, and File Formats

Module 6 - Data Cleaning and Preparation

Module 7 - Data Wrangling: Join, Combine, and Reshape

Module 8 - Plotting and Visualization

Module 9 - Data Aggregation and Group Operations

Module 10 - Time Series

4.5 Practical Machine Learning using Python

Course Code : DCL-710
Course Title : Practical Machine Learning using Python
Duration : 4 Days

Course Modules

Module 1 - Introduction to Machine Learning

Module 2 - Machine Learning Project

Module 3 - Classification

Module 4 - Training Models

Module 5 - Support Vector Machines

Module 6 - Decision Trees

Module 7 - Ensemble Learning and Random Forests

Module 8 - Dimensionality Reduction

Module 9 - Unsupervised Learning Techniques

Module 10 - Introduction to Artificial Neural Networks

Module 11 - Introduction to Deep Neural Networks

4.6 Deep Learning for Computer Vision

Course Code : DCL-722
Course Title : Deep Learning for Computer Vision
Duration : 4 Days

Course Modules

Module 1 - Fundamentals of Machine Learning

Module 2 - Introduction to Deep Learning

Module 3 - Introduction to Computer Vision

Module 4 - Open Datasets for Computer Vision Tasks

Module 5 - Python Review for Deep Learning

Module 6 - Basics of Deep Learning Frameworks (PyTorch or TensorFlow)

Module 7 - Convolutional Neural Networks

Module 8 - Fundamental Model Development Pipeline

Module 9 - Pre-trained Models, Transfer Learning and Fine-Tuning

Module 10 - Image Classification

Module 11 - Object Detection

Module 12 - Semantic Segmentation

Module 13 - Image Generation

4.7 Deep Learning for Medical Image Analysis

Course Code : DCL-724
Course Title : Deep Learning for Medical Image Analysis
Duration : 4 Days

Course Modules

Module 1 - Fundamentals of Machine Learning

Module 2 - Introduction to Deep Learning

Module 3 - Open Datasets for Medical Imaging Tasks

Module 4 - Python Review for Deep Learning

Module 5 - Basics of Deep Learning Frameworks (PyTorch or TensorFlow)

Module 6 - Convolutional Neural Networks

Module 7 - Medical Image Processing

Module 8 - Fundamental Model Development Pipeline (using Medical Image Data)

Module 9 – Pre-trained Models, Transfer Learning and Fine-Tuning

Module 10 - Medical Image Classification (Chest X-ray)

Module 11 - Medical Image Segmentation (CT)

4.8 Deep Learning with PyTorch

Course Code : DCL-726
Course Title : Deep Learning with PyTorch
Duration : 4 Days

Course Modules

Module 1 - Fundamentals of Machine Learning

Module 2 - Introduction to Deep Learning

Module 3 - Open Datasets for Common Deep Learning Tasks

Module 4 - Python Review for Deep Learning

Module 5 - PyTorch Basics

Module 6 - Dataset Preparation using PyTorch

Module 7 - Fundamental Model Development Pipeline

Module 8 - Pre-trained Models, Transfer Learning and Fine-Tuning

Module 9 - Convolutional Neural Networks

Module 10 - Deep Sequence Modeling

Module 11 - Computer Vision Applications

Module 12 - Natural Language Processing Applications

4.9 Deep Learning with TensorFlow

Course Code : DCL-728
Course Title : Deep Learning with TensorFlow
Duration : 4 Days

Course Modules

Module 1 - Fundamentals of Machine Learning

Module 2 - Introduction to Deep Learning

Module 3 - Open Datasets for Common Deep Learning Tasks

Module 4 - Python Review for Deep Learning

Module 5 - TensorFlow Basics

Module 6 - Dataset Preparation using TensorFlow

Module 7 - Fundamental Model Development Pipeline

Module 8 - Pre-trained Models, Transfer Learning and Fine-Tuning

Module 9 - Convolutional Neural Networks

Module 10 - Deep Sequence Modeling

Module 11 - Computer Vision Applications

Module 12 - Natural Language Processing Applications

4.10 Foundation of Deep Learning with Backbone Architecture Papers

Course Code : DCL-730
Course Title : Foundation of Deep Learning with Backbone Architecture Papers
Duration : 4 Days

Course Overview

This training aims to get trainees gained hands-on experience with backbone papers of deep learning as well as theoretical foundations of these papers.

Trainees will have a solid understanding of commonly used architectures, how to implement them from scratch and be familiar with various datasets used for computer vision & image recognition. They will also become proficient in PyTorch.

Course Modules

Module 1 - Introduction to Deep Learning

Module 2 - Python Review for Deep Learning

Module 3 - Intensive PyTorch Training

Module 4 - Visualizing and Understanding Convolutional Networks

Module 5 - AlexNet

Module 6 - VGG Net

Module 7 - Res Net

Module 8 - Dense Net

Module 9 - U-Net

4.11 Deep Learning with Backbone Learning Paradigm Papers

Course Code : DCL-732
Course Title : Deep Learning with Backbone Learning Paradigm Papers
Duration : 4 Days

Course Overview

This training aims to get trainees gained hands-on experience with different applications of deep learning from natural language processing, computer vision and image generation to advanced CNN features and various learning paradigms.

Trainees will have a broad view of deep learning and do the best-practices. They will also gain a deep Pytorch knowledge.

Course Modules

Module 1 - Fundamentals of Machine Learning

Module 2 - Introduction to Deep Learning

Module 3 - Intensive PyTorch Training

Module 4 - Object Detection with YOLO

Module 5 - Attention Is All You Need

Module 6 - Sequence to Sequence Learning with Neural Networks

Module 7 - Image Generation with DCGAN

Module 8 - FaceNet & Metric Learning

Module 9 - Prototypical Networks for Few-shot Learning

4.12 Edge Computing: Deployment & Inference with NVIDIA Jetson

Course Code : DCL-760
Course Title : Edge Computing: Deployment & Inference with NVIDIA Jetson
Duration : 4 Days

Course Overview

This training introduces the NVIDIA Jetson Nano Development Kit which is small, powerful and capable of employing deep neural networks in parallel. First, an introduction to deep learning with a well-known Python framework will be made. Then, the NVIDIA Jetson Nano Kit will be explored through the fundamentals, system setup and a comprehensive edge computing modules.

Moreover, practical applications and possible future research directions will be covered as well in order to prepare you for the real world problems.

Course Modules

Module 1 - Fundamentals of Machine Learning

Module 2 - Introduction to Deep Learning

Module 3 - Python Review for Deep Learning

Module 4 - Introduction to Nvidia Jetson Nano

Module 5 - Nvidia Jetson System Setup

Module 6 - Nvidia Jetson Model Deployment

Module 7 - Nvidia Jetson Inference

Module 8 - Edge Computing with Nvidia Jetson

Module 9 - Computer Vision Applications on Nvidia Jetson

Module 10 - Future Directions with Nvidia Jetson

5 JAVA SE TRAININGS

Overview: Java Platform, Standard Edition lets you develop and deploy Java applications on desktops and servers. Java offers the rich user interface, performance, versatility, portability, and security that today's applications require. Our development team use Java in projects. We offer comprehensive training on latest Java technology developed in collaboration with our development team.

PROGRAM OUTLINE

Course Code	Course Title	Duration (Days)
DCL-200	Java Performance Tuning and Optimization	3
DCL-204	Java SE 17 Programming	5
DCL-205	Preparation for OCA/OCP Java SE 11 Programmer Exams	3
DCL-208	Clean Architecture and Code (Java SE/Spring Boot/Jakarta EE)	2
DCL-210	Advanced Java Programming	4
DCL-215	Test Driven Development with JUnit 5	3
DCL-220	OOP Principles and Design Patterns (in Java)	2
DCL-222	Design Patterns in Java and UML 2	3
DCL-230	Object-Oriented Analysis and Design using UML 2	4
DCL-235	Effective Java Programming	4
DCL-252	New Features in Java SE 8-17	2
DCL-255	New Features of Java Platforms (Java SE 8-17, Jakarta EE 9)	3

5.1 Java Performance Tuning and Optimization

Course Code : DCL-200
Course Title : Java Performance Tuning and Optimization
Duration : 3 Days

Course Overview

At the completion of this course, you should be able to describe basic principles of performance, monitor operating system performance on Linux, and Windows, monitor performance at the JVM and application level, profile the performance of a Java application, describe various garbage collection schemes, tune garbage collection in a Java application, apply basic performance tuning principles to a Java application, tune the performance of a Java application at the language level, apply best practices for performance testing.

