# Data Science & Big Data Overview Tools, Tech & Modern Roles in the Data-Driven Enterprise (TTDS6000) Training

Duration: **1 Day**

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**Learn Big Data technologies, data science tools, and modern analytics strategies to make smarter business decisions and drive innovation through data.**

**Data Science & Big Data Overview** is a practical and engaging training course designed to help professionals understand how modern data science and Big Data technologies transform business operations and strategic decision-making.

This interactive program provides participants with a strong foundation in**Data Science**, **Big Data**, **Machine Learning**, **Data Visualization**, and **AI-powered analytics**. The course explores how organizations transform raw data into meaningful business insights and leverage modern data technologies to gain competitive advantages.

Participants will explore essential topics including **data collection**, **data cleansing**, **analytics**, **Hadoop ecosystems**, **Spark**, **Hive**, **Cassandra**, **Python**, **SQL**, **Power BI**, **Tableau**, and emerging AI technologies used in modern enterprise data strategies.

The course also includes demonstrations of **Retrieval Augmented Generation (RAG)** based GPT solutions, helping attendees understand how advanced AI technologies align with modern data-driven business processes.

By the end of this training, participants will be able to communicate data-driven insights effectively, contribute to strategic business decisions, and better understand the evolving landscape of data science and Big Data technologies.

## Prerequisites

Participants should ideally have:

- Basic understanding of data concepts
- Fundamental analytical thinking skills
- Familiarity with general business operations
- Interest in data-driven decision-making

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## Who Should Attend

This course is ideal for:

- **Business analysts**
- **Project managers**
- **Department leaders**
- **IT professionals**
- **Aspiring data analysts**
- Professionals interested in **data-driven business strategies**

This course is especially valuable for individuals seeking foundational knowledge in**data science**, **Big Data technologies**, and modern analytics workflows.

## What You Will Learn

Participants will learn how to:

- Understand **data collection and cleansing**
- Apply effective **data visualization techniques**
- Explore the fundamentals of **Machine Learning**
- Understand **Big Data technologies**
- Support data-driven business decisions
- Understand the structure of modern data teams
- Work with tools such as **Python, R, SQL, and Java**
- Explore AI-powered data analytics solutions
- Build a data-driven business culture

## Training Outline

### 1. Understanding Data Science in Business

- Introduction to Data Science
- Evolution of data science
- Importance of data science in business
- Data Science vs Business Intelligence
- Key terminology in data science
- Demo sessions

### 2. Data Collection and Preparation

- Business data sources
- Data collection techniques
- **Data cleaning and preprocessing**
- Preparing data for analytics
- Demo exercises

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## 3. Analytics and Statistical Methods

- **Descriptive vs Inferential Statistics**
- Statistical analysis techniques
- Business analytics concepts
- Fundamentals of data visualization
- Demonstrations

## 4. Introduction to Machine Learning for Business

- **Machine Learning fundamentals**
- Supervised vs Unsupervised Learning
- Common ML algorithms in business
- Trend forecasting and predictive analytics
- Demo applications

## 5. Data Visualization and Interpretation

- Importance of data visualization
- Using visuals for business decision-making
- **Tableau, Power BI, Qlik, and Looker**
- Storytelling with data
- Demonstrations

## 6. Big Data, Hadoop, and Business Decisions

- Introduction to **Big Data**
- Hadoop ecosystem overview
- **Spark, Hive, and Cassandra**
- Big Data technologies and frameworks
- Predictive analytics with Big Data
- Security and ethical considerations
- Demo sessions

## 7. Data Science Tools, Programming Languages, and AI

- **Python, R, SQL, and Java**
- Common data science tools
- AI in data science
- Emerging AI-powered analytics tools
- Modern data science roles:
  - Data Analyst
  - Data Engineer
  - Data Scientist
- Demo exercises

## 8. Implementing Data Science in Business

- Building a data-driven culture
- Data science team structures

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- Project management for data initiatives
- Real-world business applications
- Group discussions and Q&A