

# € TRAINING

Advanced Artificial Intelligence and Big Data





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## Introduction:

The Advanced Artificial Intelligence and Big Data training program delves into cutting-edge techniques in AI and big data analytics. Participants explore advanced topics like machine learning algorithms and big data processing frameworks. Through theory and hands-on exercises, individuals develop expertise to derive insights and innovate across domains.

## Program Objectives:

At the end of this program the participants will be able to:

- Develop a deeper understanding of what big data means to your organization.
- Understand how to plan and analyze using logic to design Machine Learning-based applications.
- Explain how to imitate human in clustering and classification for AI applications.
- Identify the key products in the big data platforms and describe their functional role.
- Describe the role of Hadoop and its use in the Big Data platform, along with the concepts of big data.
- Walk away with more knowledge about the role of the platform and its components, including NoSQL Database, Hadoop Distributed File System, Data Mining, and Big Data Connectors.

## Targeted Audience:

- Database management system.
- Data structures, Systems architects, and Marketing managers.
- Chief Information Officer CIO / Chief Technology Officer CTO.
- Finance, budget planners, decision-makers, and policymakers.
- Quality, safety, reliability, and security officers.
- Application-based programming with Python.
- Object-oriented programming using Java.
- Project managers and executive managers.
- Instrumentation, process, systems, electrical, and mechanical engineers.
- Programming for problem-solving.

## Program Outlines:

### Unit 1:

#### An Overview of Artificial Intelligence:

- Introduction to AI and Success Stories.
- Human Intelligence vs Artificial Intelligence.
- History of AI, Intelligent Agents and Their Roles.
- Limits of Artificial Intelligence.
- Intelligent Decision Making .

### Unit 2:

#### Intelligent Agents:

- Introduction to Agents.
- Different Types of Agents.
- Knowledge-base and Database.
- Logic Reasoning.
- Unification.
- Deduction Processes.

### Unit 3:

#### Machine Learning:

- Supervised and Unsupervised Learning.
- Classification and Clustering.
- Artificial Neural Networks.
- Learn by Examples.
- Object Recognition.
- Features and Classes.

## Unit 4:

### Fuzzy Logic:

- Introduction to Fuzzy Thinking.
- Fuzziness vs Probability.
- Fuzzy set and Fuzzy Rules.
- Importance of Fuzzy logic and A real example of Fuzzy Controllers.
- Building a Tiny Machine Learning Application.

## Unit 5:

### Genetic Algorithm:

- Overview of Genetic Algorithms.
- The Need for Optimization, Maximization, and Minimization.
- How GA Work and Evolve.
- Genetic Algorithm Chromosomes, Genes, Selection, Mutation, and Crossover.
- Dimension to Use Genetic Algorithm.
- Real Genetic Algorithm Examples to Optimize Business Processes.

## Unit 6:

### Big Data at Work:

- What is Big Data?
- Business Challenges and Getting Fast Answers to New Questions.
- Industry Examples.
- Building Your Big Data Strategy.

## Unit 7:

### Building a Big Data System:

- A General Look at Big Data Systems.
- Big Data Solution.

- NoSQL Database Hadoop.
- Distributed File System.
- In-Database Analytics Platform.

## Unit 8:

### Building a Big Data System Using NoSQL Database:

- What is a Key-Value Store?
- Why Would I Need a NoSQL Database?
- Using NoSQL Database to Run a Website.

## Unit 9:

### Using Hadoop and Hive to Store and Transform Data:

- What is Hadoop?
- Interacting with HDFS.
- MapReduce.
- Using Hive to Transform Data.

## Unit 10:

### Integrating Hadoop Data into:

- Big Data Connectors.
- Data Integrator Working on Hadoop Data and Transforming Data in ODI.
- Using Advanced Analytics to my Data.
- Mining Database Data with R Enterprise and Mining Hadoop Data with R Connector for Hadoop Creating.
- Real-Time Similarity Scores with Data Mining.