Course Modules

Module 1 - JVM Overview and Performance Methodology

Module 2 - Monitoring Operating System Performance

Module 3 - Monitoring JVM and JIT Performance

Module 4 - Profiling (JVisualVM/MissionControl)

Module 5 - Garbage Collection Schemes

Module 6 - Garbage Collection Tuning

Module 7 - Language and GC Concerns

Module 8 - Performance Tuning at Language Level

Module 9 - Performance Tuning at API Level

Module 10 - Benchmarking Java Applications

Module 11 - Maximizing Performance with GraalVM and Quarkus

5.2 Java SE 17 Programming

Course Code : DCL-204
Course Title : Java SE 17 Programming
Duration : 5 Days

Course Overview

Java SE 17 Programming training covers the core language features and Application Programming Interfaces (API) you will use to design object-oriented applications with Java Standard Edition 17 Platform.

Course Modules

Module 1 - Java Platform Overview

Module 2 - Java Syntax and Class Review

Module 3 - Encapsulation and Sub-classing

Module 4 - Overriding Methods, Polymorphism, and Static Classes

Module 5 - Abstract and Nested Classes

Module 6 - Interfaces and Lambda Expressions

Module 7 - Module System

Module 8 - Collections and Generics

Module 9 - Collections Streams, and Filters

Module 10 - Lambda Built-in Functional Interfaces

Module 11 - Lambda Operations

Module 12 - Exceptions and Assertions

Module 13 - Java Date/Time API

Module 14 - I/O Fundamentals and NIO.2

Module 15 - Concurrency

Module 16 - The Fork-Join Framework and Parallel Streams

Module 17 - JShell

Module 18 - Database Applications with JDBC

5.3 Preparation for OCA/OCP Java SE 11 Programmer Exams

Course Code : DCL-205
Course Title : Preparation for OCA/OCP Java SE 11 Programmer Exams
Duration : 3 Days

Course Overview

The training helps you to prepare for OCA and OCP Exams. The training covers all objectives and topics the exams covers. Each topic is studied and supported by two practice exams. This approach ensures that you are ready for the exams.

Course Modules

Part 1: Preparation for OCA Java SE 8 Programmer Exam

Module 1 - Java Building Blocks

Module 2 - Operators and Statements

Module 3 - Core Java APIs

Module 4 - Methods and Encapsulation

Module 5 - Class Design

Module 6 - Exceptions

Part 2: Preparation for OCP Java SE 11 Programmer Exam

Module 1 - Advanced Class Design

Module 2 - Design Patterns and Principles

Module 3 - Generics and Collections

Module 4 - Functional Programming

Module 5 - Dates, Strings, and Localization

Module 6 - Exceptions and Assertions

Module 7 - Concurrency

Module 8 - IO

Module 9 - NIO.2

Module 10 - JDBC

5.4 Clean Architecture and Code (Java SE, Spring Boot and Cloud, Jakarta EE)

Course Code : DCL-208
Course Title : Clean Architecture and Code (Java SE, Spring Boot and Cloud, Jakarta EE)
Duration : 2 Days

Course Modules

Module 1 – Introduction to Software Architectures
Module 2 – Introduction to Clean Architecture
Module 3 – SOLID Principles
Module 4 – Clean Architecture Components
Module 5 – Introduction to Clean Code
Module 6 – Meaningful Names
Module 7 – Functions
Module 8 – Comments
Module 9 – Formatting
Module 10 – Objects and Data Structures
Module 11 – Error Handling
Module 12 – Boundaries
Module 13 – Clean Test
Module 14 – Clean Concurrency

5.5 Advanced Java Programming

Course Code : DCL-210
Course Title : Advanced Java Programming
Duration : 4 Days

Course Overview

The main goal of this training is to become a better Java programmer and a true master of the Java Programming Language, to truly understand threading, Java NIO, to understand the intricacies of Java memory model to improve the performance of your Java application.

Course Modules

Module 1 - Annotations and Reflection API

Module 2 - Collections: Quick summary, Performance, Java Puzzlers on collections, Best Practices

Module 3 - XML Processing: XML and XSD, JAXP (SAX, DOM, StAX), JAXB, XSL, XPath, XQuery

Module 4 - RMI and Distributed Programming

Module 5 - JMX and Programming MBeans

Module 6 - Threads and Concurrent Programming: Quick summary, Callable, Future, FutureTask, Executors, Synchronizers

Module 7 - Database Programming: JDBC, JPA, JTA

Module 8 - NIO and NIO2

Module 9 - Networking (Non-Blocking Sockets, Selector)

Module 10 - JNDI

Module 11 - Security: Digital Signatures, Message Digests, Symmetric/Asymmetric Ciphers

Module 12 - New Language Features in Java 8-17

5.6 Test-Driven Development with JUnit 5

Course Code : DCL-215
Course Title : Test-Driven Development with JUnit 5
Duration : 3 Days

Course Overview

JUnit is a unit testing framework for the Java programming language. JUnit has been important in the development of test-driven development. In this training, the student will get deep understanding of JUnit and will be able to use and execute test frameworks, test cases for Java programs.

Course Modules

Module 1 - Java SE 8/9/11: New Features BootCamp

Functional Programming, Modular Programming, and Reactive Programming

Module 2 - Introduction to JUnit 5

Module 3 - Unit Testing with JUnit 5

Module 4 - MicroService Architecture, Domain-Driven Design, Hexagonal Architecture

Module 5 - Test-Driven Development

Module 6 - Test Doubles: Dummy Object, Stub, Spies, Mocking

Module 7 - Testing Strategies in MicroService Architecture

Module 8 - Spring Boot Testing

Module 9 - Guidelines for Testable Design (Java SE 11, Spring Framework 5)

5.7 Object-Oriented Programming Principles and Design Patterns (in Java)

Course Code : DCL-220
Course Title : Object-Oriented Programming Principles and Design Patterns (in Java)
Duration : 2 Days

Course Overview

This course provides an overview of all the Gang of Four (GoF) design patterns as outlined in their seminal book, together with modern-day variations, adjustments, discussions of intrinsic use of patterns in the Java language.

Course Modules

Module 1 - Object Design Fundamentals

Module 2 - OOP Principles and Design Patterns

Module 3 - Interface Patterns: Adapter, Facade, Composite, Bridge

Module 4 - Responsibility Patterns: Singleton, Observer, Mediator, Proxy, Responsibility, Flyweight

Module 5 - Construction Patterns: Builder, Factory Method, Abstract Factory, Prototype, Memento

Module 6 - Operation Patterns: Template Method, State, Strategy, Command, Interpreter

Module 7 - Extension Patterns: Decorator, Iterator, Visitor

5.8 Design Patterns in Java and UML 2

Course Code : DCL-222
Course Title : Design Patterns in Java and UML 2
Duration : 3 Days

Course Overview

This course provides an overview of all the Gang of Four (GoF) design patterns as outlined in their seminal book, together with modern-day variations, adjustments, discussions of intrinsic use of patterns in the Java language.

Course Modules

Module 1 - Introducing Modeling and the Software Development Process

Module 2 - Creating Use Case Diagrams

Module 3 - Creating Use Case Scenarios and Forms

Module 4 - Creating Activity Diagrams

Module 5 - Creating Interaction Diagrams

Module 6 - Creating State Machine Diagrams

Module 7 - OOP Principles and Design Patterns

Module 8 - Interface Patterns: Adapter, Facade, Composite, Bridge

Module 9 - Responsibility Patterns: Singleton, Observer, Mediator, Proxy, Responsibility, Flyweight

Module 10 - Construction Patterns: Builder, Factory Method, Abstract Factory, Prototype, Memento

Module 11 - Operation Patterns: Template Method, State, Strategy, Command, Interpreter

Module 12 - Extension Patterns: Decorator, Iterator, Visitor

5.9 Object-Oriented Analysis and Design using UML 2

Course Code : DCL-230
Course Title : Object-Oriented Analysis and Design using UML 2
Duration : 4 Days

Course Overview

The course is **not just** about the UML. The UML is a standard diagramming notation. As useful as it is to learn notation, there are more critical object-oriented things to learn. The UML is not OOA/D or a method, it is simply notation. This training explores how to apply the UML in the service of doing OOA/D, and covers frequently used UML notation. But the emphasis is on helping people learn the art and science of building object systems, rather than notation. Requirements analysis and OOA/D needs to be presented in the context of some development process. In this case, the well-known Unified Process is used as the sample iterative development process within which these topics are introduced.

