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**ASSESSMENT- 1**

**Data Warehousing:**

A data warehouse is an enterprise system used for the analysis and reporting of structured and semi-structured data from multiple sources, such as point-of-sale transactions, marketing automation, customer relationship management, and more. A data warehouse is suited for ad hoc analysis as well custom reporting. A data warehouse can store both current and historical data in one place and is designed to give a long-range view of data over time, making it a primary component of business intelligence.

**Characteristics of Data Warehouse:**

1. **Subject-Oriented**

A data warehouse target on the modeling and analysis of data for decision-makers. Therefore, data warehouses typically provide a concise and straightforward view around a particular subject, such as customer, product, or sales, instead of the global organization's ongoing operations. This is done by excluding data that are not useful concerning the subject and including all data needed by the users to understand the subject.

1. **Integrated**

A data warehouse integrates various heterogeneous data sources like RDBMS, flat files, and online transaction records. It requires performing data cleaning and integration during data warehousing to ensure consistency in naming conventions, attributes types, etc., among different data sources.

1. **Time-Variant**

Historical information is kept in a data warehouse. For example, one can retrieve files from 3 months, 6 months, 12 months, or even previous data from a data warehouse. These variations with a transactions system, where often only the most current file is kept.

1. **Non-Volatile**

The data warehouse is a physically separate data storage, which is transformed from the source operational RDBMS. The operational updates of data do not occur in the data warehouse, i.e., update, insert, and delete operations are not performed. It usually requires only two procedures in data accessing: Initial loading of data and access to data. Therefore, the DW does not require transaction processing, recovery, and concurrency capabilities, which allows for substantial speedup of data retrieval. Non-Volatile defines that once entered into the warehouse, and data should not change.

**Need for Data Warehouse:**

1. Business User: Business users require a data warehouse to view summarized data from the past. Since these people are non-technical, the data may be presented to them in an elementary form.
2. Store historical data: Data Warehouse is required to store the time variable data from the past. This input is made to be used for various purposes.
3. Make strategic decisions: Some strategies may be depending upon the data in the data warehouse. So, data warehouse contributes to making strategic decisions.
4. For data consistency and quality: Bringing the data from different sources at a commonplace, the user can effectively undertake to bring the uniformity and consistency in data.
5. High response time: Data warehouse has to be ready for somewhat unexpected loads and types of queries, which demands a significant degree of flexibility and quick response time.

**Benefits of Data Warehouse:**

1. Data warehousing provide the capabilities to analyze a large amount of historical data.
2. Data warehousing is an efficient method to manage demand for lots of information from lots of users.
3. Queries that would be complex in many normalized databases could be easier to build and maintain in data warehouses.
4. The structure of data warehouses is more accessible for end-users to navigate, understand, and query.
5. Data Warehouses are designed to perform well enormous amounts of data.
6. Understand business trends and make better forecasting decisions.