Project subject **Order Management Model**	**Reference**	**Esilv\Projets\ADBM**
	Version	**1.0**
	Update Date	**12/11/2023**
	Project	**S7 (ESILV-4-A4-STD-CDOF 1, 2, 3, 4, 5)**

1 Introduction

Among the tasks of implementing an information system, data modeling is a major one. It must consider both functional constraints (better response to the business user, etc.) and technical constraints (readability and evolution of the model, etc.). This type of modeling highlights the activities that the user wishes to analyze, and the dimensions that allow him to explore the data through different axes of analysis.

To design a data model, the prime contractor has every interest in starting from the model of the business process concerned. This allows him to have the exhaustiveness of the activities, the information exchanged between them through the interfaces, and the specificities of the trades.

This approach provides a cross-functional vision of the company's objectives broken down into action plans and performance measurement indicators.

2 Subject

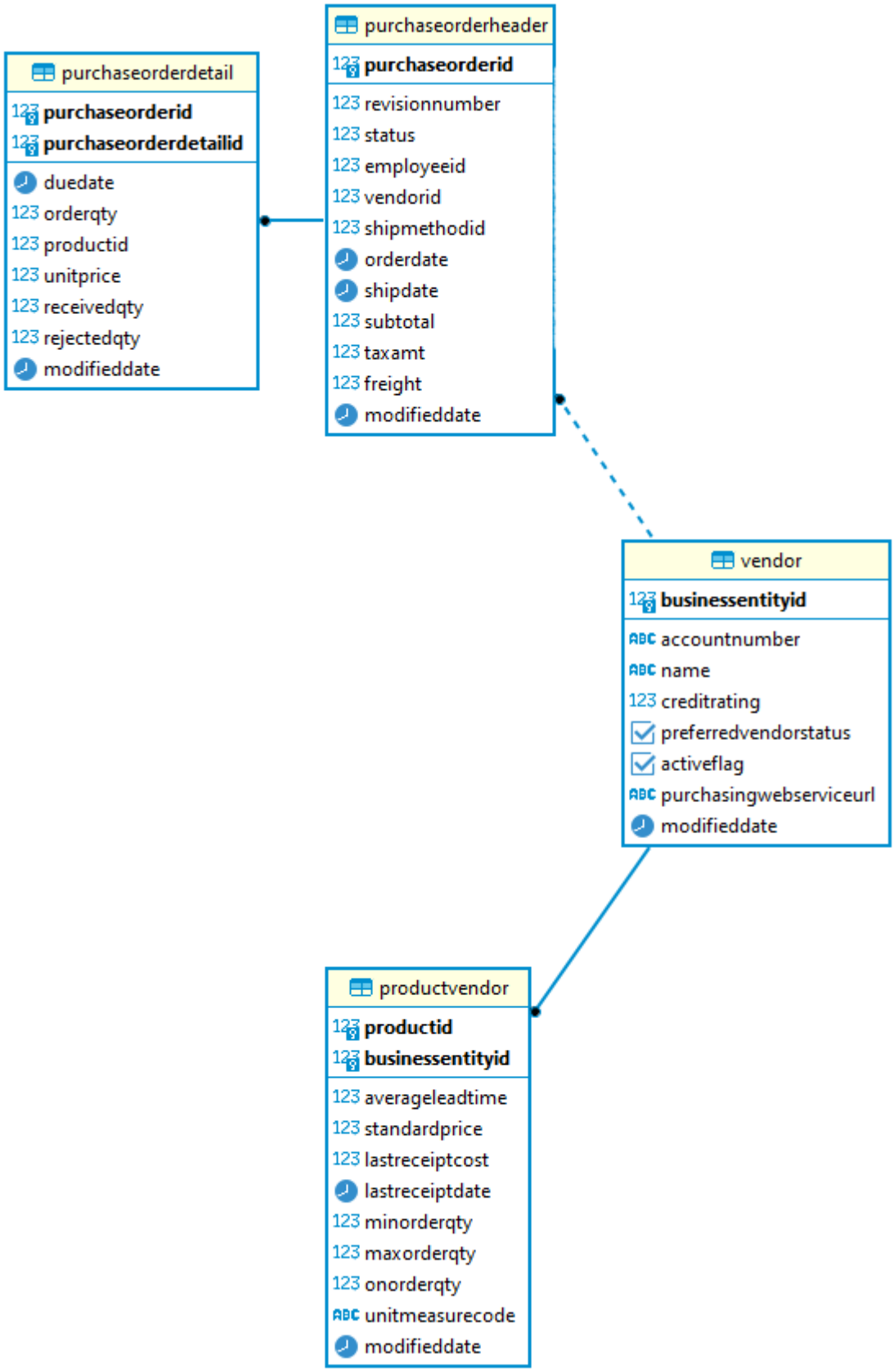
For this project, the Order Management relational model is available below:

ASSOCIATION LEONARD DE VINCI

Etablissement d'Enseignement Supérieur Technique Privé

12, avenue Léonard de Vinci - 92916 PARIS LA DEFENSE CEDEX - N° Siren : 402 850 226 - N° Siret : 402 850 226 00018 - APE : 8542Z

+33 1 41 16 70 00



ASSOCIATION LEONARD DE VINCI

Etablissement d'Enseignement Supérieur Technique Privé
12, avenue Léonard de Vinci - 92916 PARIS LA DEFENSE CEDEX - N° Siren : 402 850 226 - N° Siret : 402 850 226 00018 - APE : 8542Z
+33 1 41 16 70 00

The data is also provided, they are attached:

- *Purchaseorderheader.csv*: File containing data from the **PurchaseOrderHeader** table.
- *Purchaseorderdetail.csv*: File containing data from the **PurchaseOrderDetail** table.
- *Vendor.csv*: File containing **Vendor** table data.
- *Productvendor.csv*: File containing data from the **ProductVendor** table.

3 Summary of tasks to be performed

Part1: Create tables and load data (4 points)

1. Understand the relational data model.
2. Create the tables of the model by choosing the appropriate type of data for each column, (the data made available to you for each table can help you in this choice).
3. Implement the integrity constraints that you deem useful and/or relevant.
4. Develop a tool that allows you to load data into the model tables (by using a sql script, an Oracle utility (in this case SqlLoader), or import from SqlDeveloper tool … etc).

Part2: SQL queries (12 points)

1. Write each of the following queries in SQL and try to optimize them. Improve query performance by using SQL query optimization tips and techniques (indexes and materialized views).

ASSOCIATION LEONARD DE VINCI

Etablissement d'Enseignement Supérieur Technique Privé

12, avenue Léonard de Vinci - 92916 PARIS LA DEFENSE CEDEX - N° Siren : 402 850 226 - N° Siret : 402 850 226 00018 - APE : 8542Z

+33 1 41 16 70 00

A. Display the Vendor names and the product numbers they sell for vendors with a credit rating of 5 and productid greater than 500.

B. Display the purchase order number, OrderDate, purchase order detail id, order qty and product number for any purchase order with anOrder qty greater than 500.

C. Display the purchase order number, vendor number, purchase order detail id,
product number and unit price. For purchase order numbers from 1400 to 1600.

D. Display how many orders are purchased from each vendor and the cost of the orders.
Return the results sorted in descending order of highest cost.

E. Display the average number of orders purchased across all vendors and the average cost across all vendors.

F. Display The top ten vendors with the highest percentage of rejected received items.

G. Display The top ten vendors with the largest orders (in terms of quantity purchased).

H. Display the top ten products (in terms of quantity purchased).

I. Propose some complex sql queries using analytic functions

2. Create the two triggers below:

J. Create a Transaction_History table with the same structure as PurchaseOrderDetail table. Implement using a trigger "Before Update" On PurchaseOrderDetail table that:

- Inserts a row in the Transaction_History table.
- Updates ModifiedDate in PurchaseOrderDetail.
- Updates the PurchaseOrderHeader.SubTotal column.

ASSOCIATION LEONARD DE VINCI
Etablissement d'Enseignement Supérieur Technique Privé
12, avenue Léonard de Vinci - 92916 PARIS LA DEFENSE CEDEX - N° Siren : 402 850 226 - N° Siret : 402 850 226 00018 - APE : 8542Z
+33 1 41 16 70 00

K. Implement using a trigger "Before Update" On PurchaseOrderHeader table that prohibits updates of the PurchaseOrderHeader.SubTotal column if the corresponding data in the PurchaseOrderDetail table is not consistent with the new value of the PurchaseOrderHeader.SubTotal column.

Part 3: Dashboards generating using Oracle and Power BI (4 points)

Summary:

The main use of a dashboard is to show a comprehensive overview of data from different sources. Dashboards are useful for monitoring, measuring, and analyzing relevant data in key areas.
To create a dashboard, you need database, the ability to retrieve data, and a way to visualize it.

Once you have your data, you should be able to retrieve the data, you can use SQL Language.
Several tools can help you do this, such as database management systems (RDBMS) like Oracle or business intelligence (BI) tools or PowerBi.

You can also export your query result from Oracle in CSV format and connect it to Excel or another tool. This is a cheap and efficient way to create reports, but they won't be real-time.

1. Generate the dashboards corresponding to the two questions below:

   A - Generate a dashboard that represents the Top 5 best-selling products in terms of quantity per year.
   B - Generate a dashboard that represents The Top 5 vendors who have the lowest percentage of rejected received items

2. Generate a dashboard that allows to visualize an indicator of your choice.

4 Deliverables

A zip file containing the final report and the scripts will be uploaded on DVL before December 20th.

ASSOCIATION LEONARD DE VINCI
Etablissement d'Enseignement Supérieur Technique Privé
12, avenue Léonard de Vinci - 92916 PARIS LA DEFENSE CEDEX - N° Siren : 402 850 226 - N° Siret : 402 850 226 00018 - APE : 8542Z
+33 1 41 16 70 00