Advanced Data Base
8trd157

Lab5
Access – ODBC – Oracle

(no report) Paul Girard, Ph.D.

Objective

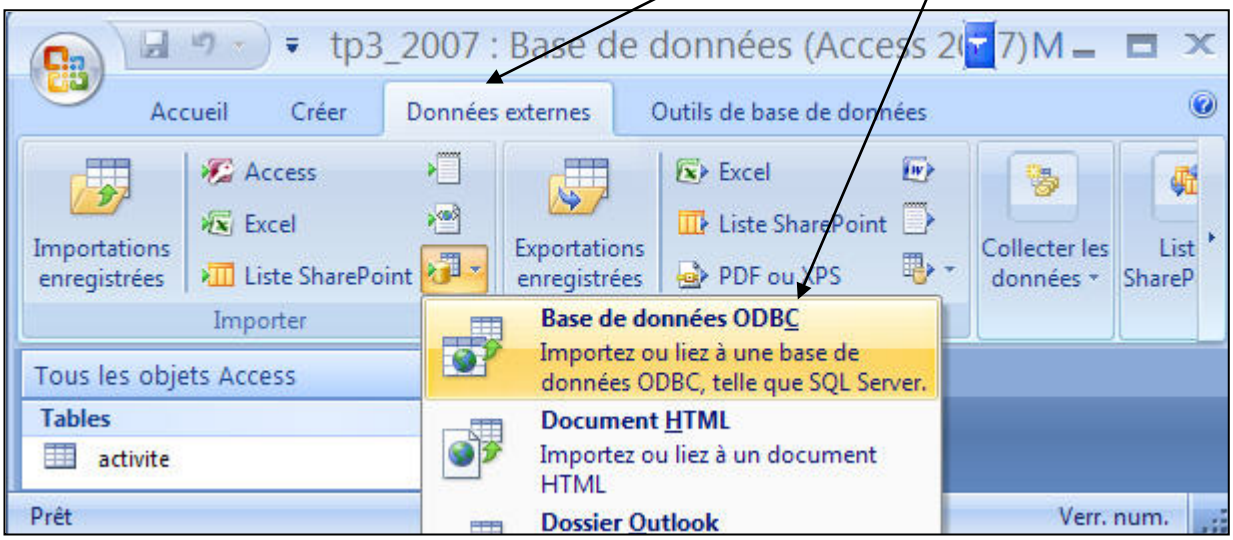
Creation of an application under Access linked by an ODBC driver and a TCP/IP network to an Oracle database.

Methodology

1. From Windows/XP, start *Microsoft Access 2003* and create a new database. Save it. Create a new table with the **Attach Table** option. This option gives the possibility to use an external database. Access will have no local data in this database.

   Tables > **New** > **Attach table** *(this sequence may change depending on Microsoft Office version and language)*

   ➔ With Access 2007, the Attach option is found this way: (External data, odbc database)

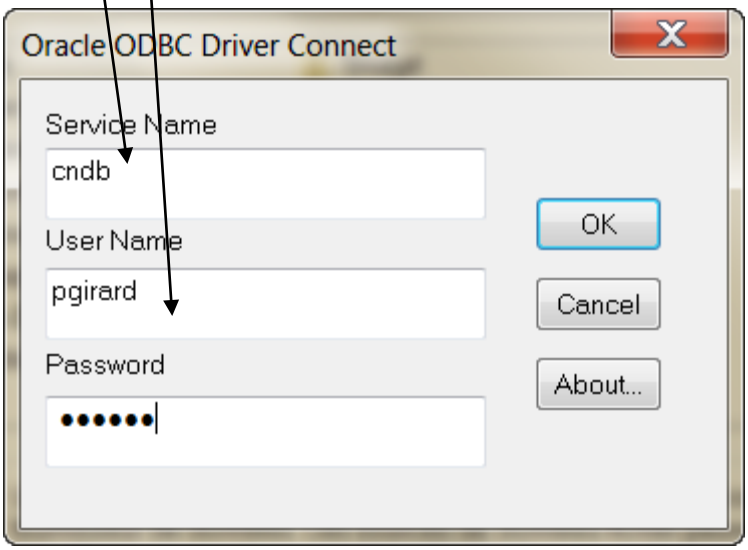


2. Now in the Attach window, choose the **ODBC type** of file. In the window identifying the data source, you may select machine data source. Create a new DSN *(Data Source Name).* Click on Next, choose the Oracle ODBC pilot *(and not the one from Microsoft).* If you do not have this driver, use the one from Microsoft *(less complete).*

