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Learning Style: Virtual Classroom

Technology:

Difficulty: Intermediate

Course Duration: 3 Days

## Introduction to Big Data



### About this course:

Introduction to Big Data is an intermediate level, Data Science training based course that allows students to learn how to leverage big data analysis tools and techniques to facilitate a better business decision-making. Furthermore, students also acquire hands-on knowledge on storing data in order to regulate efficient processing and analysis, and acquire the expertise to store, manage, process, and analyze large amounts of unstructured data and develop a relevant data lake.

## **Course Objectives:**

- Store, manage, and analyze the unstructured data sets
- Choose the right big data stores covering disparate data sets
- Process large data sets through Hadoop to acquire value
- Query large data sets in almost real time through Pig and Hive
- Craft and execute a big data strategy for a business

## **Prerequisite:**

- A sound expertise of the Microsoft Windows platform

## **Course Outline:**

### **Defining Big Data**

- The four dimensions of Big Data: volume, velocity, variety, veracity
- Introducing the Storage, MapReduce and Query Stack

### **Delivering business benefit from Big Data**

- Establishing the business importance of Big Data
- Addressing the challenge of extracting useful data
- Integrating Big Data with traditional data

### **Storing Big Data**

### **Analyzing your data characteristics**

- Selecting data sources for analysis
- Eliminating redundant data
- Establishing the role of NoSQL

### **Overview of Big Data stores**

- Data models: key value, graph, document, column?family
- Hadoop Distributed File System
- HBase
- Hive
- Cassandra
- Hypertable

- Amazon S3
- BigTable
- DynamoDB
- MongoDB
- Redis
- Riak
- Neo4J

## **Selecting Big Data stores**

- Choosing the correct data stores based on your data characteristics
- Moving code to data
- Implementing polyglot data store solutions
- Aligning business goals to the appropriate data store

## **Processing Big Data**

### **Integrating disparate data stores**

- Mapping data to the programming framework
- Connecting and extracting data from storage
- Transforming data for processing
- Subdividing data in preparation for Hadoop MapReduce

### **Employing Hadoop MapReduce**

- Creating the components of Hadoop MapReduce jobs
- Distributing data processing across server farms
- Executing Hadoop MapReduce jobs
- Monitoring the progress of job flows

### **The building blocks of Hadoop MapReduce**

- Distinguishing Hadoop daemons
- Investigating the Hadoop Distributed File System
- Selecting appropriate execution modes: local, pseudo?distributed and fully distributed

### **Handling streaming data**

- Comparing real?time processing models
- Leveraging Storm to extract live events
- Lightning?fast processing with Spark and Shark

## **Tools and Techniques to Analyze Big Data**

### **Abstracting Hadoop MapReduce jobs with Pig**

- Communicating with Hadoop in Pig Latin
- Executing commands using the Grunt Shell

- Streamlining high-level processing

## **Performing ad hoc Big Data querying with Hive**

- Persisting data in the Hive MegaStore
- Performing queries with HiveQL
- Investigating Hive file formats

## **Creating business value from extracted data**

- Mining data with Mahout
- Visualizing processed results with reporting tools
- Querying in real time with Impala

## **Developing a Big Data Strategy**

### **Defining a Big Data strategy for your organization**

- Establishing your Big Data needs
- Meeting business goals with timely data
- Evaluating commercial Big Data tools
- Managing organizational expectations

### **Enabling analytic innovation**

- Focusing on business importance
- Framing the problem
- Selecting the correct tools
- Achieving timely results

### **Implementing a Big Data Solution**

- Selecting suitable vendors and hosting options
- Balancing costs against business value
- Keeping ahead of the curve

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