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### Study Guide

\*\*Data Warehousing\*\*

- \*\*Purpose:\*\* To store and manage vast amounts of data for analysis and decision-making.

- \*\*Characteristics:\*\*

- \*Subject-Oriented\*: Focused on specific subjects like sales or patient visits.

- \*Integrated\*: Combines data from various sources in different formats.

- \*Non-Volatile\*: Data is stable; once entered, it is not changed.

- \*Time Variant\*: Data is tracked and stored over time.

\*\*Operational Databases vs. Data Warehouses\*\*

- Operational databases are used for daily transactions and are constantly updated.

- Data warehouses are used for analytical processing and support decision-making.

\*\*ETL Process\*\*

- \*\*Extraction\*\*: Gathering relevant data from various sources.

- \*\*Transformation\*\*: Converting data into a consistent format for integration.

- \*\*Loading\*\*: Adding the transformed data into the warehouse.

\*\*Data Warehousing Architectures\*\*

- Different models like centralized, hub and spoke, and federated are used to structure data warehouses.

\*\*Metadata\*\*

- Metadata is 'data about data', providing details about the data stored in the warehouse.

\*\*OLAP\*\*

- Online Analytical Processing allows for complex analysis of data in the warehouse through multidimensional querying.

### Glossary

- \*\*Data Warehouse\*\*: A system used for reporting and data analysis, integrating data from multiple sources.

- \*\*ETL\*\*: Extraction, Transformation, Loading - processes used to prepare data for analysis.

- \*\*Metadata\*\*: Data that provides information about other data.

- \*\*Non-Volatile\*\*: In data warehousing, refers to the stability of data which is not frequently altered.

- \*\*OLAP\*\*: Online Analytical Processing - a technology that enables users to analyze data from multiple database systems at the same time.

- \*\*Subject-Oriented\*\*: Focused on specific subjects or areas within an organization.

- \*\*Data Mart\*\*: A subset or a section of a data warehouse, often focused on a single subject or department.