3.Give a name to the DSN *(to be remembered)*

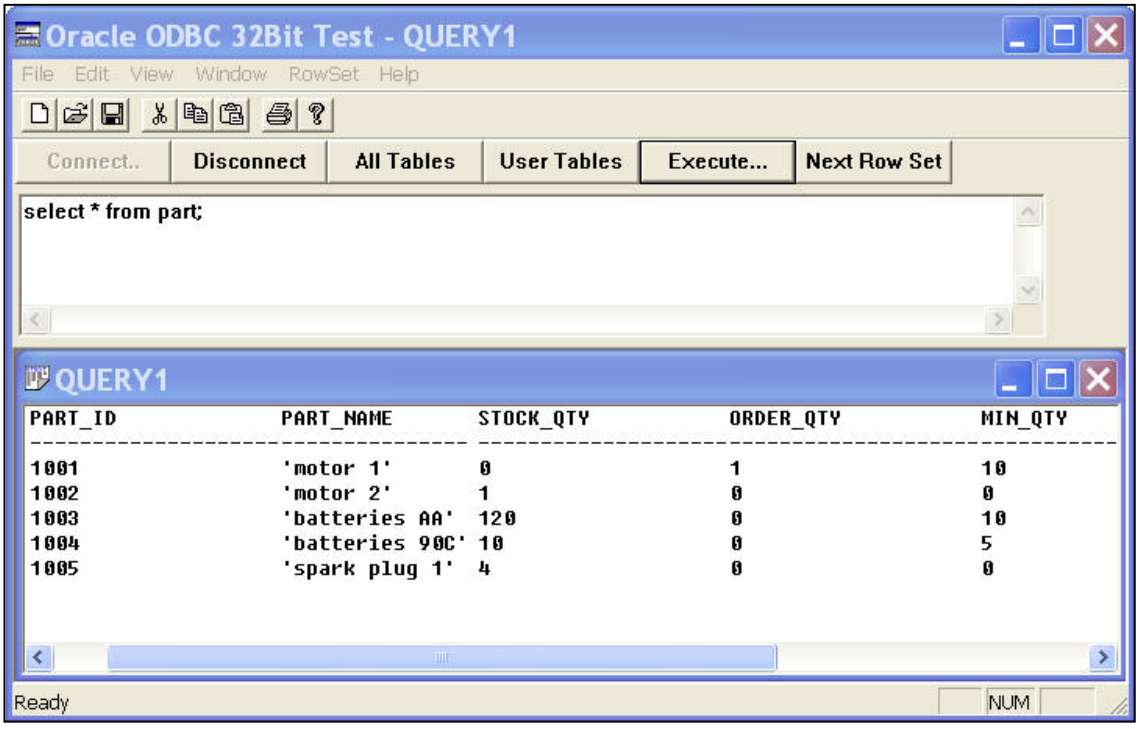
- Specify the service *cndb*

- Enter your user name *(ora***** and password)* and click OK

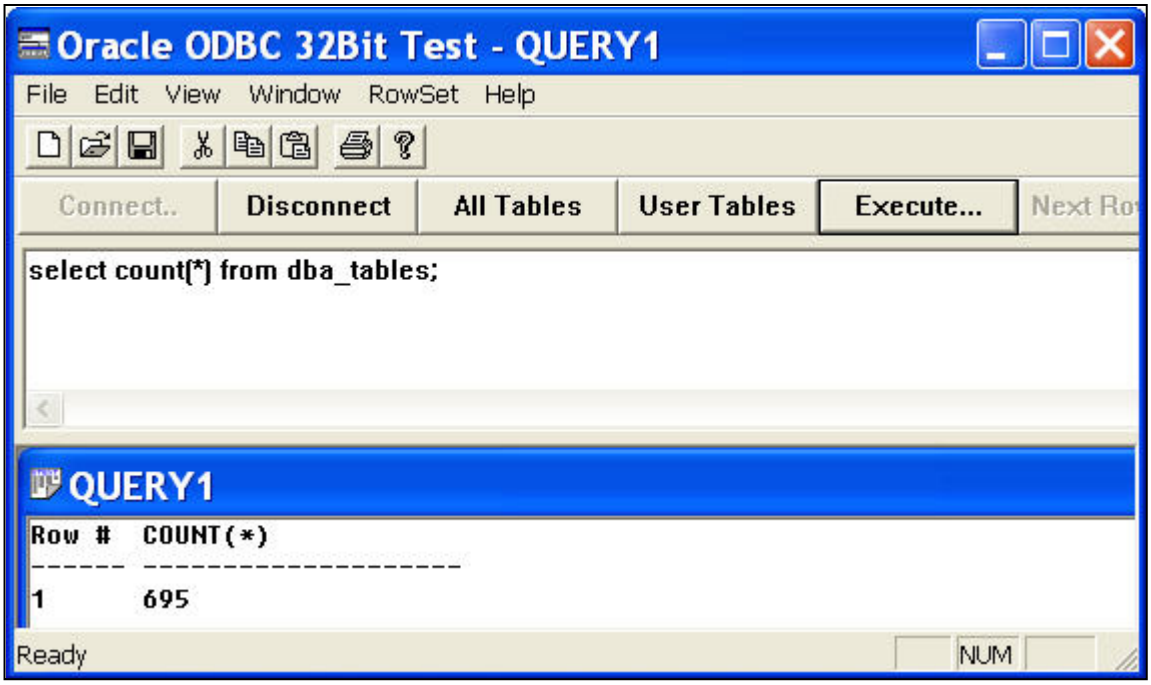


4. A test can be made with the client program **Oracle ODBC Test** which connects to the DSN and gives an access to SQL

Example with cndb

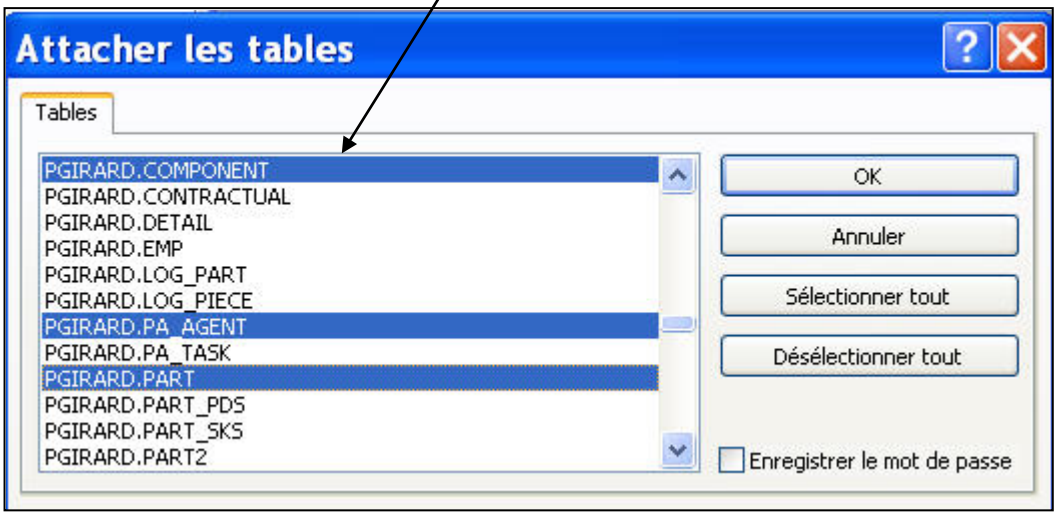


Example with dbcs_202.113.72.5



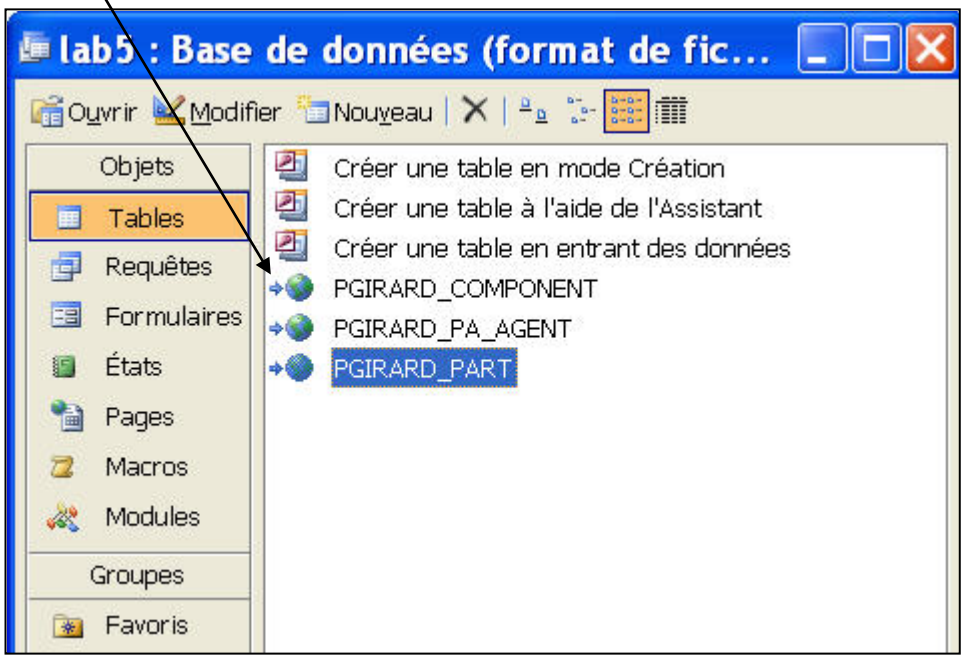
- You can now attach any tables in your own Oracle schema to your Access database.