Course Modules

Module 1 - Examining Object-Oriented Concepts and Terminology
Module 2 - Introducing Modeling and the Software Development Process
Module 3 - Creating Use Case Diagrams
Module 4 - Creating Use Case Scenarios and Forms
Module 5 - Creating Activity Diagrams
Module 6 - Determining the Key Abstractions
Module 7 - Constructing the Problem Domain Model
Module 8 - Transitioning from Analysis to Design Using Interaction Diagrams
Module 9 - Modeling Object State Using State Machine Diagrams
Module 10 - Applying Design Patterns to the Design Model
Module 11 - Introducing Architectural Concepts and Diagrams
Module 12 - Introducing the Architectural Tiers
Module 13 - Refining the Class Design Model
Module 14 - Overview of Software Development Processes
Module 15 - Overview of Frameworks

5.10 Effective Java Programming

Course Code : DCL-235
Course Title : Effective Java Programming
Duration : 4 Days

Course Modules

Module 1 - Object Design Fundamentals

Module 2 - OOP Principles and Design Patterns

Module 3 - Interface Patterns: Adapter, Façade, Composite, Bridge

Module 4 - Responsibility Patterns: Singleton, Observer, Mediator, Proxy, Responsibility, Flyweight

Module 5 - Construction Patterns: Builder, Factory Method, Abstract Factory, Prototype, Memento

Module 6 - Operation Patterns: Template Method, State, Strategy, Command, Interpreter

Module 7 - Extension Patterns: Decorator, Iterator, Visitor

Module 8 – Creating and Destroying Objects

Module 9 - Methods common to all objects

Module 10 - Classes and Interfaces

Module 11 - Generics

Module 12 - Enums and Annotations

Module 13 - Lambdas and Streams

Module 14 - Methods

Module 15 - General Programming

Module 16 - Exceptions

Module 17 - Concurrency

Module 18 - Serialization

5.11 New Features in Java SE 8-17

Course Code : DCL-250
Course Title : New Features in Java SE 8-17
Duration : 2 Days

Course Overview

This training summarizes features and enhancements in Java SE 8-17.

Course Modules

Module 1 - Language Changes (Java SE 7-16)

Module 2 - JVM Changes (Java SE 7-16)

Module 3 - Changes in APIs (Java SE 8-16)

Module 4 - Using Lambda Expressions and Method Enhancements (Java SE 8)

Module 5 - Collections and Streams API (Java SE 8-17)

Module 6 - Using the New Date and Time API (Java SE 8)

Module 7 - Miscellaneous New Features (Java SE 8-17)

Module 8 - Module System

Module 9 - JShell

Module 10 - New Language Features in Java SE 9-17

5.12 New Features of Java Platforms (Java SE 8-17; Java/Jakarta EE 8)

Course Code : DCL-255
Course Title : New Features of Java Platforms (Java SE 8-17; Jakarta EE 9)
Duration : 3 Days

Course Overview

This training summarizes features and enhancements in Java SE 8-17. This training also covers features and enhancements in Jakarta EE 8 and 9.

Course Modules

Module 1 - Java Platforms

Module 2 - Improvements in the Java Virtual Machine

Module 3 - Updates in APIs

Module 4 - Concurrent API

Module 5 - Fork/Join Framework in Java7

Module 6 - Lambda Expressions and Stream API in Java 8

- Functional interfaces, Lambda Expressions, Method references, Extension Methods,
- Stream API and Parallel Collections, Map/Reduce Framework

Module 7 – Module System

Module 8 - JShell

Module 9 - Language New Features in Java 7-17

Module 10 - Java EE 6: Changed and New APIs

Module 11 - Java EE 7: Changed and New APIs

Module 12 – Jakarta EE 8/9: Changed and New APIs

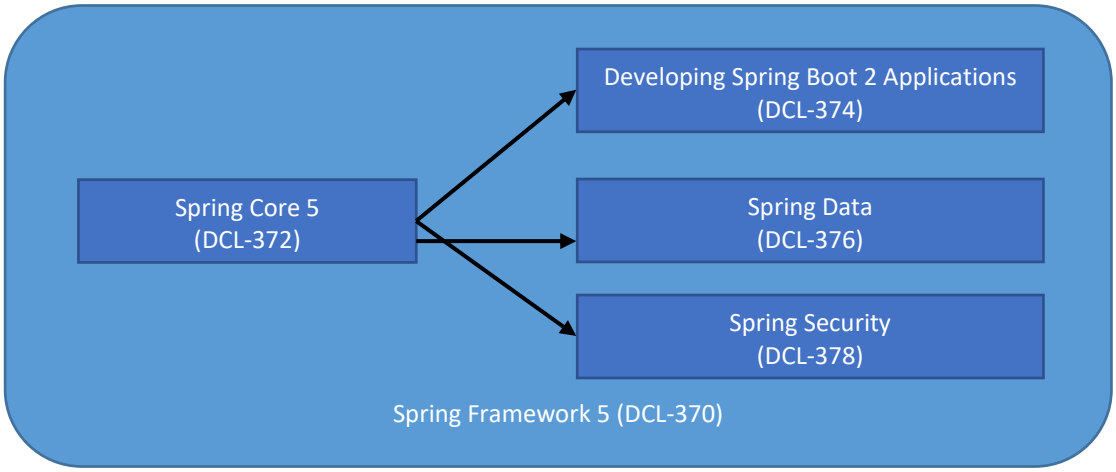
Module 13 – Jakarta EE and MicroProfile

6 SPRING TRAININGS

Overview: Spring technologies helps you to build enterprise applications that are scalable, mobile, secure and robust. Our Spring Framework trainings empower software developers to solve concrete business problems by mapping application-level issues to Spring-centric solutions.

PROGRAM OUTLINE

Course Code	Course Title	Duration (Days)
DCL-168	Kotlin Programming	3
DCL-308	Developing RIA using Spring Boot and Angular	5
DCL-370	Spring Framework 5	5
DCL-372	Spring Core 5	3
DCL-374	Developing Spring Boot 2 Applications	3
DCL-375	Developing Enterprise Applications using Spring Framework 5	5
DCL-376	Spring Data	3
DCL-378	Spring Security 5	2



6.1 Kotlin Programming

Course Code : DCL-168
Course Title : Kotlin Programming
Duration : 3 Days

Course Modules

Module 1 - Introduction to Kotlin

Module 2 - Control flow

Module 3 - Classes and Objects

Module 4 - Collections Framework

Module 5 - Getting started with Functional Programming

Module 6 - Functions – Function Types and Side Effects

Module 7 - Lambda, Generics, Recursions, Correcursion

Module 8 - Delegates in Kotlin

Module 9 - Asynchronous processing with Coroutines

Module 10 - Collections and Data Operations in Kotlin

Module 11 - Functional Programming, OOP, and Reactive Programming

Module 12 - Monads, Functors and Applicatives

Module 13 - Working with Streams

6.2 Spring Framework 5

Course Code : DCL-370
Course Title : Spring Framework 5
Duration : 5 Days

Course Overview

This training presents hands-on experience with Spring and its major features, including configuration, data access, web and REST applications, Spring Boot, Spring Security and Spring Boot to build an enterprise-ready applications.

Course Modules

Module 1 - Inversion of Control and Containers

Module 2 - Introduction to Spring

Module 3 - Bean Configuration in Spring

Module 4 - Advanced Bean Configuration

Module 5 - Dynamic Proxy and Spring AOP

Module 6 - Spring Boot

Module 7 - Spring JDBC Template

Module 8 - Spring Transaction

Module 9 - Spring ORM

Module 10 - Spring Data

Module 11 - Spring MVC

Module 12 - Spring Testing

Module 13 - Spring Web Services

Module 14- Spring Rest

Module 15 - Spring Security

6.3 Spring Core 5

Course Code : DCL-372
Course Title : Spring Core 5
Duration : 3 Days

Course Overview

This training presents hands-on experience with Spring and its core features, including configuration, data access, web and REST applications, and Spring Boot to build an enterprise-ready applications.

Course Modules

Module 1 - Inversion of Control and Containers

Module 2 – Configuring Spring Development Environment

Module 3 - Bean Configuration in Spring

Module 4 - Advanced Bean Configuration

Module 5 - Dynamic Proxy and Spring AOP

Module 6 - Spring Boot and Auto Configuration

Module 7 - Spring JDBC Template

Module 8 - Spring ORM

Module 9 - Spring Transaction Management

Module 10 - Spring Data JPA

Module 11 - Developing Restful Service using Spring MVC

Module 12 - Spring Testing

6.4 Developing Spring Boot 2 Applications

Course Code : DCL-374
Course Title : Developing Spring Boot 2 Applications
Duration : 3 Days

Course Overview

This training presents hands-on experience with Spring and its core features, including configuration, data access, web and REST applications, and Spring Boot to build an enterprise-ready applications.

Course Modules

Module 1 - Introduction to Spring Boot

Module 2 - Spring Boot Auto-Configuration and Features

Module 3 - Spring Boot Essentials

Module 4 - Building REST APIs Using Spring Boot

Module 5 - Spring Data with Spring Boot

Module 6 - Spring Testing with Spring Boot

Module 7 - Spring Security with Spring Boot

Module 8 - Spring Messaging with Spring Boot

Module 9 - Health Monitoring with Spring Boot Actuator

Module 10 - Deploying Spring Boot Applications

6.5 Developing Enterprise Applications using Spring Framework 5

Course Code : DCL-375
Course Title : Developing Enterprise Applications using Spring Framework 5
Duration : 5 Days

Course Overview

This training presents hands-on experience with Spring and its major features, including configuration, data access, web and REST applications, Spring Boot, Spring Security and Spring Boot to build an enterprise-ready applications.

Course Modules

Module 1 – Jakarta EE 8 Platform

Module 2 – Web Application Essentials

Component Based Programming in Jakarta EE,

Components and Application Server as a Container,

Scope and Component Life-cycle, Dependency Injection

Module 3 – Developing Server-side MVC with Model II Architecture

Servlet and JSP, JSP Expression Language, JSTL, Developing custom Tag

Module 4 – Inversion of Control and Containers

Module 5 – Configuring a Spring Development Environment

Module 6 – Bean Configuration

Module 7 – Advanced Bean Configuration

Module 8 – Dynamic Proxy and Spring AOP

Module 9 – Spring Boot

Module 10 – Spring MVC Architecture

Module 11 – Controllers

Module 12 – Building REST APIs using Spring Boot

Module 13 – Testing Spring MVC Applications

Module 14 – Spring Security

6.6 Spring Data

Course Code : DCL-376
Course Title : Spring Data
Duration : 3 Days

Course Overview

Hibernate is the most popular object-relational mapping framework and the most used JPA providers. Hibernate maps our java classes to database tables. Spring data JPA makes it super easy to use powerful features of Hibernate by removing all the configuration and use of low level APIs. Spring Data makes it possible to remove the DAO implementations entirely.

Course Modules

Module 1 - Core Spring and Spring Boot Review

Module 2 – Spring Data JDBC

Module 3 - Introduction to the Java Persistence API

Module 4 - Modeling Relational Databases with JPA Entities

Module 5 - Working with the Entity Manager

Module 6 - Persisting Enums and Collections

Module 7 - Java Persistence Query Language

Module 8 - Mapping Stored Procedures

Module 9 - Criteria API

Module 10 - Entity Inheritance Relationships

Module 11 - Spring ORM

Module 12 - Spring Transaction

Module 13 - Spring Data JPA

Module 14 - Spring Data Mongo

6.7 Spring Security 5

Course Code : DCL-378
Course Title : Spring Security 5
Duration : 2 Days

Course Overview

This training introduces Java developer to the Spring Security framework and students learn how to secure a web application through by the use of the Spring Security framework.

Course Modules

Module 1 - Introduction to Security

Module 2 - Introduction to Spring Security

Module 3 - Spring Security Architecture and Design

Module 4 - Web Security

Module 5 - Securing the Service Layer

Module 6 - Configuring Alternative Authentication Providers

Module 7 - Basic REST Authentication and Authorization

Module 8 - Business Object Security with ACLs

Module 9 - Advanced REST API Security

7 MICROSERVICE TRAININGS

Course Code	Course Title	Duration
DCL-350	Implementing MicroService Architecture using Spring Cloud	5
DCL-352	Domain-Driven Design Essentials	2
DCL-355	MicroService Patterns with examples in Java and Spring	2
DCL-356	Cloud Architecture Patterns	2
DCL-358	Implementing Event-Driven MicroService Architecture using Spring Boot and Apache Kafka	3
DCL-640	Apache Kafka: Architecture and Development	2
DCL-642	RabbitMQ: Architecture and Administration	2

7.1 Implementing MicroService Architecture using Spring Cloud

Course Code : DCL-350
Course Title : Implementing MicroService Architecture using Spring Cloud
Duration : 5 Days

Course Overview

This training will give you the tools and techniques to build, manage and deploy containerized MicroServices. This course is based on Spring Framework, Spring Boot, and Spring Cloud. On the other hand, we focus on the key considerations for well-planned MicroServices Architectural Design.

Course Modules

Module 1 - Introduction to MicroService Architecture

Module 2 - The Evolutionary Architecture

Module 3 - Modeling Services

Module 4 - Spring Boot Bootcamp

Module 5 - Integrating Services with Spring MVC

Module 6 - Integrating Services with Spring WebSocket

Module 7 - Spring Cloud and MicroServices

Module 8 - Spring Boot Actuator

Module 9 - Spring Cloud Config

Module 10 - Service Discovery with Spring Netflix Eureka

Module 11 - Client Resiliency patterns with Resilience4j

Module 12 - Service Routing with Gateway

Module 13 - Data Integration with Spring Data

Module 14 - Data Integration with Spring Messaging

Module 15 - Distributed Logging and Tracing

Module 16 - MicroService Deployment with Docker

7.2 Domain-Driven Design Essentials

Course Code : DCL-352
Course Title : Domain-Driven Design Essentials
Duration : 2 Days

Course Modules

Module 1 – Introduction to DDD

Module 2 – DDD: Modeling Problems in Software

Module 3 – Elements of a Domain Model

Module 4 – Aggregates in Domain-Driven Design

Module 5 – Repositories

Module 6 – Domain Events and Anti-corruption Layers

Module 7 – Extending Domain-Driven Design

7.3 MicroService Patterns with examples in Java and Spring

Course Code : DCL-355
Course Title : MicroService Patterns with examples in Java and Spring
Duration : 3 Days

Course Modules

Module 1 - MicroService Architecture Basics

Module 2 - Application Architecture Patterns

Module 3 - Decomposition Patterns

Module 4 - Messaging style Patterns

Module 5 - Reliable Communications Patterns

Module 6 - Service Discovery Patterns

Module 7 - Transactional Messaging Patterns

Module 8 - Data Consistency Patterns

Module 9 - Business Logic Design Patterns

Module 10 - Querying Patterns

Module 11 - External API Patterns

Module 12 - Testing Patterns

Module 13 - Security Patterns

Module 14 - Cross-cutting Concerns Patterns

Module 15 - Observability Patterns

Module 16 - Deployment Patterns

Module 17 - Refactoring to MicroServices Patterns

7.4 Cloud Architecture Patterns

Course Code : DCL-356
Course Title : Cloud Architecture Patterns
Duration : 2 Days

Course Modules

Module 1 - Cloud Design Patterns

Module 2 - Scalability Primer

Module 3 - Horizontally Scaling Compute Pattern

Module 4 - Queue-Centric Workflow Pattern

Module 5 - Auto-Scaling Pattern

Module 6 - Eventual Consistency Primer

Module 7 - Map-Reduce Pattern

Module 8 - Database Sharding Pattern

Module 9 - Multi-tenancy and Commodity Hardware Pattern

Module 10 - Busy Signal Pattern

Module 11 - Node Failure Pattern

Module 12 - Network Latency Primer

Module 13 - Colocate Pattern

Module 14 - Valet Key Pattern

Module 15 - CDN Pattern

Module 16 - Multi-Site Deployment Pattern

7.5 Implementing Event-Driven MicroService Architecture using Spring Boot and Apache Kafka

Course Code : DCL-358
Course Title : Implementing Event-Driven MicroService Architecture using Spring Boot and Apache Kafka
Duration : 3 Days

