



# Technologies for Information Systems

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Duration: 1h 45min

**Family Name** \_\_\_\_\_

**Name** \_\_\_\_\_

**Matr** \_\_\_\_\_

**Signature** \_\_\_\_\_

The Politecnico software house “PoliSH” is interested in learning the trends of its software installation business. In order to achieve this goal PoliSH decided to ask you to design an appropriate data warehouse for it.

Given the PoliSH relational schema:

COMPUTER (computerID, brand, model)

BRANDS (brandName, supplierName)

SUPPLIERS (supplierName, supplierCity, supplierAddress)

INSTALLATION (computerID, softwID, installationDate)

SOFTWARE (softwID, softwDescription, type)

You are required to answer the following questions:

- 1) Perform the reverse engineering of the given relational schema.
- 2) Identify relevant facts and measures, propose suitable analysis dimensions with the corresponding hierarchies and produce the attribute tree with the appropriate editing phase (pruning and grafting).
- 3) Produce a star schema or snowflake schema (with related discussion\motivation) that allows the following queries:
  - a) total quantity of installed software per type
  - b) average quantity of installed software per computer per year
- 4) Write the SQL statements (oracle 8i SQL) which create the datawarehouse tables and the hierarchies.
- 5) Write the above queries in SQL.