- Select all desired tables of your schema by clicking once on each of them. Then click OK and they will be attached to your access database.



- If no primary key has been declared, Access will ask you for each table to identify a column or a combination of columns to make unique each row.

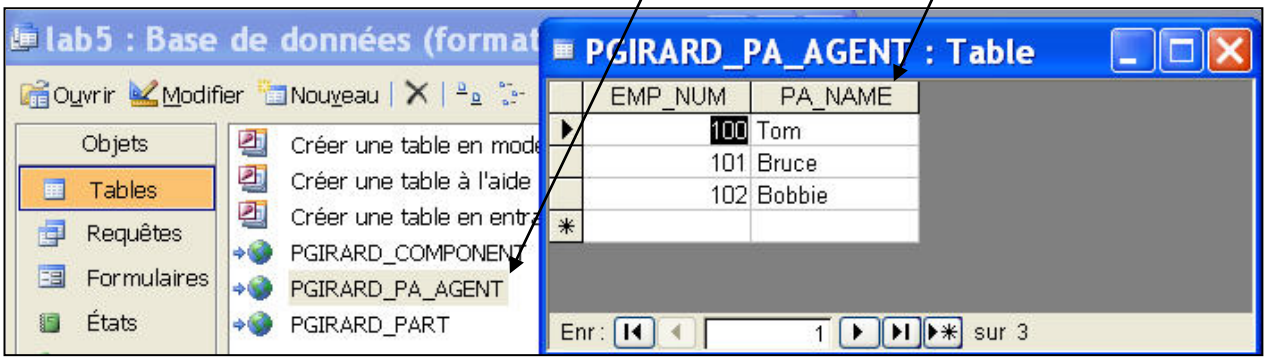
- A special icon will show the difference between a local table and an attached table. You can use normal functionalities of Access with all these tables.

