Module 2: Data Warehouse

- This module will introduce:
  - A different perspective of managing data
  - A comparison between different perspectives
  - The data structure supports the perspective

Learning Objectives

- Finishing this module, you will be able to:
  - Explain what are data warehouses
  - Explain how data warehouses are different than database management systems
  - Explain how OLAP is different than OLTP
  - Explain typical OLAP operations
  - Explain what are data cubes
  - Interpret data cubes
  - Create data cubes

What You Have Learned

- Structured databases:
  - Relational database design
  - SQL for relational database
  - Database administration
- Pros:
  - Simplicity, ease of use, accuracy, data integrity, normalization, collaboration, security
- Cons:
  - Maintenance, cost, physical storage, scalability, complexity, performance over time.

Starting from You

- Let's start from you.
- Table.
- Shelf.
- Storage/Garage.
- Library.
- Question: Which one is best?

What Do We need?

- Schema: How should my data be logically organized?
- Normalization: Should my data have minimal dependency (thus redundancy)
- Views: What joins will be done most often?
- Access control: Should all users of the data have the same level of access?
- DBMS: How do I pick between all the SQL and noSQL options?
- Users: Who uses the DBMS?
- Operations: What is a typical operations of the DBMS?