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DEC Lab Assignment 4

Aim: Date warehouse schema generation and OLAP operations using OLAP cube tool.

Objectives: 1) To build cube and different reports in OLAP cube tool.
2) To perform different OLAP operation.

Theory -

- Data warehouse : A data warehouse is a centralised repository that stores data from various sources for the purpose of analysis and reporting. Its designed to support business intelligence activities and decision making by providing a unified and historical view of data.

Star, snowflake, fact constellation schema.
Star schema is a type of data warehouse where a central fact table is connected to dimension tables in a star-like structure. Dimensions are denormalize for quick querying.

Snowflake Schema :- Similar to the star schema, but dimensions tables are normalized into multiple related tables, forming a snowflake-like structure. This reduces data redundancy but can impact query performance.

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Fact Constellation Schema: It consists of multiple fact tables sharing dimension tables. Its used when there are multiple business processes or subject areas in the data warehouse.

Different OLAP Operations:

1) Roll up: Aggregates data to a higher level
2) Drill down: Breaks down data into finer detail.
3) Slice - Selects specific cells, forming a subcube.
4) Pivot - Changes the perspective to view the cube.
5) MOLAP - Uses multi dimensional databases.
6) ROLAP - Performs OLAP on rel^n db.
7) HOLAP - Combines MOLAP and ROLAP features.
8) DOLAP - Provides OLAP capabilities to a user desktop.
9) Realtime OLAP - Supports OLAP on real time or Streaming data for instant analysis.

Input: Database
Output: Multidimensional cube and data analysis reports.

Platforms: Windows
Conclusion: Thus, we have learned to build multidimensional cube and OLAP operations.

FAQ's

1) What are dimensions and measures?

→ B Dimensions: In OLAP dimensions are descriptive attributes or categories by which you want to analyze your data they provide context to measures.

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Measures: Measures are also known as facts are ~~that~~ the quantitative data that you want to analyse. These are numeric values or metrics such as sales revenue, profit, quantity sold or any other data that can be aggregated.

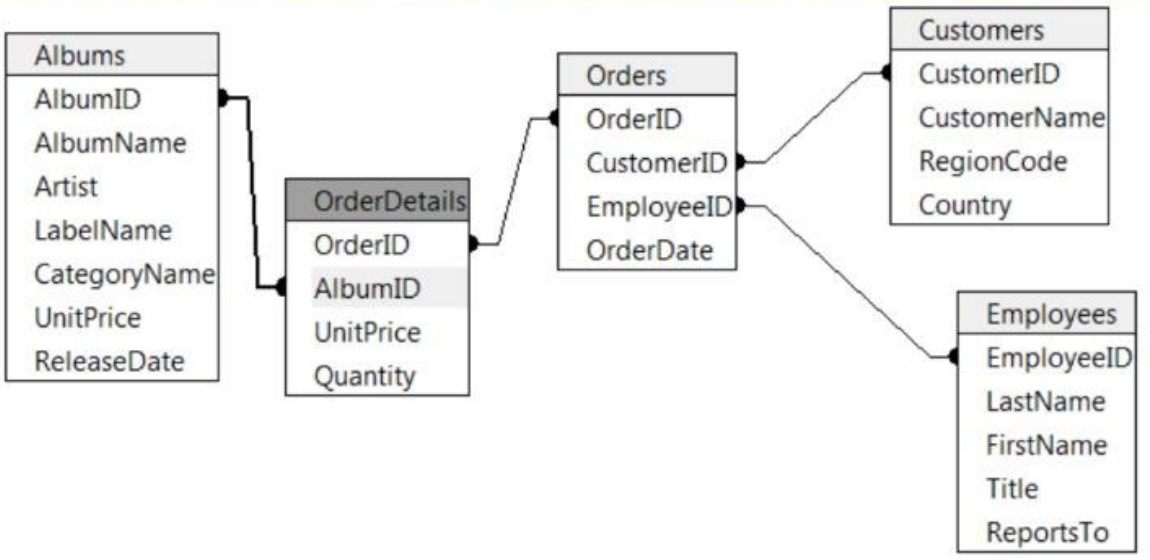
Q2) What do you mean by slicing and dicing?
→ Slicing: It is an OLAP operation that involves selecting a single dimension from a multidimen-sional array or cube to create a 2D table. It allows you to view a specific cross-selecting of data, focusing on a particular dimension.