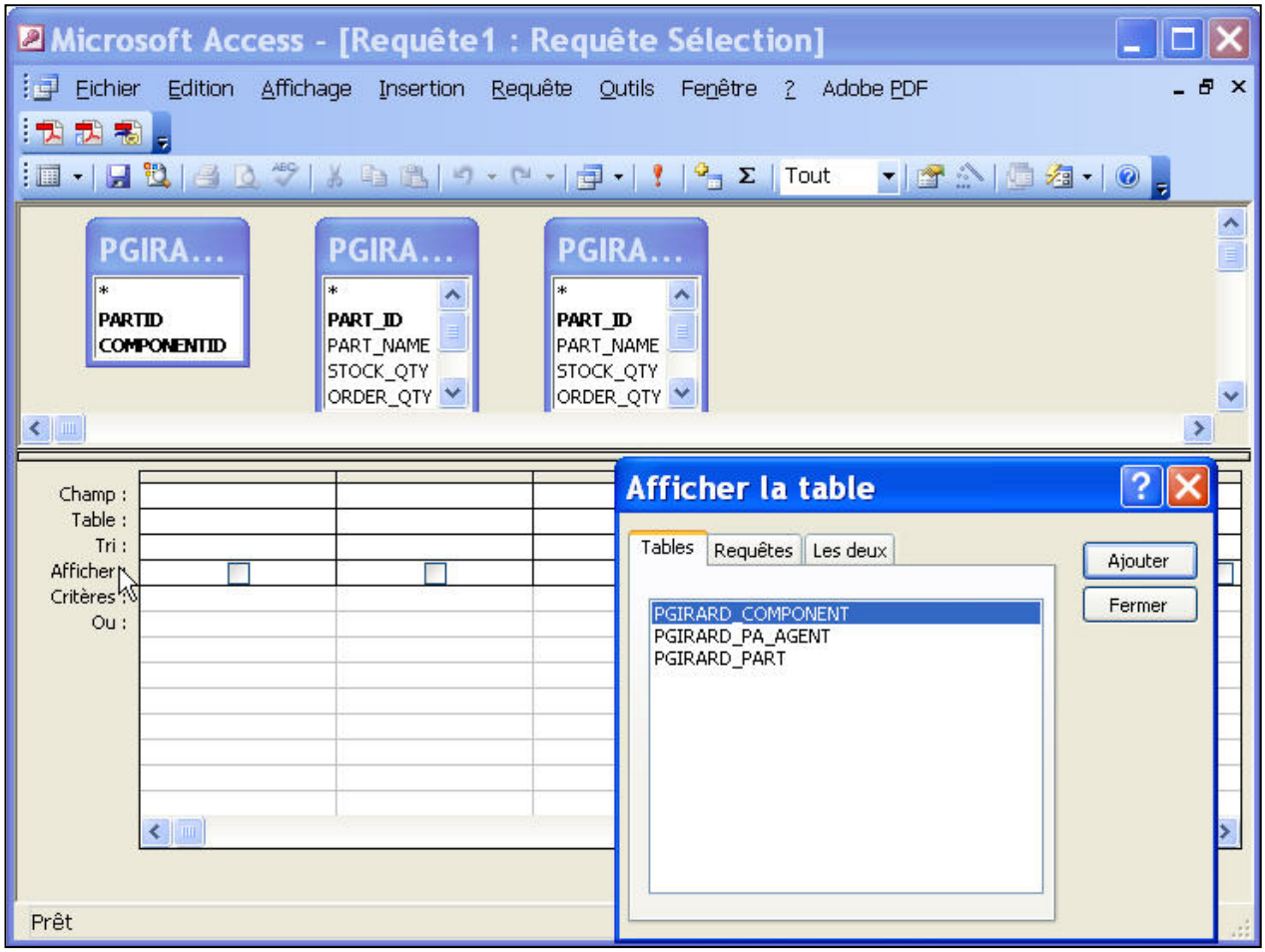


- A test on this table can be made by double-clicking on one attached table and visualize the content

5. This example shows how to create the transaction *explosion* for the maintenance technician.

- Create a new request in a creation mode. Click on the tables needed for your select. This example needs the table *part* twice and the table *component*.

