



Department of AI & DS Engineering

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SUBJECT : Database Management System	
CLASS: S.Y.B.Tech Div-B	SEMESTER: IV
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TOPIC: Importance of Big Data Analytics	
WEBSITE URL REFERRED: - https://www.youtube.com/watch?v=k7zu3NXEiGY	

Introduction

Big data analytics has become an essential aspect of modern industries due to the exponential growth of data generated daily, estimated at 2.5 quintillion bytes. Data originates from diverse sources such as social media, banking, and government institutions, often existing in multiple formats. The primary significance of big data analytics lies in its ability to facilitate intelligent decision-making, optimize operations, and enhance efficiency across organizations. Examples like the New York Police Department (NYPD) showcase how big data analytics aids in predicting and preventing crime through the analysis of historical data patterns. Many organizations leverage this technology for faster decision-making, improved operational efficiency, and enhanced customer satisfaction.

Summary

Big data analytics involves examining large and varied data sets to uncover patterns, correlations, and insights that drive business growth. This process employs data mining algorithms to enable organizations to make informed decisions. The stages of big data analytics include identifying the problem, designing data requirements, pre-processing, analytics, and data visualization. Additionally, big data analytics can be classified into four types: descriptive, predictive, prescriptive, and diagnostic analytics, each serving different purposes in data interpretation.

Key Notes

- **SQL Access and Database Structure:** SQL databases consist of schemas and stored data, requiring integration with applications for enhanced functionality.
- **Connection Libraries:** JDBC (Java Database Connectivity) and ODBC (Open Database Connectivity) act as bridges between applications and databases. JDBC is Java-specific, while ODBC provides a generic mechanism for multiple languages.



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- **Stages of Big Data Analytics:** This includes problem identification, data requirement design, pre-processing, analytics, and data visualization.
- **Types of Big Data Analytics:** Descriptive, predictive, prescriptive, and diagnostic analytics serve distinct purposes in data analysis.
- **Big Data Tools:** Popular tools include Hadoop, Apache Pig, Kafka, Apache Hive, Splunk, Apache Spark, and Apache HBase, each designed for efficient data processing and storage.

Importance

The increasing adoption of big data analytics is transforming industries worldwide. It enables organizations to gain valuable insights, improve service delivery, and optimize decision-making processes. In healthcare, big data is used to predict epidemics and enhance patient care. The telecom industry applies analytics for fraud detection and targeted marketing strategies. Banks leverage analytics to distinguish between legitimate and fraudulent transactions, ensuring security. Additionally, retail businesses, insurance companies, and automobile industries utilize big data for predictive analysis, risk assessment, and operational efficiency. The demand for big data professionals continues to rise as companies seek to harness the power of analytics for competitive advantage.

Conclusion:

Big data analytics has revolutionized how organizations interpret and utilize vast amounts of data. By leveraging advanced analytical techniques, companies can optimize their operations, improve customer experiences, and drive innovation. The growing market for big data analytics, coupled with the increasing demand for skilled professionals, underscores its importance in today's data-driven world. As businesses continue to integrate big data solutions, individuals with expertise in analytics will have significant career opportunities, making it a promising field for future growth.

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Marks: