



Project Guide 02

Decision Support Systems (DSS), 2021-22

Degrees on Computer Systems Engineering and
Medical Informatics Engineering

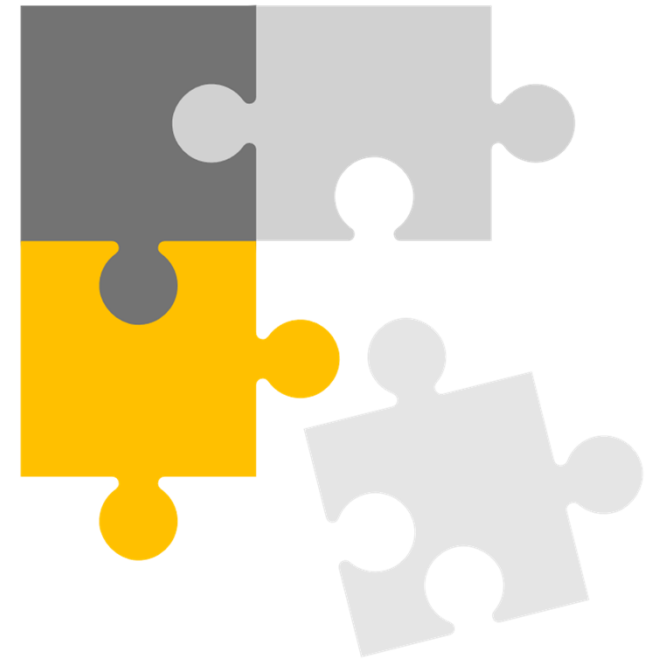
Introduction

- The goal of project 02 is the development of a data processing and visualization software solution
- It must implement operations of
 - Data preparation (Power Query)
 - Columns and measures calculation
 - Data presentation and visualization
- The solution should integrate several data sources
 - Main source:
 - Adventure works (Moodle) data mart
 - Or the data mart created on project 01
 - Auxiliary data from other sources



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 developed solution file (*.pbix or other)
 - It should be named **DSS_G##_P02**, where ## corresponds to the team number. It also applies to (1) and (2).
 - 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

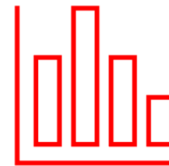


Tasks to be developed



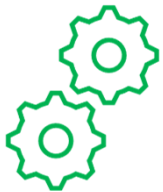
Data Acquisition and Preparation

- Data integration from more than one source
- Data preparation (Power Query)



Data Visualization

- Creation of two or more dashboards with one or more visual elements
- Use of relevant elements, e.g. slicers, KPIs or influencers



Modeling and processing

- Definition of relationships and hierarchies
- Creation of columns and calculated measures
- Include the DAX expressions in report
- Etc.

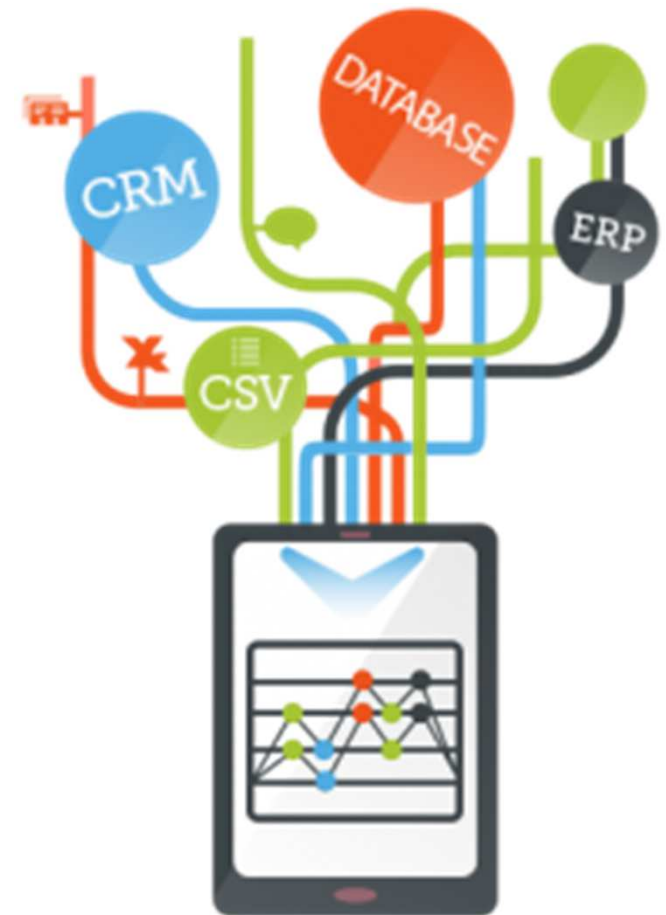


Data mining (optional, to be defined)

- Definition of objectives (association, classification or segmentation)
- Preparation of the data and application of the mining function
- Analysis of the obtained results