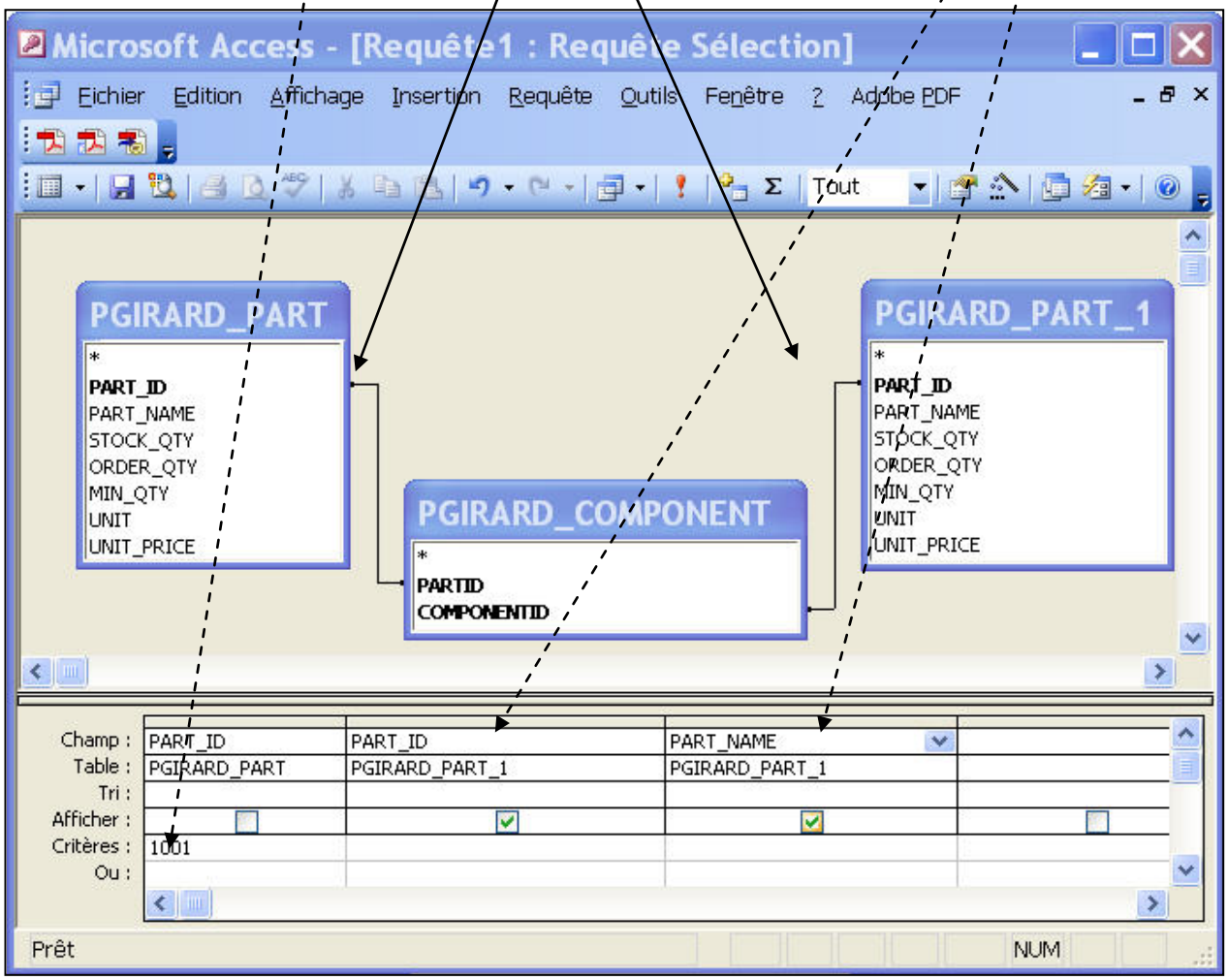



Microsoft Access - [Requête1 : Requête Sélection]
Fichier Edition Affichage Insertion Requête Outils Fenêtre ? Adobe PDF
Tout
PGIRA...
*
PARTID
COMPONENTID
PGIRA...
*
PART_ID
PART_NAME
STOCK_QTY
ORDER_QTY
PGIRA...
*
PART_ID
PART_NAME
STOCK_QTY
ORDER_QTY
Champ :
Table :
Tri :
Afficher :
Critères :
Ou :
Afficher la table
Tables
Requêtes
Les deux
Ajouter
Fermer
PGIRARD_COMPONENT
PGIRARD_PA_AGENT
PGIRARD_PART
Prêt

- First identify the corresponding attributes in each table *(for an Access joint)*, select the columns to be displayed and the criteria

  - from *part_id* in the table *pgirard.part* to *partid* in the table *pgirard.component*. and

  - from *part_id* in the table *pgirard.part1* to *componentid* in the table *pgirard.component*. by selecting the attributes



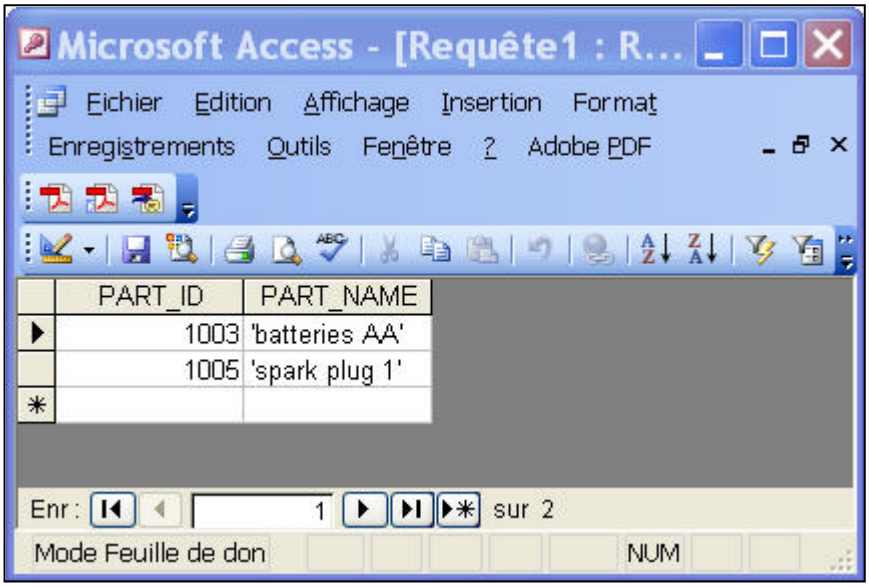
- The equivalent SQL request *(not compatible with Oracle or Ingres)* for this diagram is

```
SELECT PGIRARD_PART_1.PART_ID, PGIRARD_PART_1.PART_NAME
FROM PGIRARD_PART AS PGIRARD_PART_1 INNER JOIN (PGIRARD_PART INNER JOIN
        PGIRARD_COMPONENT ON PGIRARD_PART.PART_ID = PGIRARD_COMPONENT.PARTID) ON
        PGIRARD_PART_1.PART_ID = PGIRARD_COMPONENT.COMPONENTID
WHERE (((PGIRARD_PART.PART_ID)=1001));
```

