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B. Tech CSE Cybersecurity

Data Warehousing and Mining LAB 02

Question:

Aim: To Analyse the following in data warehousing and mining

(A)

Application implementing DW & DM.

Domain of the application.

Key concepts implemented.

Benefit to the company. (Outcome after implementation)

(B) Software implementing Data Warehouse

Analyse the following

Software name

Name of company

Key features of Software

Answer:

Analysis of Data Warehousing and Mining

(A) Application Implementing DW & DM

1. Application Overview

- Domain of the Application: United Parcel Service (UPS) operates in the logistics and supply chain management domain, providing parcel delivery services across the globe.

2. Key Concepts Implemented

- Data Integration: UPS integrates data from various sources, including tracking systems and customer databases, to create a unified view of operations.

- ETL Processes: The company employs ETL processes to extract data from multiple tracking requests, transform it into a usable format, and load it into their data warehouse for analysis.

- Real-Time Analytics: UPS utilizes real-time data warehousing to analyze approximately 300 million tracking requests daily, enabling immediate insights into delivery performance and operational efficiency.

3. Benefits to the Company

- Enhanced Operational Efficiency: By leveraging data warehousing, UPS can optimize delivery routes and improve logistics operations, resulting in reduced costs and improved service levels.

- Improved Customer Experience: Real-time insights allow UPS to provide timely updates to customers regarding their packages, enhancing customer satisfaction.

- Data-Driven Decision Making: The ability to analyze vast amounts of data enables UPS to make informed strategic decisions that drive business growth and operational improvements [1].

(B) Software Implementing Data Warehouse

Software Name	Company Name	Key Features
Teradata	Teradata Corporation	High-performance analytics; scalability for large datasets; supports complex queries across multiple data sources.
Apache Hudi	Open Source	Supports efficient data management; enables partial updates; integrates seamlessly with big data processing frameworks like Spark [3].
Hadoop	Apache Software Foundation	Distributed storage and processing; handles large volumes of unstructured data; supports batch processing and real-time analytics [2].

Observation

The application of data warehousing and mining in companies like UPS showcases how these technologies can transform logistics operations by enhancing efficiency and customer service. The choice of robust software solutions like Snowflake, Amazon Redshift, and Google Big Query further illustrates the importance of having the right tools for effective data management.

Conclusion

Data warehousing and mining are critical for organizations seeking to leverage their data for competitive advantage. By implementing these technologies, companies can improve operational efficiencies, enhance customer experiences, and make informed decisions based on comprehensive data analysis. The ongoing evolution of data warehousing software ensures that businesses can adapt to changing needs while maximizing the value derived from their data assets.

Citations for both Questions:

[1] https://dataforest.ai/blog/practical-data-warehousing-successful-cases

[2] https://estuary.dev/real-time-data-warehouse-examples/

[3] https://www.striim.com/blog/examples-companies-using-real-time-data-analytics-striim/

[4] https://global.thepower.education/blog/everything-you-need-to-know-about-data-warehouse-real-world-examples

[5] https://www.datatobiz.com/blog/top-data-warehousing-companies/