Course Modules

Module 1 - Software Architecture and MicroServices

Module 2 - Events and Event Sourcing

Module 3 - Designing Domain Model using Event Sourcing

Module 4 - Overview of Apache Kafka and Kafka Broker

Module 5 - Events and Commands

Module 6 - Event Sourcing and CQRS

Module 7 - Event Streams and Event Stores

Module 8 - Consistency, Concurrency, and Transactions in Event-Driven Systems

Module 9 - Kafka Streams and KSQL

Module 10 - Implementing Streaming Services using Spring Boot and Kafka Streams

7.6 Apache Kafka: Architecture and Development

Course Code : DCL-640
Course Title : Apache Kafka: Architecture and Development
Duration : 2 Days

Course Overview

This training will introduce you to Apache Kafka and provides a detailed tour of its architecture so you can develop your solution based on Apache Kafka using Java and Spring Boot.

Course Modules

Module 1 - Introduction to Apache Kafka

- Kafka Architecture
- Core Concepts and Features
- Kafka Components and Installation

Module 2 - Developing Kafka Producer

- Sending a Message Synchronously & Asynchronously in Java and Spring Boot
- Configuring Kafka Producer

Module 3 - Developing Kafka Consumer

- Creating a Kafka consumer and subscribing to Topics in Java and Spring Boot
- Configuring Kafka Consumer
- Implementing different types of commit

Module 4 - Kafka CLI

- Kafka Topic CLI
- Kafka Console Producer/Consumer CLI
- Kafka Consumer Group CLI

Module 5 - Kafka Connect

- Kafka Connect Architecture and Use-cases
- Building Data pipelines using Kafka Connect

Module 6 - Kafka Stream Processing

- Kafka Stream Architecture and Stream Processing Design Patterns
- Kafka Stream API
- Kafka Stream with Spring Boot

7.7 RabbitMQ: Architecture and Administration

Course Code : DCL-642
Course Title : RabbitMQ: Architecture and Administration
Duration : 2 Days

Course Overview

This training provides a deep dive into how to install, configure and develop applications which leverage RabbitMQ messaging. The course begins with RabbitMQ installation and general configuration. It continues with developing messaging applications using Spring AMQP and Node.js and delves into more advanced topics including clustering, high availability, performance tuning.

Course Modules

Module 1 - Enterprise Messaging and RabbitMQ

Module 2 - Messaging Patterns in RabbitMQ

Module 3 - Administration and Configuration

Module 4 - Developing Messaging Applications using Spring AMQP and Node.js

Module 5 - Clustering

Module 6 - High Availability

Module 7 - Performance Tuning and Troubleshooting

Module 8 - RabbitMQ Deployment with Docker

8 JAVASCRIPT TRAININGS

Overview: Whether you want a career in front end or back end development, it's essential that you have a solid understanding of JavaScript. This curriculum focuses on the job-ready skills in highest demand for front-end web developers, from HTML, CSS, and JavaScript, to Angular, Bootstrap, and jQuery. Students will learn, practice and prove they have the skills employers are looking for in a series of trainings with hands-on labs.

Course Code	Course Title	Duration (Days)
DCL-302	Node.js Programming	3
DCL-304	Advanced JavaScript Programming	4
DCL-305	Developing Angular Applications	3
DCL-306	Developing React Applications	3
DCL-308	Developing RIA using Spring Boot and Angular	5
DCL-310	Client-side and Server-side JavaScript Programming	4
DCL-314	Building Scalable Web Applications using Node.js and MondoDB	4
DCL-316	Developing Rich Internet Applications using HTML5, CSS3, and JS	5
DCL-318	Developing Vue 3 Applications	3

8.1 Node.js Programming

Course Code : DCL-302
Course Title : Node.js Programming
Duration : 3 Days

Course Overview

In this training, you will learn how to build, test, and launch node applications. This training also studies how to create REST APIs using Express.js. You will study persistence using MongoDB and Mongoose API. Finally you will develop real-time web applications using Socket.io. In the training you will use ES6/ES7 JavaScript.

Course Modules

Module 1 - Scalable Web Architectures

Module 2 - Server-side JS with Node.js

Module 3 - JavaScript

Module 4 - Advanced JavaScript

Module 5 - The evolution of JavaScript

Module 6 - Writing Node Modules

Module 7 - Node Package Manger

Module 8 - MongoDB

Module 9 - Node.js and MongoDB integration

Module 10 - Express.js

Module 11 - Socket-IO

8.2 Advanced JavaScript Programming

Course Code : DCL-304
Course Title : Advanced JavaScript Programming
Duration : 4 Days

Course Overview

In this training, you will learn advanced JavaScript techniques that include working with the ECMAScript 2015 (ES6) and ECMAScript 2016 (ES7). This training includes a thorough exploration of advanced objects, arrays, and functions; Training also includes design patterns and their implementation details in JavaScript.

Course Modules

Part I: Effective JavaScript Programming

Module 1 - Accustoming Yourself to JavaScript

Module 2 - Variable Scope

Module 3 - Working with Functions

Module 4 - Objects and Prototypes

Module 5 - Arrays and Dictionaries

Module 6 - Library and API Design

Module 7 - Concurrency

Part II: JavaScript Design Patterns

Module 8 - Creational Patterns: Abstract Factory, Builder, Factory Method, Singleton, Prototype

Module 9 - Structural Patterns: Adapter, Bridge, Composite, Decorator, Façade, Flyweight, Proxy

Module 10 - Behavioral Patterns: Chain of responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, State, Strategy, Template, Visitor

Module 11 - Functional Programming

Module 12 - Reactive Programming using RxJs

Module 13 - New Features in ES6-ES9

8.3 Developing Angular Applications

Course Code : DCL-305
Course Title : Developing Angular Applications
Duration : 3 Days

Course Overview

This training helps students to learn Angular and build responsive, enterprise-strength applications that run smoothly on desktop and mobile. Angular provides a robust framework that facilitates the development of richly interactive applications running on multiple platforms. In this training, you will gain experience building components, creating directives, modularizing applications, and building template-driven forms.

Course Modules

Module 1 - Introduction to Angular

Module 2 - Writing Applications using Angular CLI

Module 3 - TypeScript Essentials

Module 4 - Template, Binding, and Directives

Module 5 - Components

Module 6 - Services and Dependency Injection

Module 7 - RxJS and Observables

Module 8 - HTTP Service

Module 9 - Routing

Module 10 - Pipes

Module 11 - Validation Directives

Module 12 - Testing

8.4 Developing React Applications

Course Code : DCL-306
Course Title : Developing React Applications
Duration : 3 Days

Course Overview

React is a declarative, efficient, and flexible JavaScript library for building Web Applications. It follows component-based approach. It is easy to create smaller components and build large-scale applications. This training will teach you the core knowledge you need to deeply understand and build React components and structure applications with Redux.

Course Modules

Module 1 - Introduction to React

Module 2 - HTML, CSS, and JSX

Module 3 - Data Flow and Life Cycle Events

Module 4 - Handling Events

Module 5 - Working with Forms

Module 6 - React Routing

Module 7 - Working with Data using Redux

Module 8 - Performance Tuning of React Applications

Module 9 - Unit Testing React with Jest

8.5 Developing RIA using Spring Boot and Angular

Course Code : DCL-308
Course Title : Developing RIA using Spring Boot and Angular
Duration : 5 Days

Course Overview

Angular is known for building rich, data-driven, single-page applications (SPAs) while Spring Boot is a popular and powerful framework for back-end development. In this training, you will learn how to work with Spring Boot and Angular technologies and then how to integrate them together to build a full stack web application.