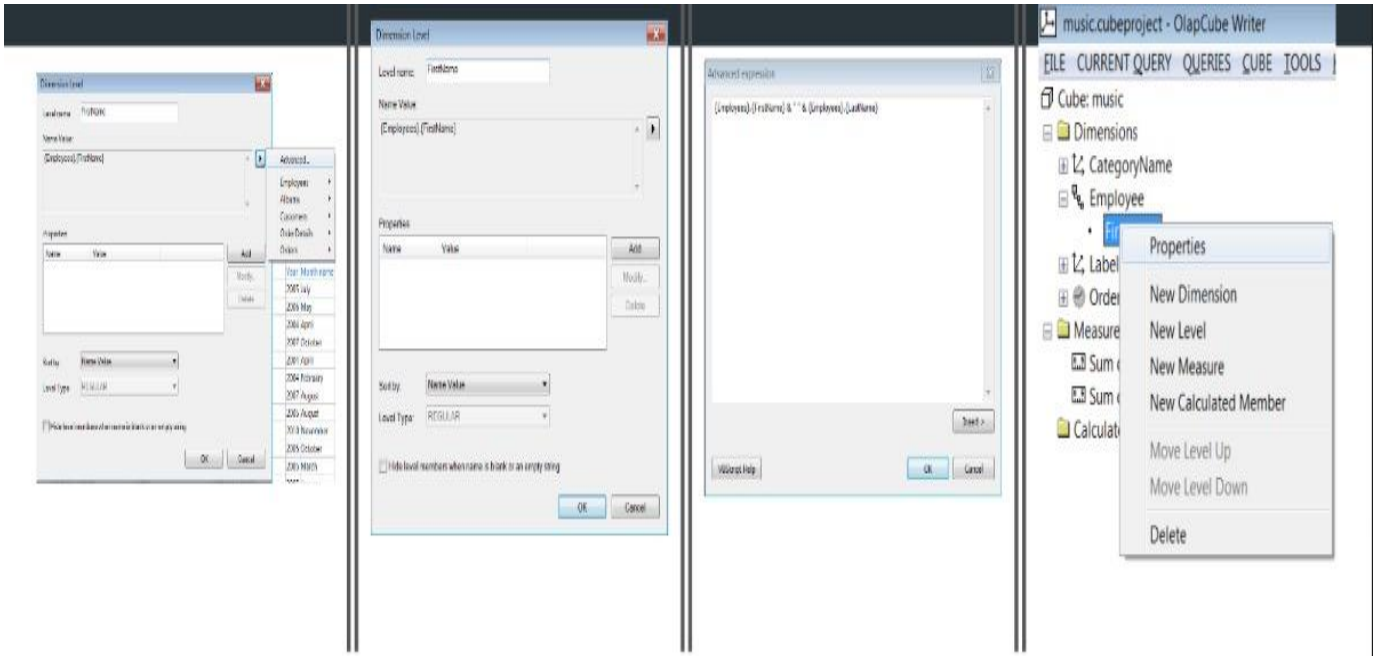
Dicing: Dicing is an OLAP operatn that involves selection specific cells from a multidimensional array to create a subcube. It allows you to focus on particular intersections of dimensions, creating a more detailed view of the data.

Q3 What do you mean by drill down and drill up?
→ Drill down: Drill down is an OLAP operation that involves breaking down aggregated data into more detailed levels. For ex: you might drill down from yearly sales to view quarterly or monthly sales. It provides a more granular view of the data allowing you to explore details.

Drill Up: It is the reverse of ~~det~~ drill down. It involves aggregation data at a higher level of abstractions. You might drill up from daily sales to view monthly or yearly sales.

build cube open cube open in Excel filters add more tables new relationship refresh database





Preview of Cube data | build cube | open cube | open in Excel | refresh | view sql query | hide data

CategoryName	LabelName			OrderDate	
CategoryName	LabelName	Artist	AlbumName	Year	Month name
POP	Reprise	Groban, Josh	Josh Groban	2005	July
POP	Reprise	Groban, Josh	Josh Groban	2006	May
POP	Reprise	Groban, Josh	Josh Groban	2004	April
POP	Reprise	Groban, Josh	Josh Groban	2007	October
POP	Reprise	Groban, Josh	Josh Groban	2004	April