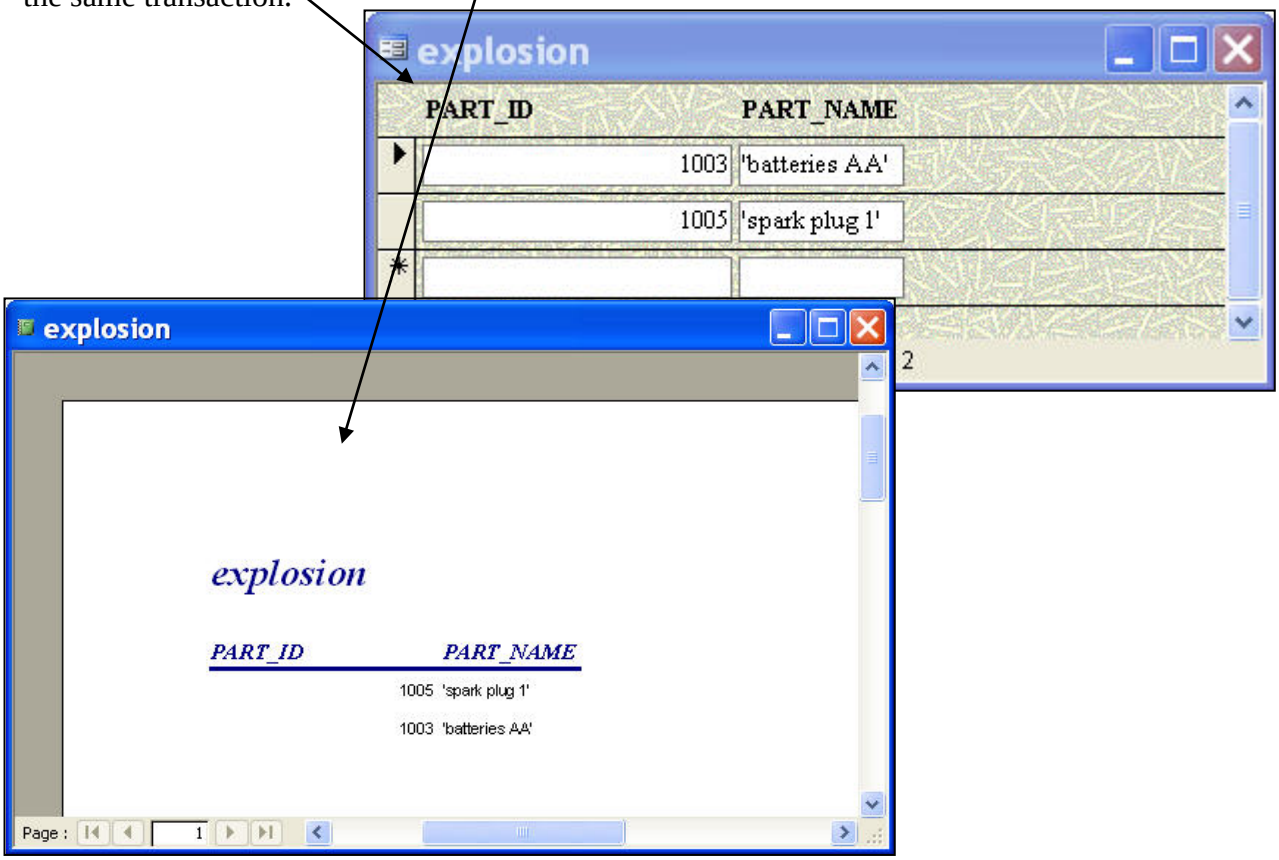
This request could also be in a client program *(Delphi, Visual Basic, ...)* accessing Access for its programming facilities and Oracle for its large data support.