Course Modules

Module 1 - Introduction to SPA and Angular

Module 2 - Developing Basic Angular Application

Module 3 - TypeScript

Module 4 - Building with Angular Components

Module 5 - Angular Binding and Events

Module 6 - Forms

Module 7 - Pipes

Module 8 - CSS Styling

Module 9 - Dependency Injection

Module 10 - HTTP, Promises, and Observables

Module 11 - Routing

Module 12 - Directives

Module 13 - The Multi-Threaded Web

Module 14 - Developing RESTful Services using Spring Boot

8.6 Client-side and Server-side JavaScript Programming

Course Code : DCL-310
Course Title : Client-side and Server-side JavaScript Programming
Duration : 4 Days

Course Overview

JavaScript is an isomorphic programming language: you can use JS in frontend and backend. This training teaches how to use JavaScript in backend using Node.js and in front-end using several MV* frameworks including Knockout, Angular, Vue and React.

Course Modules

Module 1 - JavaScript Basics

Module 2 - Advanced JavaScript

Module 3 - Core jQuery

Module 4 - Ajax with jQuery

Module 5 - jQuery UI

Module 6 - Node.js: Server-side JS

Module 7 - Express

Module 8 - Working with MongoDB

Module 9 - Node.js and MongoDB Integration

Module 10 - Knockout

Module 11 – Vue

Module 12 - Angular

Module 13 – React

8.7 Building Scalable Web Applications using Node.js, MondoDB

Course Code : DCL-314
Course Title : Building Scalable Web Applications using Node.js, MongoDB
Duration : 4 Days

Course Overview

This training will help you get a comprehensive understanding of Node.js, and will also demonstrate how you can use the power of Node.js to create scalable and responsive web apps easily and efficiently. You will also learn how to work with MongoDB in Node.js application. KnockoutJS is a JavaScript MVVM framework that provides developers with a robust toolset including declarative bindings, dependency tracking, and advanced templating. Finally you will learn how to use Knockout to build highly interactive web applications.

Course Modules

Module 1 – Introduction to Scalable Web Architectures

Module 2 – JavaScript

Module 3 – Advanced JavaScript

Module 4 – JQuery

- Retrieving/ Manipulating Page Content, Working with Events, Animation and Effects, Ajax with jQuery

Module 5 – Introduction to NoSQL Databases

Module 6 – MongoDB

- Installing and Running the server, working with the database, Insert/update/remove document, Querying for the document, ObjectID, Querying/Grouping/Sorting/Paginating

Module 7 – Server-Side JavaScript with NodeJS

Module 8 – Express Framework

Module 9 – Node.js and MongoDB Integration

- Node.js MongoDB Driver, Mongoose

Module 10 – Client-Side programming with Knockout.JS

- MVC with Knockout.js

8.8 Developing Rich Internet Applications (RIA) using HTML5, CSS3 and JS

Course Code : DCL-316
Course Title : Developing Rich Internet Applications (RIA) using HTML5, CSS3 and JS
Duration : 5 Days

Course Overview

This training will help you to learn the latest skills and best practices to develop rich, interactive, and exciting modern web applications. The training explores the current state of the art for developing RIAs using HTML5, modern JavaScript, and CSS3 in a multi-platform REST context using Spring Boot 2 at the backend and KnockoutJS at the frontend. You will learn how to use KnockoutJS to build highly interactive web applications.

Course Modules

Module 1 - Introduction to Scalable Web Architectures

Module 2 - HTML5 Fundamentals

Module 3 - HTML5 Structural Elements

Module 4 - HTML5 Web Forms

Module 5 - Introduction CSS3

Module 6 - CSS Selectors and Inheritance

Module 7 - Tables and Table Column Layout

Module 8 - Layouts

Module 9 - JavaScript

Module 10 - Advanced JavaScript

Module 11 - jQuery

Module 12 - jQuery AJAX

Module 13 - MVC with Knockout.js

Module 14 - Spring Boot 2

Module 15 - Writing RESTful Services using Spring MVC

8.9 Developing Vue 3 Applications

Course Code : DCL-318
Course Title : Developing Vue 3 Applications
Duration : 3 Days

Course Overview

Vue is a JavaScript Framework for building Frontend Applications. Vue.js mixes the best features of Angular and React Frameworks. You will learn the theory behind Vue and how to use Vue to build highly interactive and large enterprise-level web applications.

Course Modules

Module 1 - Introduction to Web Architectures and Vue 3

Module 2 - Writing Applications in Vue using Vue-Cli

Module 3 - Writing a Component

Module 4 - Data Binding and Directives

Module 5 - State Management with Vuex

Module 6 - Vue-Router

Module 7 - Composition API

Module 8 - Testing Vue Components

9 JAKARTA EE TRAINING

Overview: Jakarta EE trainings teach you the concepts, tools, and functions you will need to know in order to build web applications using Jakarta Enterprise Edition. By the completion of these trainings, you will have the knowledge and skills needed to create fully functional Jakarta EE applications.

Course Code	Course Title	Duration (Days)
DCL-342	Jakarta Persistence 3.0	3
DCL-364	Design Patterns and Best Practices in Jakarta EE 9	4
DCL-365	Architect Enterprise Applications with Jakarta EE 9	4
DCL-390	Developing Enterprise Applications on Jakarta EE 9	5
DCL-420	Developing SOAP and RESTful Web Services on Jakarta EE 9	4

9.1 Jakarta Persistence 3.0

Course Code : DCL-342
Course Title : Jakarta Persistence 3.0
Duration : 3 Days

Course Overview

This training explores the Jakarta Persistence API within the context of a web-based Java Enterprise Edition application, as well as within a stand-alone Java Standard Edition application. This includes using Jakarta Persistence API with the Enterprise JavaBeans technology and Context and Dependency Injection.

Course Modules

Module 1 - Introduction to the Jakarta Persistence API

Module 2 - Working with JPA in a Jakarta EE Environment

Module 3 - Modeling Relational Databases with JPA Entities

Module 4 - Working with the Entity Manager

Module 5 - Persisting Enums and Collections

Module 6 - Creating Queries with Java Persistence Query Language

Module 7 - Using the Criteria API

Module 8 - Implementing Bean Validation with JPA

Module 9 - Applying Transactions and Locking

Module 10 - Entity Inheritance Relationships

Module 11 - Optimizing JPA Performance

9.2 Design Patterns and Best Practices in Jakarta EE 9

Course Code : DCL-364
Course Title : Design Patterns and Best Practices in Jakarta EE 9
Duration : 4 Days

Course Overview

This training reviews common and emerging patterns specific to Java SDK and EE development. You'll learn the depth and evolution of pattern-based techniques in Java, with particular emphasis on Jakarta EE 9 conventions.

Course Modules

Module 1 - Reviewing Object-Oriented Principles in Java

Module 2 - Reviewing Gang of Four Patterns

Module 3 - Implementing Patterns in Java

Module 4 - Jakarta EE 8: Overview

Module 5 - Implementing Integration Patterns

Module 6 - Implementing Patterns in Business Components

Module 7 - Implementing Infrastructural Patterns in Jakarta EE 8

Module 8 - Implementing More Infrastructure Patterns

Module 9 - Exploring Anti-Patterns

Module 10 - Selecting Patterns for Architecture

Module 11 - Domain Driven Design Essentials

Module 12 - Introduction to MicroService Architecture

Module 13 - Implementing MicroService Architecture in Jakarta EE 8 using MicroProfile

9.3 Architect Enterprise Applications with Jakarta EE 9

Course Code : DCL-365
Course Title : Architect Enterprise Applications with Jakarta EE 9
Duration : 4 Days

Course Overview

This training teaches you how to develop robust architectures including MicroService Architecture for enterprise Jakarta EE Applications.

Course Modules

Module 1 - Introducing Enterprise Architecture

Module 2- Fundamental architectural concepts

Module 3 - Understanding nonfunctional requirements

Module 4 - Defining common problems and solutions: risk factors and system flexibility

Module 5 - Defining common problems and solutions: networks, transactions, and capacity planning

Module 6 - Jakarta EE 9: Overview

Module 7 - Developing an architecture for the Client tier

Module 8 - Developing an architecture for the Web tier

Module 9 - Developing an architecture for the Business tier

Module 10 - Developing an architecture for the Integration and Resource tiers

Module 11 - Introduction to MicroService Architecture

Module 12 - Implementing MicroService Architecture in Jakarta EE 9

9.4 Developing Enterprise Applications on Jakarta EE 9

Course Code : DCL-390
Course Title : Developing Enterprise Applications on Jakarta EE 9
Duration : 5 Days

Course Overview

This training teaches you the skills you need to successfully build and deploy enterprise applications. You'll explore applications that comply with the Java Platform, Enterprise Edition 9 Platform.