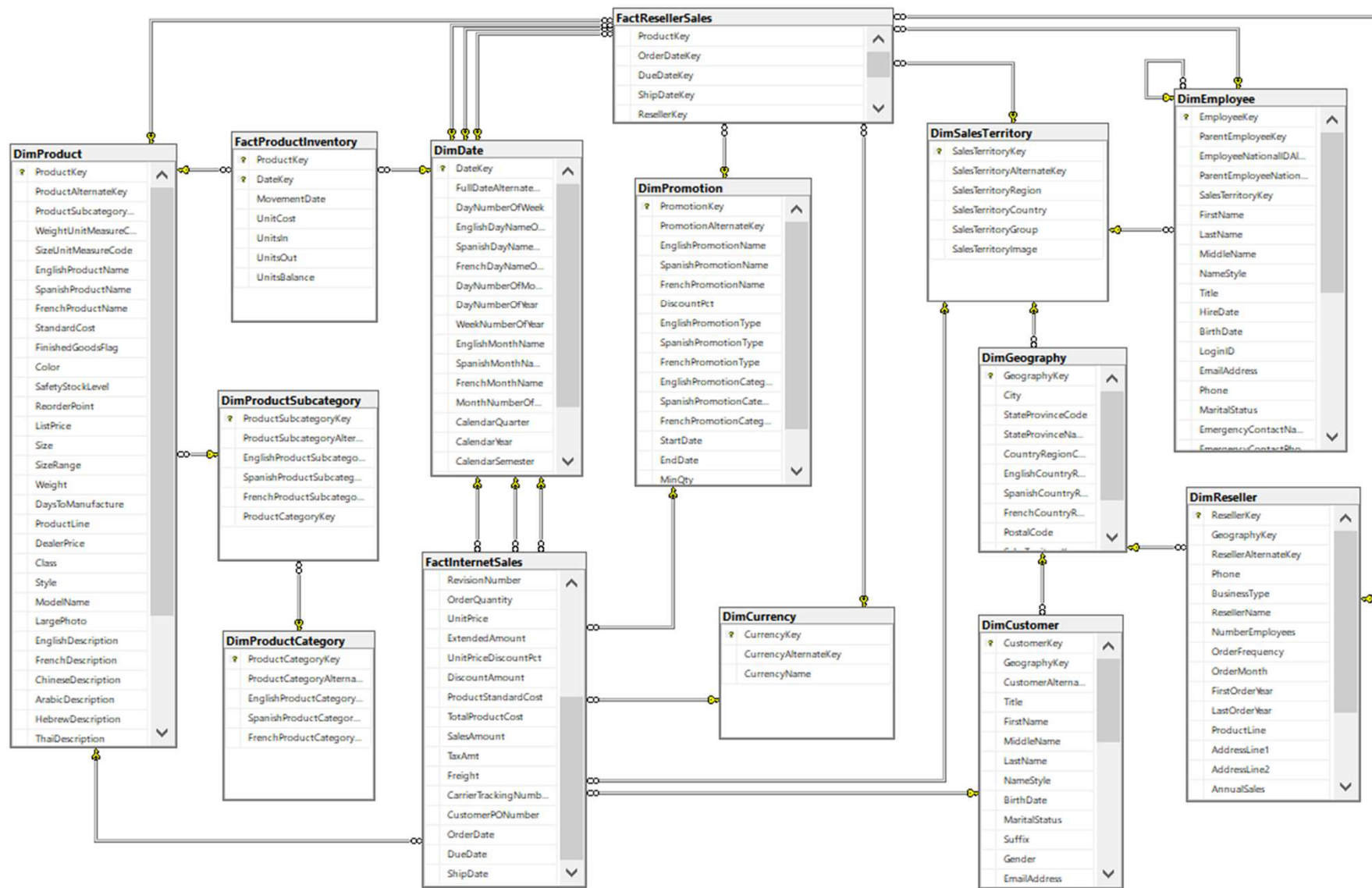
Data sources

- The solution should combine data at least two data sources:
 - Mandatory: Adventure Works data mart
 - CSV, JSON, Excel, text files, etc.
 - Html tables or other data gathered directly from Web/cloud
- Adventure Works database sample
 - The fictional company Adventure Works has two main sales channels: Internet and retail. It sells bicycles, components, accessories and clothing in several countries.
 - The retail channel makes sales directly to a few hundred shops through the company's salespersons.
 - The company also has several thousand online customers. Store sales are less frequent, but the average value of each order is much higher than the average value of orders obtained via the Internet.
- Link for download:
<https://github.com/microsoft/sql-server-samples/releases/download/adventureworks/AdventureWorksDW2019.bak>



2021.05.12 from
<https://www.sisense.com/blog/not-big-data-data-sources/>

Adventure Works Data mart Dimensional Model*



Tables included in the "AdventureWorks DW for DAX" diagram

Examples of external data sources to combine with AW data mart

- World Bank Open Data
 - <https://data.worldbank.org/indicator>
- European statistics
 - <https://ec.europa.eu/eurostat/en/web/main/data/database>
- European Cyclists' Federation
 - <https://www.ecf.com/cycling-data>
- These are just a few examples. The project should try to combine external data with AW sales data to get some insights.
- Compare your data on sales with some development indicators



Final remarks



The main concepts and techniques covered during the classes on analytical processing and data visualization should be put into practice.



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

Thank you!