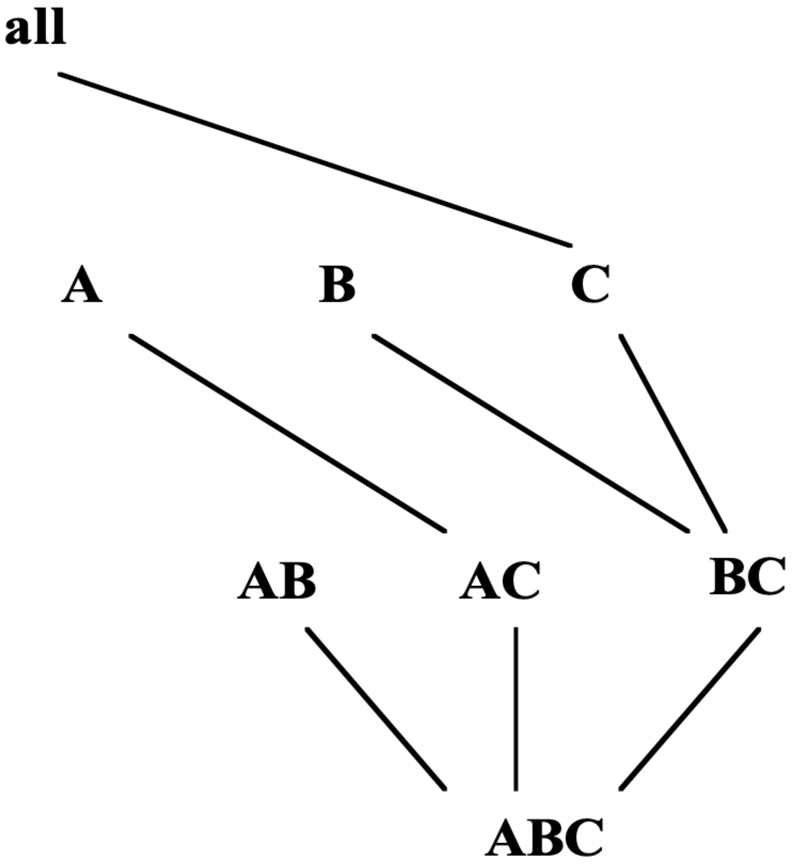
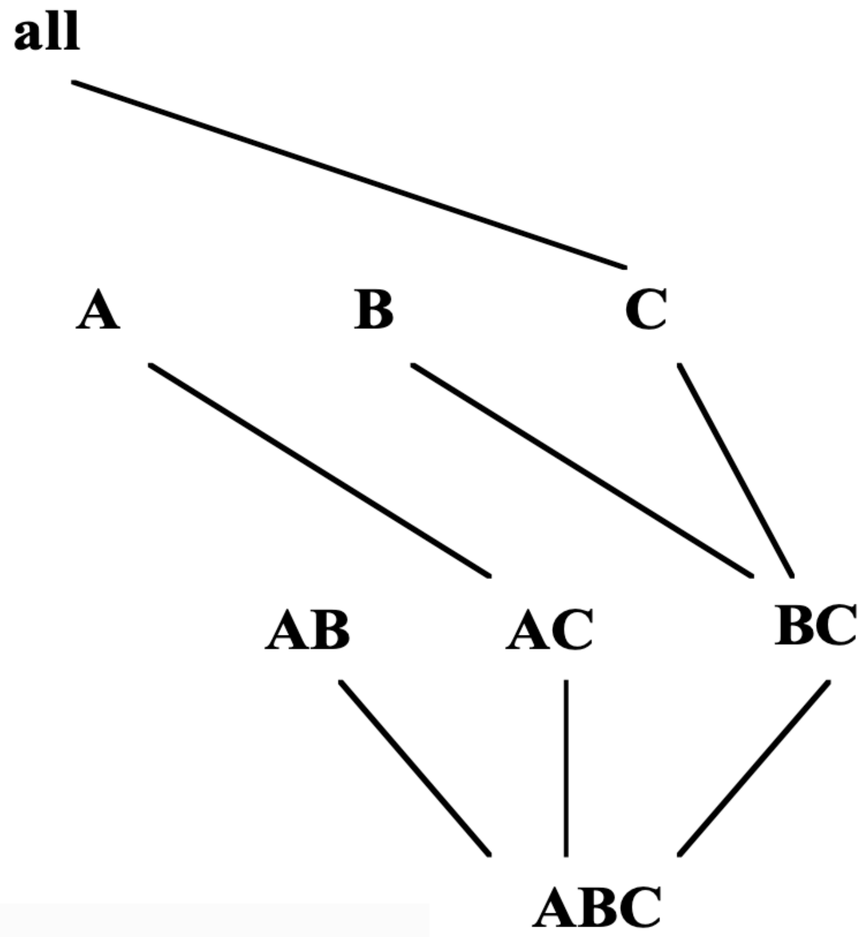