Course Modules

Module 1 - Introduction to Jakarta EE 8 Platform

Module 2 - Servlet

Module 3 - Jakarta Server Faces 2.3

Module 4 - Enterprise JavaBeans

Module 5 - Contexts and Dependency Injection 2.0

Module 6 - Concurrency Utilities

Module 7 - Bean Validation 2.0

Module 8 - Java Persistence

Module 9 - Java Transaction

Module 10 - Java Message Service

Module 11 - Batch Processing

Module 12 - Restful Web Services (JAX-RS 2.1)

Module 13 - XML Web Services

Module 14 - JSON-P (JSON Processing API) and JSON-B (JavaScript Object Notation Binding)

Module 15 - WebSocket

Module 16 - Jakarta EE Security API

9.5 Developing SOAP and RESTful Web Services on Jakarta EE 9

Course Code : DCL-420
Course Title : Developing SOAP and RESTful Web Services on Jakarta EE 9
Duration : 4 Days

Course Overview

The training covers the design and creation of SOAP and RESTful web services and clients. You'll learn to develop JAX-WS and JAX-RS web services and deploy those services to Payara/WildFly/JBoss EAP. The topics covered are designed to work with the Jakarta EE 9 Platform.

Course Modules

Module 1 - XML Technologies: XML, DTD, XSD, XSL, XPath, XQuery

Module 2 - Java SE and XML: SAX, DOM, StAX, JAXB

Module 3 - Introduction to Web Services

Module 4 - Core XML Web Service Specifications: WSDL, SOAP

Module 5 - Developing XML Web Services on Jakarta EE 9 using JAX-WS

Module 6 - Developing JAX-WS Client

Module 7 - Introduction to Restful Services

Module 8 - Developing Restful Web Services on Jakarta EE 9 using JAX-RS

Module 9 - Developing JAX-RS Client

Module 10 - JAX-RS 2.1

Module 11 - JSON-P (JSON Processing API) and JSON-B (JavaScript Object Notation Binding)

Module 12 - WebSocket and SSE (Server-Sent Event) Programming

Module 13 - Reactive Programming with JAX-RS 2.1

10 C/C++ TRAININGS

Overview: Even with the rise of more modern programming languages, C/C++ remains the most popular language in the world. C/C++ code is platform independent and found in almost every OS. Developers fluent in this language can produce a wide variety of applications for embedded systems, mobile devices, games and much more.

PROGRAM OUTLINE

Course Code	Course Title	Duration (Days)
DCL-100	C Programming Language	4
DCL-112	Object-Oriented Programming using C++20	4
DCL-113	Functional Programming in C++20	2
DCL-115	Multi-Threaded Programming in C++20	3
DCL-118	Advanced C++ Programming	3
DCL-120	OOP Principles and Design Patterns (*in* C++)	2
DCL-140	Linux System Programming	4

10.1 C Programming Language

Course Code : DCL-100
Course Title : C Programming Language
Duration : 4 Days

Course Overview

This course introduces you to the basics of programming in C. You will learn how to work with data, how to control program flow, and how to use functions. You will also learn how to create data structures, how to build complex C programs and how to run them.

Course Modules

Module 1 - Introduction to Computing

Module 2 - Basic C Constructs

Module 3 - Selection

Module 4 - Repetition

Module 5 - Derived DataTypes

Module 6 - Arrays and Strings

Module 7 - Multidimensional Arrays

Module 8 - Functions

Module 9 - Pointers

Module 10 - File Operations

Module 11 - Preprocessor

Module 12 - Recursion

Module 13 - Advanced Data Structures

10.2 Object-Oriented Programming using C++20

Course Code : DCL-112
Course Title : Object-Oriented Programming using C++20
Duration : 4 Days

Course Overview

This course introduces several programming paradigms including Object-Oriented Programming, Generic Programming, Functional Programming and how to use these programming schemes with the C++20 programming language to build “good” programs.

Course Modules

Module 1 - Introduction to Object-Oriented Programming

Module 2 - C++: A Better C

Module 3 - Classes and Objects

Module 4 - Constructors and Destructors

Module 5 - Operator Overloading

Module 6 - Inheritance

Module 7 - Pointers to Objects

Module 8 - Polymorphism

Module 9 - Lambda Expressions and Closure

Module 10 - Exceptions

Module 11 - Templates

Module 12 - The Standard Template Library – STL

Module 13 - Multithreading

Module 14 - Advanced I/O: C++ Streams

10.3 Functional Programming in C++20

Course Code : DCL-113
Course Title : Functional Programming in C++20
Duration : 2 Days

Course Overview

This training is not just designed to teach the C++ programming language itself. It is also about functional programming and how it fits in with C++. Functional programming provides a different way to think about software design and a different way of programming, compared to the imperative, object-oriented styles commonly used with C++. The training is split into two parts. The first part covers functional programming idioms, and how they can be applied to C++. The second part of the training deals with more advanced concepts, mostly pertaining to functional software design.

Course Modules

Module 1 - Introduction to Functional Programming

Module 2 - Getting started with functional programming

Module 3 - Function objects

Module 4 – Partial Functions

Module 5 – Pure Functions and Lazy evaluation

Module 6 - Ranges

10.4 Multi-Threaded Programming in C++20

Course Code : DCL-115
Course Title : Multi-Threaded Programming in C++20
Duration : 3 Days

Course Overview

Multithreaded applications execute multiple threads in a single processor environment, allowing developers achieve concurrency. This training will teach you the finer points of multithreading and concurrency concepts and how to apply them efficiently in C++20. Divided into ten modules, we start with a brief introduction to the fundamentals of multithreading and concurrency concepts. We then take an in-depth look at how these concepts work at the hardware-level as well as how both operating systems and frameworks use these low-level functions. We will also learn about the native multithreading and concurrency support available in C++ since the 2011 revision, synchronization, and communication between threads.

Course Modules

Module 1 - Introduction to Concurrency in C++20

Module 2 - Managing Threads

Module 3 - Sharing Data between Threads

Module 4 - Synchronizing concurrent operations

Module 5 - C++ memory model and operations on atomic types

Module 6 - Designing lock-based concurrent data structures

Module 7 - Designing lock-free concurrent data structures

Module 8 - Designing concurrent code

Module 9 - Advanced thread management

Module 10 - Parallel Algorithms: Parallel STL and Ranges

10.5 Advanced C++ Programming

Course Code : DCL-118
Course Title : Advanced C++ Programming
Duration : 3 Days

Course Overview

Once you know the basics of C++ syntax and what the Standard Library offers you, it's time to learn memory management details, multi-threading, and advanced topics in STL.

Course Modules

Module 1 - New Language Features in C++11/14/17/20

Module 2 - Generic Programming with Templates

Module 3 - Advanced STL

Module 4 - Functional Programming

Module 5 - Reactive Programming using RxCpp

Module 6 - Multi-Thread Programming

Module 7 - Low Latency Application Development with C++

10.6 Object-Oriented Programming Principles and Design Patterns (in C++)

Course Code : DCL-120
Course Title : Object-Oriented Programming Principles and Design Patterns (in C++)
Duration : 2 Days

Course Overview

This training provides an overview of all the Gang of Four (GoF) design patterns as outlined in their seminal book, together with modern-day variations, adjustments, discussions of intrinsic use of patterns in the C++ Language.

Course Modules

Module 1 - Object Design Fundamentals

Module 2 - OOP Principles and Design Patterns

Module 3 - Interface Patterns: Adapter, Facade, Composite, Bridge

Module 4 - Responsibility Patterns: Singleton, Observer, Flyweight, Mediator, Chain of Responsibility, Proxy

Module 5 - Construction Patterns: Builder, Factory Method, Abstract Factory, Prototype, Memento

Module 6 - Operation Patterns: Template Method, State, Strategy, Command, Interpreter

Module 7 - Extension Patterns: Decorator, Iterator, Visitor

10.7 Linux System Programming

Course Code : DCL-140
Course Title : Linux System Programming
Duration : 4 Days

Course Overview

This training is designed to bring C developers up to speed with a variety of tools and capabilities of Linux. This includes development and debugging tools as well as system and library functions. You will learn

- How to use GNU tools for compiling and debugging
- How to use an integrated development environment.
- How to write POSIX Threaded applications
- How to use system calls for such things as inter-process communication, interacting with the file system, signals, time, creating a daemon and scheduling.

