IPCA ESCOLA SUPERIOR DE TECNOLOGIA

Project Guide 01

Decision Support Systems (DSS), 2022-23

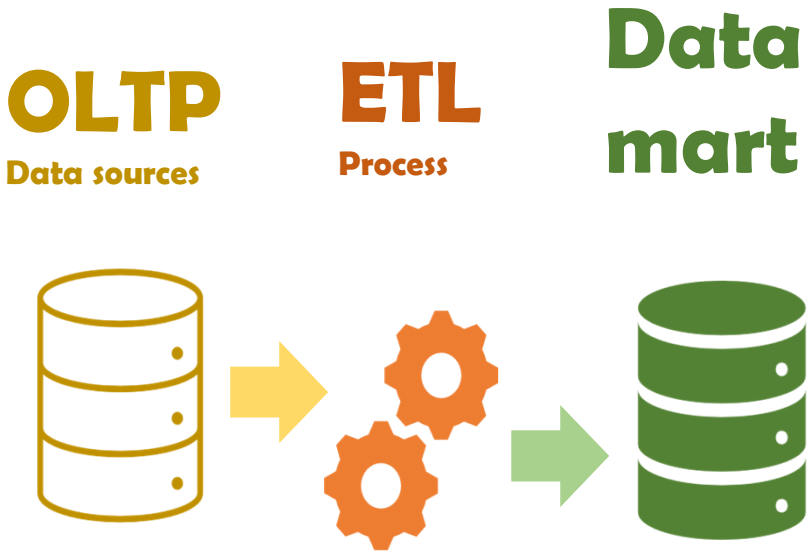
Degrees on Computer Systems Engineering and
Medical Informatics Engineering

Introduction

- The goal of project 01 is the implementation of a data mart based on an operational database.

- The team should undertake the following tasks
  - Business requirements and data profiling
  - Dimensional modeling of the data mart
  - Implementation of ETL Process

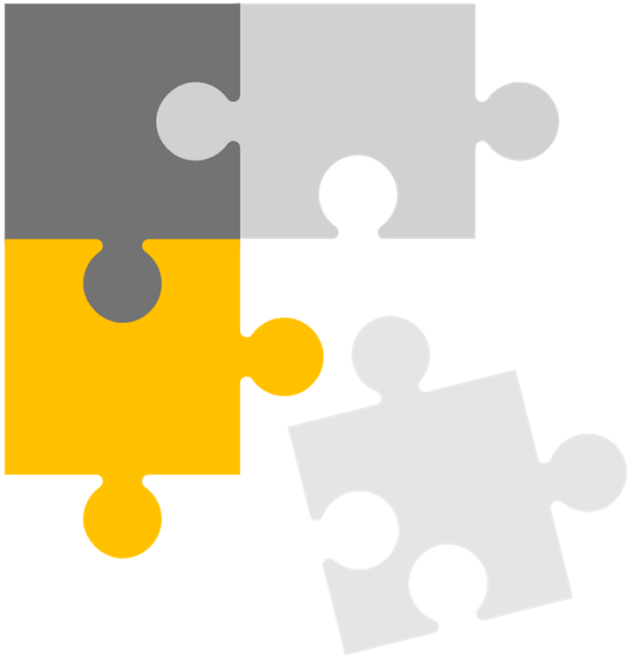
- OLTP data source
  - **Wide World Importers** database (adapted from [1])
  - Available on PostgreSQL server: **postgres2.ipca.pt**



[1] https://docs.microsoft.com/en-us/sql/samples/wide-world-importers-what-is?view=sql-server-ver15

Project team and submission

- The project must be carried out in teams of **three members**
  - The project grade is individual, based on the discussion of the project
- The project must be submitted on the Moodle platform as a **zipped file** that must include
  - (1) the project report and (2) the ETL file
  - It should be named **DSS_###_P01**, where ### corresponds to the team number. It also applies to (1)
  - The report must be submitted in PDF format and according to the **template** available on Moodle
- Projects submitted after the deadline may not be evaluated



WWI sample database

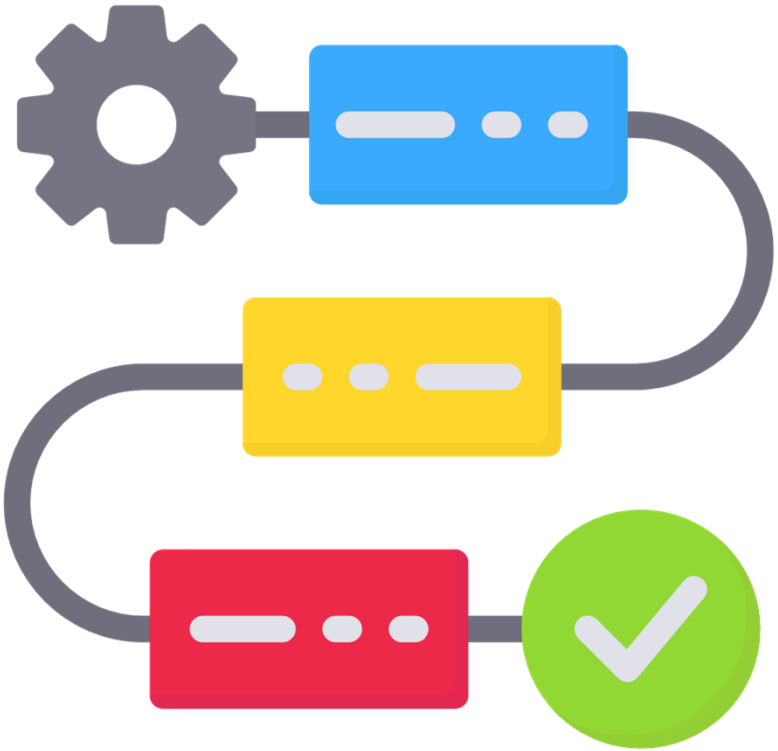
- The WWI sample databases for SQL Server and Azure SQL Database addresses the workflows of the Wide World Importers (WWI) fictitious company.
- WWI is a wholesale novelty goods importer and distributor operating from the San Francisco, US
  - WWI's customers are mostly companies who resell to individuals.
  - WWI sells to retail customers across the United States including specialty stores, supermarkets, computing stores, tourist attraction shops, and some individuals.

