IST722: Class Exercise 9

This is an individual assignment.

Before you begin, please make sure you've read and understand 1) our class honor code, 2) course policies on late work and 3) participation policies as posted on the syllabus. "I didn't know" is not an excuse.

You should cite your sources in a standard format like MPA or APA and include a list of works cited.

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Instructions (Refer Unit 9)

Answer each of the following questions as concisely as possible. More is not necessarily better. Please justify your answer by citing your sources from the assigned readings from our textbooks, our class lectures, or online if directed to do so. Be sure to cite in text and include a list of works cited. Place your answer below each question. When you're finished, print out this document and bring it to class as part of your participation grade.

Questions

[1] Search for "business intelligence without a data warehouse"? How well do you think these products can deliver on this promise?

Ans – Several BI products claim to offer business intelligence without the need for a data warehouse, such as Tableau, Qlik Sense, and Power BI. These tools use various techniques to access and analyze data from multiple sources, including transactional databases, cloud-based applications, and social media. They simplify the BI process by facilitating data source connections, report creation, and insight sharing.

However, there are limitations to consider with BI products that don't use a data warehouse. They may struggle with large data volumes and complex queries and might not provide the same level of data security and governance as traditional data warehouses.

[2] Summarize the differences between Operational, Tactical, and Strategic BI.

Ans - Operational BI is employed to monitor and enhance day-to-day business operations, offering real-time insights to aid managers in making swift decisions for improved efficiency and productivity.

Tactical BI is utilized to facilitate mid-level decision-making, providing insights into trends and patterns, which help managers allocate resources and achieve goals more effectively.

Strategic BI is harnessed for high-level decision-making, granting insights into the long-term health and direction of the business, and enabling executives to make informed choices about strategy, growth, and investment.

[3] What are the 6 categories of Business Intelligence? Give an example of each.

Ans –

1. Reporting and Direct Access Query: Reporting involves presenting business information in tabular, matrix format, or charts, providing insights and summaries of data. Example, Reporting tools like Tableau and Power BI allow users to create interactive reports and visualizations.
2. Analytic Applications / OLAP: Analytic applications are based on Data Dependent Structures (DDS) that use Fact tables and Dimensions. OLAP cubes are data structures that represent analytic data. Example, Oracle Essbase and IBM Cognos are platforms that support OLAP and provide advanced analytics capabilities.
3. Data Mining and Machine Learning: Data Mining and Machine Learning involves the exploration of data to discover patterns, relationships, or insights with the aid of ML algorithms. Example, the use of machine learning algorithms for customer segmentation and predicting customer behavior in platforms like RapidMiner.
4. Dashboards and Scorecards: Dashboards and Scorecards provide visual representations of KPIs and business metrics, enabling users to monitor performance and track progress toward specific goals. Example, Business dashboards in platforms like Power BI provide real-time visualizations of sales performance.
5. Alerts: Alerts are notifications sent to business users when a specific event or condition occurs. Example, Business Intelligence tools can be configured to send email notifications to stakeholders when certain KPIs exceed predefined thresholds.
6. Portals: BI Portals provide a single access point to BI applications and data. Example, A company intranet portal integrating various BI reports and dashboards for different departments, providing easy access to all employees.

[4] Explain the terms: OLAP, ROLAP, MOLAP and HOLAP.

Ans - OLAP (Online Analytical Processing): Enables complex multidimensional analysis of data from different perspectives for business intelligence.

ROLAP (Relational OLAP): Performs OLAP operations directly on relational databases using SQL queries.

MOLAP (Multidimensional OLAP): Stores data in specialized multidimensional cubes for faster query performance.

HOLAP (Hybrid OLAP): Combines features of ROLAP and MOLAP, storing frequently accessed data in cubes and less accessed data in relational format.

[5] What is the difference between Slicing and Dicing in MOLAP?

Ans - Slicing and dicing are two fundamental operations used in MOLAP (Multidimensional Online Analytical Processing) to analyze data in a multidimensional cube.

Slicing: This operation involves selecting a specific single-dimensional "slice" of data from the cube. It means fixing the values of one or more dimensions to view a two-dimensional subset of the data. Slicing allows users to focus on a specific set of data within the selected dimension(s).

Dicing: Dicing involves selecting a "dice" or subset of data from the cube using multiple dimensions. It means fixing the values of multiple dimensions to view a three-dimensional subset of the data. By dicing the cube, users create a more specific view of the data that combines selected values from different dimensions.

WORKS CITED:

Class slides and Professor Fudge slides.