- Execute the request **request** ==> **execute**

The result shows the *explosion* of part 1001

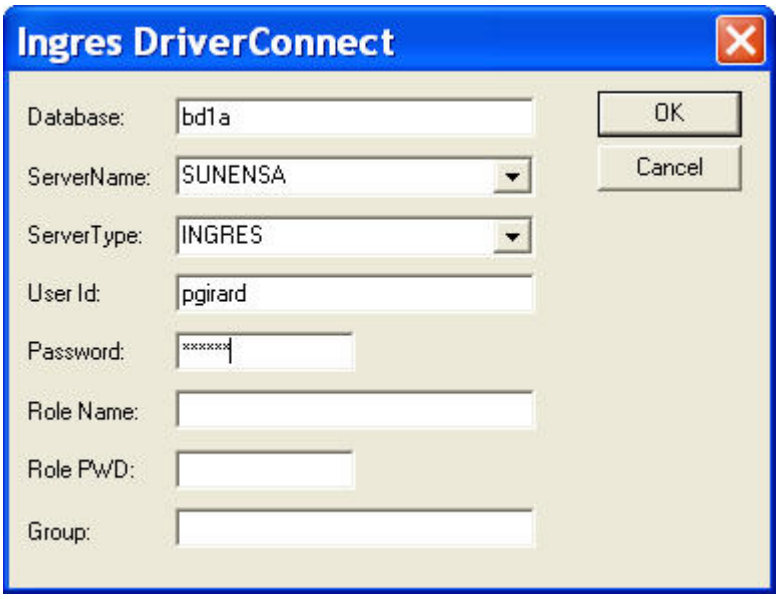


6. You can create a entry form and a printing report easily with the standard menu of Access on the same transaction.

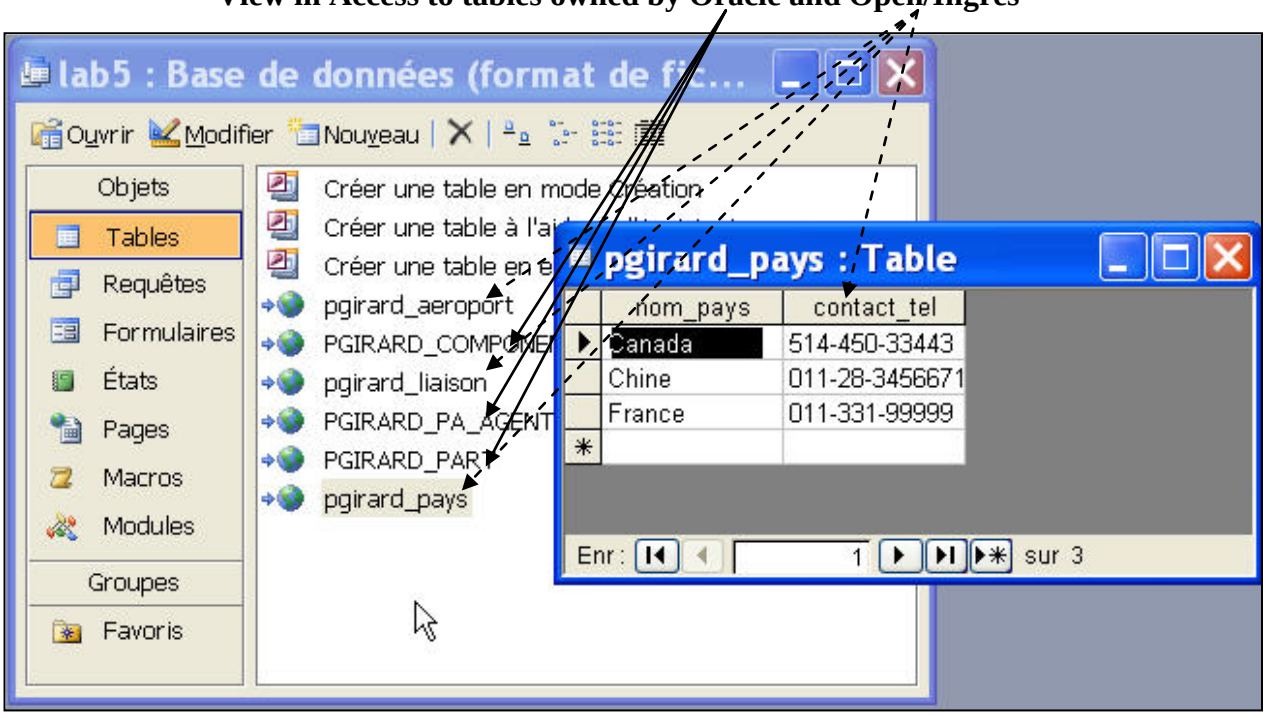


7. We could also use another DBMS like Open /Ingres to attach some tables to Access and create a request with a join over 2 tables owned by 2 incompatible DBMS on different servers.