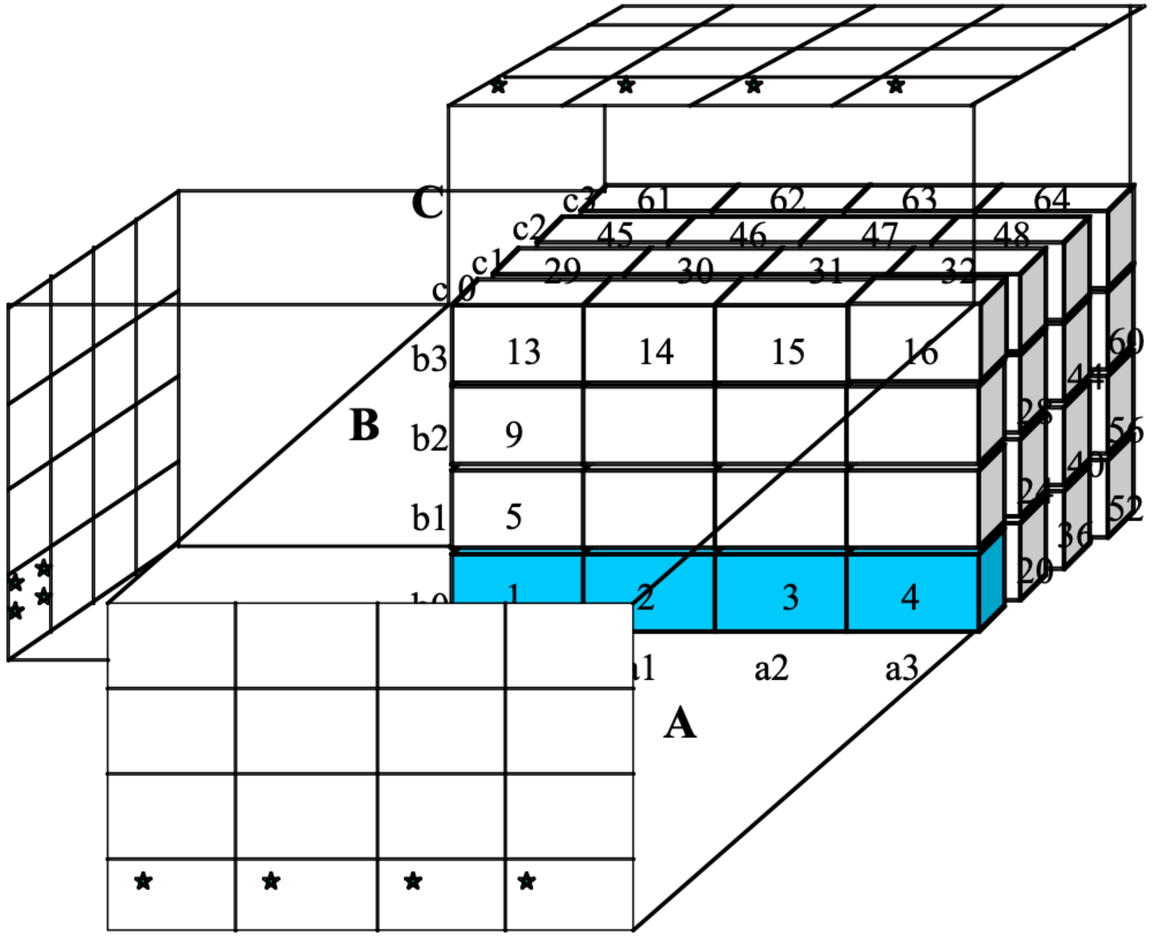
Multi-Way Array Aggregation