- More information:

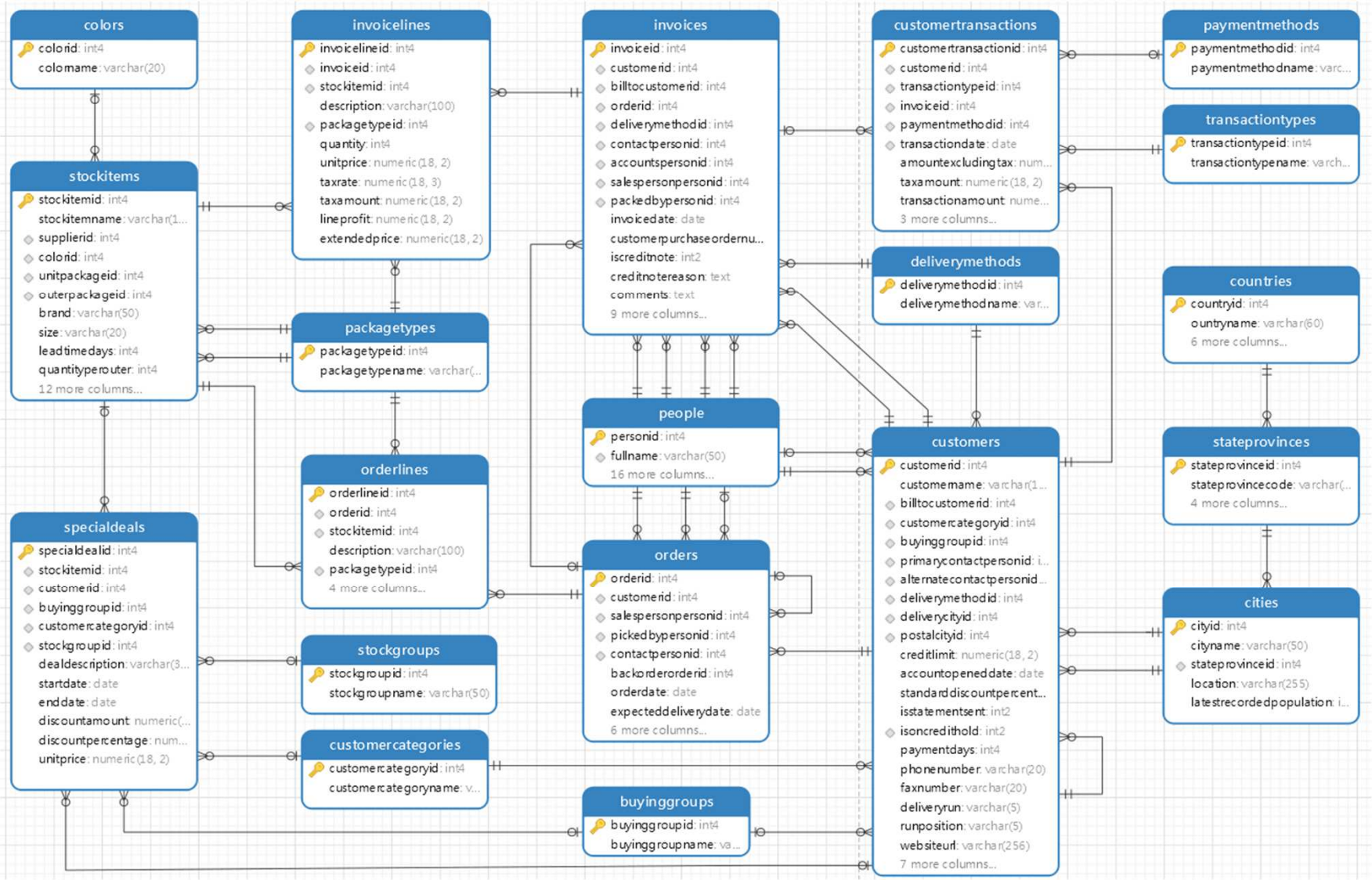
  https://docs.microsoft.com/en-us/sql/samples/wide-world-importers-what-is?view=sql-server-ver15

WWI business workflow

- Customers order items from WWI
- When WWI don't have sufficient stock, they order the additional stock from the suppliers.
  - If customers don't want to wait for items that aren't in stock, the item would then be sent later in a separate shipment.
- WWI invoices customers for the stock items, typically by converting the order to an invoice.
- Customers might order items that aren't in stock. These items are backordered.
- WWI delivers stock items to customers either via their own delivery vans, or via other couriers or freight methods.
- Customers pay invoices to WWI. Invoices and payments are recorded into the customerstransactions table



WWI DB [adapted]



Tasks to be developed

Data Profiling

- Analysis of the data schema
- Study of the data content

Dimensional modeling

- Identify goals and objectives
- Develop the DW matrix
- Identify Facts and Dimensions
- Include the ER Model and data description maps

Extract, Transform, Load (ETL)

- Implement the ETL process
- Document the transformations
- Run the ETL jobs
- Make a brief summary of the data mart content

Final remarks

The main concepts and techniques about dimensional design, covered during the classes, should be put into practice.

The evaluation of projects will take into account, among other things, the application of skills, team commitment and the matching of the solution to the project objectives.

Thank you!