Week2_Designing_Modeling_And_Implementing_DW

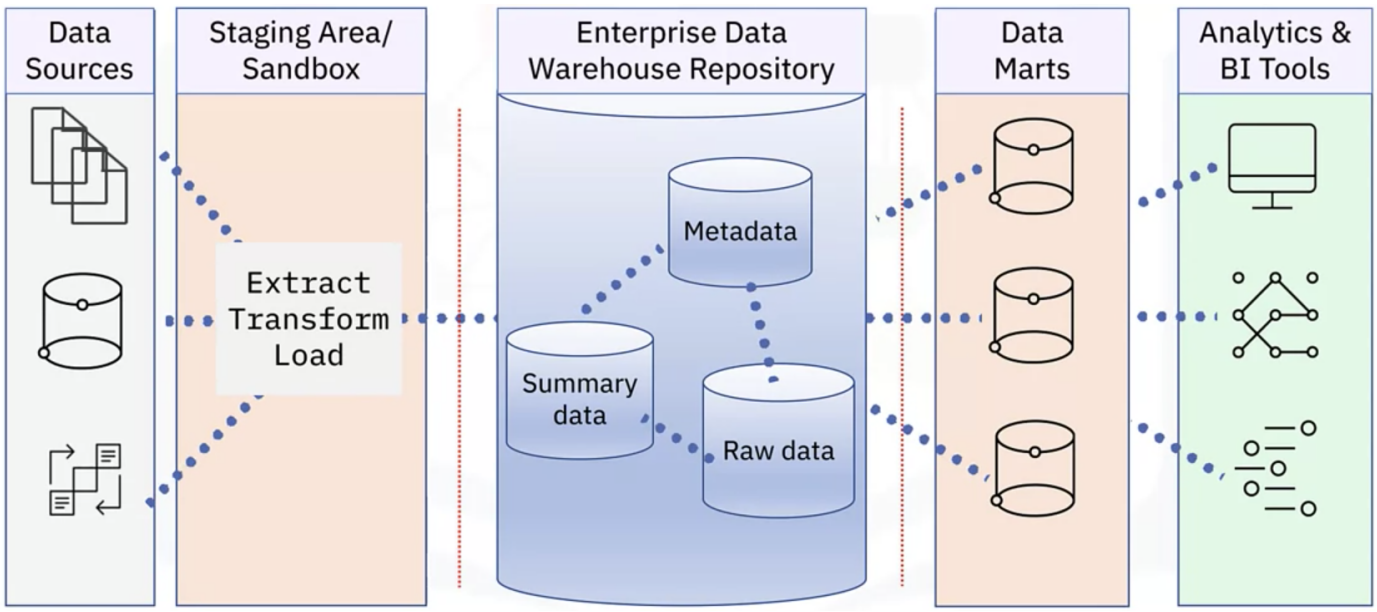
DW General Architecture

Data warehouse architecture details depend on use cases:

- Report generation and dashboarding
- Exploratory data analysis
- Automation and machine learning
- Self-serve analytics

General DW Architecture:

A general architectural model includes data sources, ETL pipelines, optional staging and sandbox areas, EDW repository, optinal data marts and analytics/BI tools



Cubes, Rollups and Materialized Views and Tables

What is a cube?

- Corrdinates = dimensions
- Cells = facts

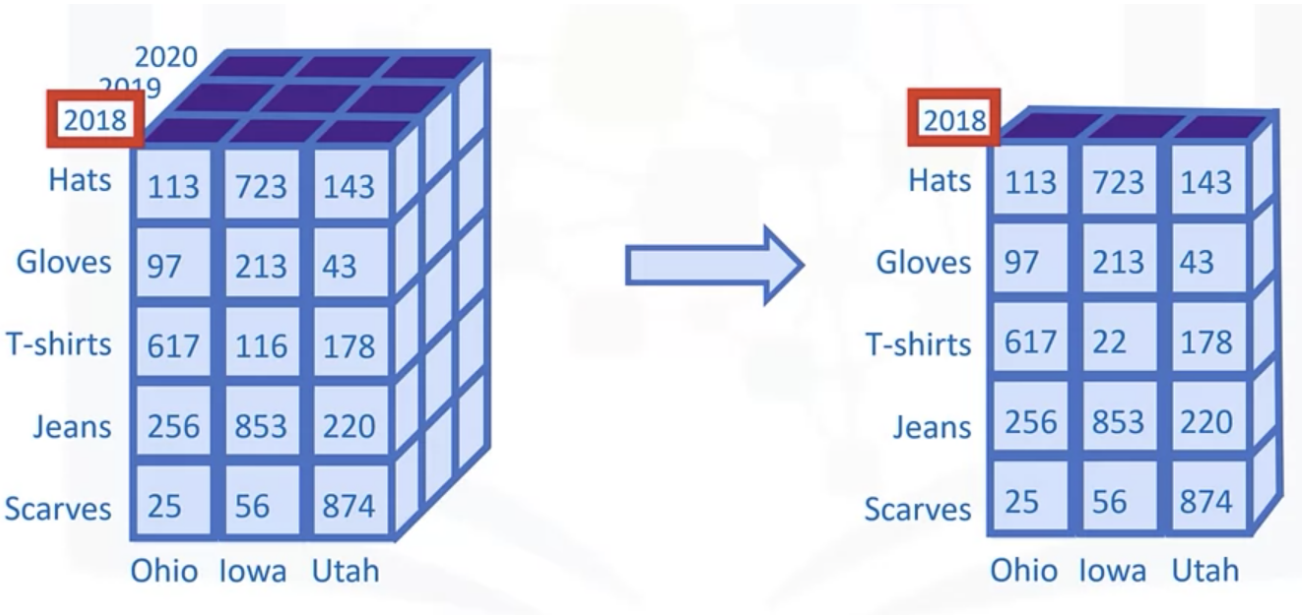
Cube operations:

- Slicing

- Dicing
- Drilling up and down
- Pivoting
- Rolling up

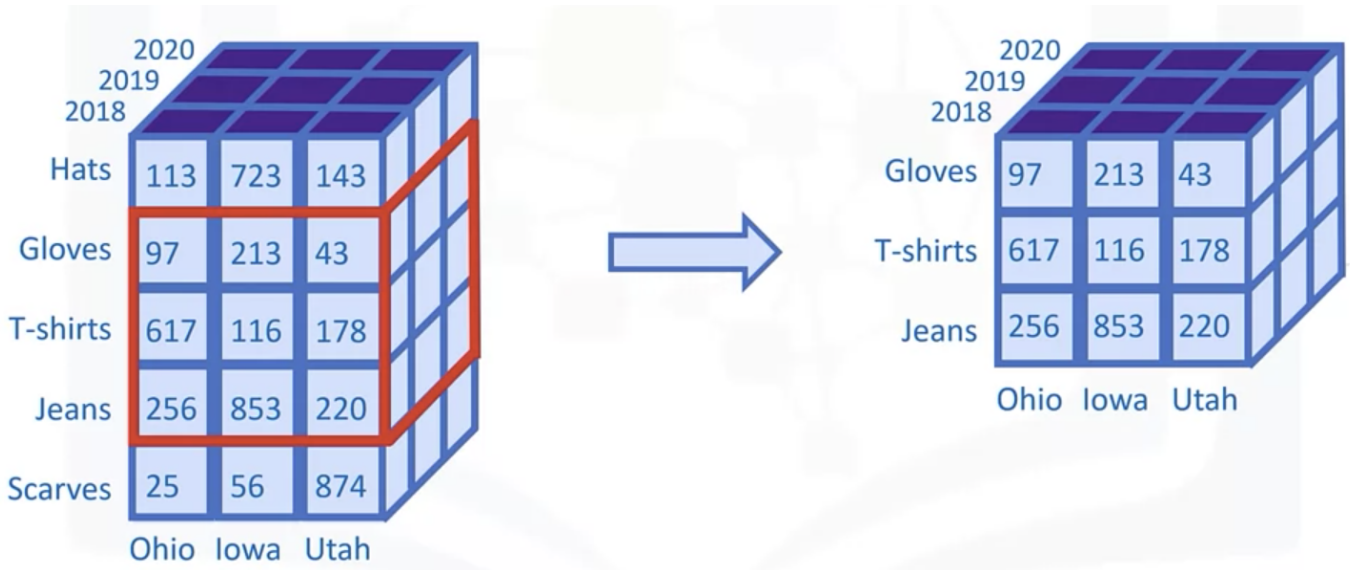
Slicing Data cubes

Involves selecting a single member from a dimension
Slicing reduces cube dimensions by 1:



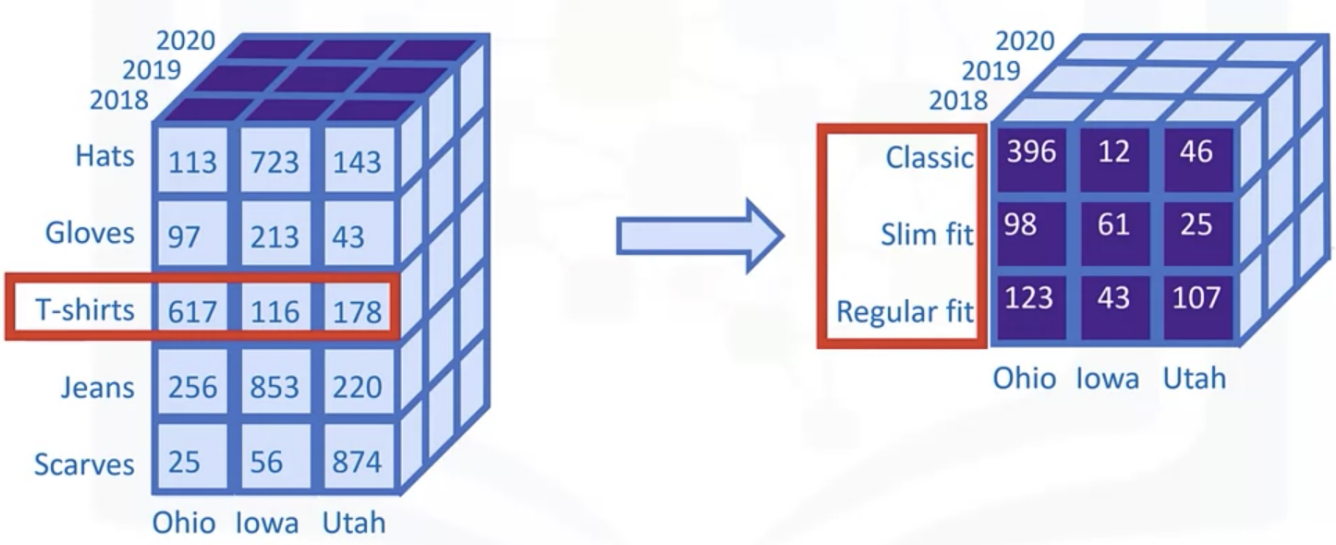
Dicing data cubes

Involves selecting a subsect of values from a dimension
Dicing shrinks a dimension



Drilling up or down data cubes

Drilling into subcategories within a dimension
Drilling up is just the reverse process - will take you back to original state

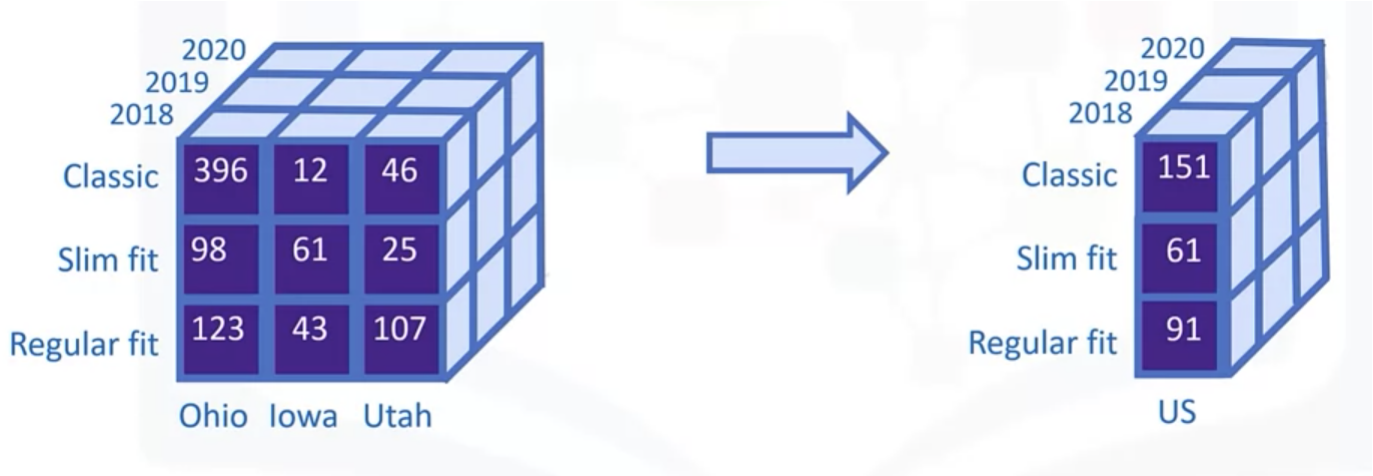


Pivoting data cubes

Involves a rotation of the data cube. Does not change the information content

Rolling up in data cubes

- Roll up = summarize a dimension
- Aggregate using COUNT, MIN, MAX, SUM, AVERAGE



Materialized View

- A snapshot containing results of a query
- Used to replicate data in a staging database or to precompute expensive queries for a data warehouse
- Automatically keep query results synced to database
- Safely work without affecting the source databases
- Can be set up for different refreh options:
    - Never - populated on creation only
    - Upon request - manually or scheduled
    - Immediately - automatically, after every statement