- Full cube computation
- Array-based “bottom-up” algorithm
- Multi-dimensional chucks
- Simultaneous aggregation on multiple dimensions
- Cannot do Apriori pruning
- Not for high dimensions



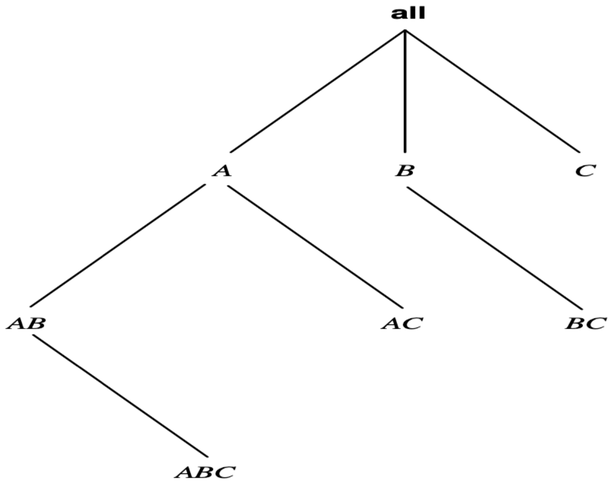
Multi-Way Array Aggregation

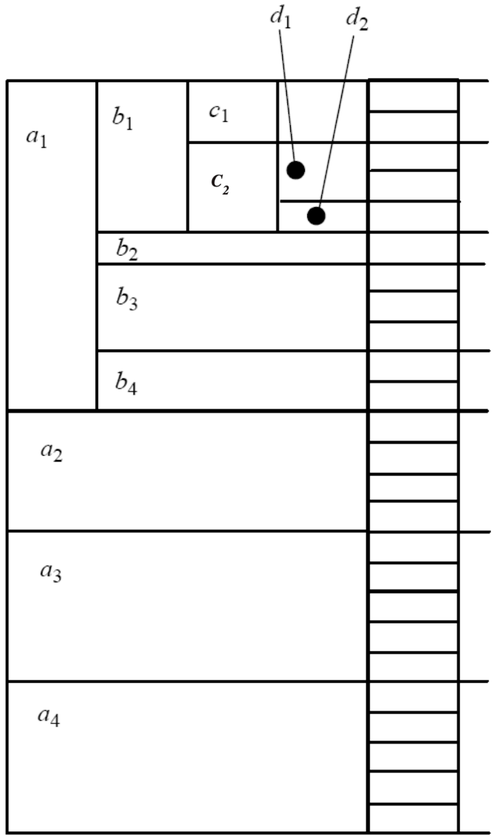




Bottom-Up Aggregation

- [Beyer & Ramakrishnan, SIGMOD'99]
- Top-down computation of iceberg cubes
- Divides dimensions into partitions and facilitates iceberg pruning





Extra Readings

- This module is NOT to introduce you every details about Data Warehouse.
- It is to expose you to a new perspective about how you can play with data.
- More readings:
  - Data Warehouse Concepts (by Amazon AWS)
  - Data Warehouse Topics (by Oracle Cloud)
  - Data Warehouse (by IBM Cloud)
  - Data Warehouse Explained (by Google Cloud)

Congratulations

- Now you finished Module 2: Data Warehouse.
- Now you have a better understanding about the data around us.
  - If you have a transactional perspective, OLTP.
  - If you have an analytical perspective, OLAP.
- What if, you have tons of data, but has no specific perspective? You might want to consider Big Data.
- We are going to learn it in Module 3.
- See you soon!