Course Modules

Module 1 - Introduction to Linux Programming

Module 2 - Spawning New Tasks

Module 3 - System and Process Information

Module 4 - Files

Module 5 - Directories

Module 6 - Signals

Module 7 - Threads

Module 8 – Overview of IPC

Module 9 - Short Messages

Module 10 - Shared Memory

Module 11 - Synchronization

Module 12 - Sockets

11 MYSQL TRAININGS

Course Code	Course Title	Duration (Days)
DCL-600	MySQL 5.7/8 Workshop	3
DCL-605	MySQL High Availability Workshop	3
DCL-608	MySQL Cluster Workshop	3

11.1 MySQL 5.7/8 Workshop

Course Code : DCL-600
Course Title : MySQL 5.7/8 Workshop
Duration : 3 Days

Course Overview

This training is a hands-on workshop to show you how to install, configure, secure, and maintain your database server.

Course Modules

Module 1 – MySQL 5.7/8 Installation and Configuration

Module 2 – Monitoring and Performance Tuning

Module 3 – Partitioning

Module 4 – Master-to-Master Replication

Module 5 – Multi-source Replication

Module 6 – Backup

Module 7 – MySQL Cluster Architecture and Installation

11.2 MySQL High Availability Workshop

Course Code : DCL-605
Course Title : MySQL High Availability Workshop
Duration : 3 Days

Course Overview

This training is a hands-on workshop to show several techniques to provide High Availability and Scalability using MySQL and MySQL Cluster products.

Course Modules

Module 1 – MySQL 5.7/8 installation and Configuration

Module 2 – Partitioning

Module 3 – Master-to-Master Replication

Module 4 – Multi-source Replication

Module 5 – MySQL Fabric

Module 6 – MySQL Router

Module 7 – MySQL Cluster Architecture

Module 8 – MySQL Cluster 7.5 Installation and Configuration

11.3 MySQL Cluster Workshop

Course Code : DCL-608
Course Title : MySQL Cluster Workshop
Duration : 3 Days

Course Overview

This training teaches you how to install and configure MySQL Cluster database cluster. This training guides you to design and maintain your clustered infrastructure for high availability and scalability by using MySQL Cluster product.

Course Modules

Module 1 - Introduction to MySQL Cluster

Module 2 - Installing MySQL Cluster

Module 3 - MySQL Cluster Architecture

Module 4 - Configuring MySQL Cluster

Module 5 - Designing MySQL Cluster

Module 6 - Maintaining MySQL Cluster

Module 7 - MySQL Cluster Manager

Module 8 - Replication between MySQL Clusters

Module 9 - Monitoring MySQL Cluster

Module 10 - Troubleshooting MySQL Cluster Problems

Module 11 - MySQL Cluster Performance Tuning and Optimization

12 APPLICATION SERVER TRAININGS

Course Code	Course Title	Duration (Days)
DCL-632	JBoss EAP 7: Administration	4
DCL-640	Weblogic 12c Administration Workshop	3

12.1 JBoss EAP Administration

Course Code : DCL-632
Course Title : JBoss EAP 7.3: Administration
Duration : 4 Days

Course Overview

In this training, you will follow step-by-step instructions that walk you through the key features of JBoss. You will also dive deep into the inner workings of Java, which will help you troubleshoot problems quickly and easily. It will highlight the differences between standalone and domain mode, explaining why you would use domain mode and how it differs from the traditional standalone approach.

Course Modules

Module 1 - Introduction to Java EE 8/Jakarta EE and JBoss EAP 7.3

Learn the Java EE Architecture, JBoss EAP Architecture, and Modular Service Container

Module 2 - Installing JBoss EAP 7.3

Install Java SE, Install and Run a JBoss EAP instance, Customizing startup

Module 3 - Configuring the Application Server

Configuring JBoss EAP in standalone mode, Configuring interfaces & socket binding groups

Configuring the deployment in standalone mode

Configuring queue and pool size

Configuring the application server logging: loggers, handlers, and formatters

Module 4 - Configuring Enterprise Services

Configuring database connectivity and installing the JDBC driver

Configuring Enterprise Java Beans

Configuring the Timer service

Configuring the messaging system

Module 5 - JBoss Web Server Configuration

Configuring the web server connectors

Configuring static and dynamic resources

Module 6 - Configuring a JBoss EAP 7.3 Domain

Introducing the domain and understanding the default domain configuration

Starting up and stopping a domain

Configuring an instance in domain mode

Module 7 - Deploying Applications on JBoss EAP 7.3

Deploying resources: JAR, WAR, and EAR

Deploying applications on standalone mode using Manual Deployment

Deploying an application using the Command Line Interface (CLI)

Deploying to a domain using the CLI

Deploying applications using the Web admin console

Studying JBoss EAP classloading and managing dependencies

Module 8 - Managing the Application Server
- The Command Line Interface
- The Web admin console

Module 9 - Clustering
- Setting up a cluster of standalone servers
- Setting up a cluster of domain servers
- Deploying applications to cluster
- Troubleshooting clustering

Module 10 - Load Balancing Web Applications
- Using Apache web server with JBoss EAP
- Using Nginx with JBoss EAP

Module 11 - Securing JBoss EAP 7.3
- Java EE End-to-End Security Model and Container-Managed Security
- Configuring Authentication in the Web Tier
- Configure a database security realm, an LDAP security realm
- Enabling SSL

Module 12 - JBoss EAP 7.3 Performance Tuning
- Monitoring JVM and JVM Tuning
- Tuning EJB connection pool
- Tuning Web server thread pool
- Tuning the database connection pool
- Tuning Logging
- Tuning cache

12.2 Weblogic 12c Administration Workshop

Course Code : DCL-640
Course Title : Weblogic 12c Administration Workshop
Duration : 3 Days

Course Overview

This training will teach you how to manage an Oracle WebLogic 12c environment by introducing you to a variety of topics from domain configuration to runtime management to security through easy-to-understand lectures and hands-on lab work.

Course Modules

Module 1 - Java Platforms

Module 2 - Java EE 7 and WebLogic 12c

Module 3 - WebLogic 12c Installation and Creating a Domain

Module 4 - Weblogic Administration Console

Module 5 - Node Manager

Module 6 - WebLogic Server Security

Module 7 - Backing Up a Domain

13 BOOTCAMPS

13.1 Machine Learning Bootcamp

- Introduction to Python Programming
- Advanced Python Programming
- Data Analytics using Python
- Practical Machine Learning using Python
- Deep Learning with PyTorch
- Deep Learning with TensorFlow
- Foundation of Deep Learning with Backbone Architecture Papers

13.2 Full-stack Development Bootcamp

- Java SE 17 Programming
- Developing Enterprise Applications Using Spring Framework 5
- Developing React Applications
- Implementing MicroServices Architecture using Spring Cloud

14 CONSULTANCY SERVICES: APPLICATION DEVELOPMENT

15 CONSULTANCY SERVICES: PROJECT MANAGEMENT

15.1 Application Lifecycle Management Consultancy Service

15.2 Managing Enterprise Transition to Agile Methodologies

15.3 Key Performance Indicator (KPI) Development and Measurement

15.4 Proof of Concept Development and Project Benefits and Risks Analysis

15.5 Scrum based Project Management and Software Development

16 PRIVATE GROUP CLASSES

DEEPCLOUDLABS offers a private group of classes that provide flexible, customizable training solutions to fit your organization's unique needs. Private training allows organizations to train an entire team or department with one unified learning experience ensuring that everyone obtains the same knowledge and skills. Courses can be delivered "off the shelf", slightly modified or completely customized to meet your organization's learning initiatives. Private training can be delivered in any of our locations, on-site at your offices, or at a location of your choice.

Contact us to learn more about our private group class options through phone call or e-mail:

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17 COMPANY INFORMATION

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