

ZENUS INFOTECH INDIA PVT. LTD.

CURRICULUM OF DEEP LEARNING

Course Duration: 6/8 Weeks*

SCALA (OBJECT ORIENTED AND FUNCTIONAL PROGRAMMING)

- Getting started With Scala.
- Scala Background, Scala Vs Java and Basics.
- Interactive Scala – REPL, data types, variables, expressions, simple functions.
- Running the program with Scala Compiler.
- Explore the type lattice and use type inference
- Define Methods and Pattern Matching.

SCALA ENVIRONMENT SET UP.

- Scala set up on Windows.
- Scala set up on UNIX.

FUNCTIONAL PROGRAMMING.

- What is Functional Programming.,
- Differences between OOPS and FPP.

COLLECTIONS (VERY IMPORTANT FOR SPARK)

- Iterating, mapping, filtering and counting
- Regular expressions and matching with them.
- Maps, Sets, group By, Options, flatten, flat Map
- Word count, IO operations, file access, flatMap

OBJECT ORIENTED PROGRAMMING

- Classes and Properties.
- Objects, Packaging and Imports.
- Traits.
- Objects, classes, inheritance, Lists with multiple related types, apply

INTEGRATIONS

- What is SBT?
- Integration of Scala in Eclipse IDE.
- Integration of SBT with Eclipse.

SPARK CORE.

- Batch versus real-time data processing
- Introduction to Spark, Spark versus Hadoop
- Architecture of Spark.
- Coding Spark jobs in Scala
- Exploring the Spark shell -> Creating Spark Context.
- RDD Programming
- Operations on RDD.
- Transformations
- Actions
- Loading Data and Saving Data.
- Key Value Pair RDD.
- Broad cast variables.

PERSISTENCE.

- Configuring and running the Spark cluster.
- Exploring to Multi Node Spark Cluster.
- Cluster management
- Submitting Spark jobs and running in the cluster mode.

- Developing Spark applications in Eclipse
- Tuning and Debugging Spark.

CASSANDRA (NOSQL DATABASE)

- Learning Cassandra
- Getting started with architecture
- Installing Cassandra.
- Communicating with Cassandra.
- Creating a database.
- Create a table
- Inserting Data
- Modelling Data.
- Creating an Application with Web.
- Updating and Deleting Data.

SPARK INTEGRATION WITH NO SQL (CASSANDRA) AND AMAZON EC2

- Introduction to Spark and Cassandra Connectors.
- Spark With Cassandra -> Set up.
- Creating Spark Context to connect the Cassandra.
- Creating Spark RDD on the Cassandra Data base.
- Performing Transformation and Actions on the Cassandra RDD.
- Running Spark Application in Eclipse to access the data in the Cassandra.
- Introduction to Amazon Web Services.
- Building 4 Node Spark Multi Node Cluster in Amazon Web Services.
- Deploying in Production with Mesos and YARN.

SPARK STREAMING

- Introduction of Spark Streaming.
- Architecture of Spark Streaming
- Processing Distributed Log Files in Real Time

- Discretized streams RDD.
- Applying Transformations and Actions on Streaming Data
- Integration with Flume and Kafka.
- Integration with Cassandra
- Monitoring streaming jobs.

SPARK SQL

- Introduction to Apache Spark SQL
- The SQL context
- Importing and saving data
- Processing the Text files,JSON and Parquet Files
- DataFrames
- user-defined functions
- Using Hive
- Local Hive Metastore server

SPARK MLIB.

- Introduction to Machine Learning Types of Machine Learning.
- Introduction to Apache Spark MLlib Algorithms.
- Machine Learning Data Types and working with MLlib.
- Regression and Classification Algorithms.
- Decision Trees in depth.
- Classification with SVM, Naive Bayes
- Clustering with K-Means
- Building the Spark server

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