ODBC connection to *sunensa.uqac.ca* with database *bd1a*



View in Access to tables owned by Oracle and Open/Ingres



Optional Lab

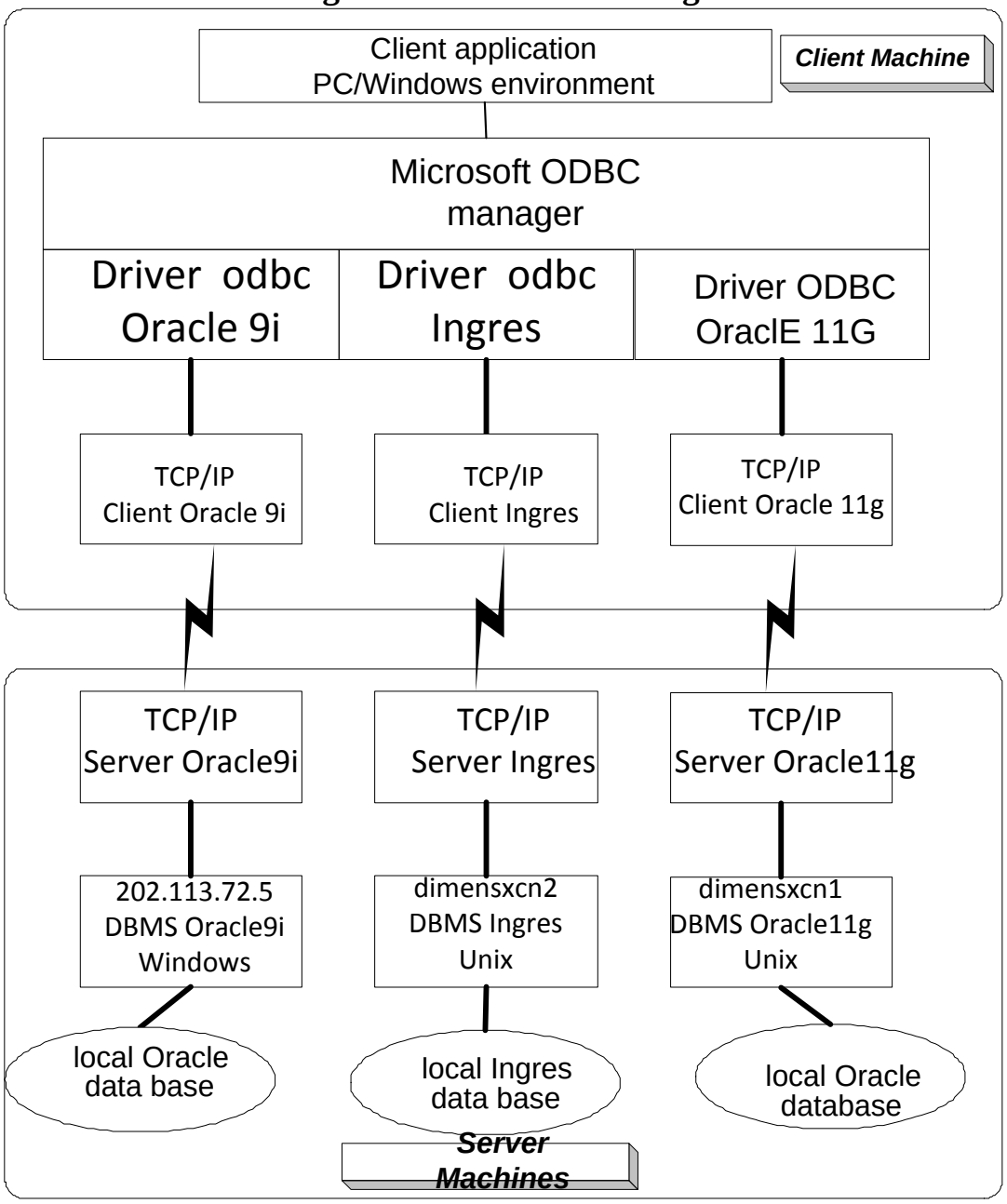
- Attach to your Access database all Oracle tables from your personal schema to execute the transaction **lis_po** *(display a given purchase order).*

- Create a request in a *creation mode* and execute it.

- Create a printing report showing the result of **lis_po** for a given purchase order number.
.
- Capture an image showing your tables attached in a creation mode, capture an image showing the execution of your request and also the execution of your report.

Annex 1

Diagram of ODBC technologies



Annex 2

ODBC API

- **Open Database Connectivity** (**ODBC**) provides a standard software API method for using a DBMS. The designers of ODBC aimed to make it independent of programming languages, database systems, and operating systems by providing an open, vendor-neutral way of accessing data stored in a variety of proprietary personal computer, minicomputer, and mainframe databases.

- With growing industry support, ODBC is quickly emerging as an important industry standard for data access for both Windows, Macintosh and Unix applications. ODBC is Microsoft's strategic interface for accessing data in a heterogeneous environment of relational and non-relational database management systems. Apple has endorsed ODBC as a key enabling technology by announcing support into System 7 in the future.

- ODBC provides a universal data access interface. With ODBC, application developers can allow an application to concurrently access and modify data from multiple, diverse databases.

- ODBC uses SQL as its language. Thus a statement can be simply thought of as an SQL statement you want ODBC to execute.

- There are four components in ODBC:
  - Application *(your program)*
  - ODBC manager
  - ODBC Drivers
  - Data Sources *(databases)*

    The center of all four components is the **ODBC manager**. This is the foreman. Tell him what work you want done and he conveys your desire to his ODBC drivers and gets the job done.

Your program <----> ODBC manager<----> ODBC Drivers <----> Databases

A **JDBC-ODBC bridge** consists of a JDBC driver which employs the ODBC driver to connect to the database. This driver translates JDBC method calls into ODBC function calls.

*ODBC manager is supplied by Microsoft. Check your Control Panel. If your machine has ODBC installed correctly, you'll find **ODBC Data Sources (32-bit)** applet there. As to ODBC drivers, Microsoft supplies several with their products. And you can always obtain new ODBC drivers from the database providers. Just by installing new ODBC drivers, your machine can utilize new databases it hasn't known about before.*