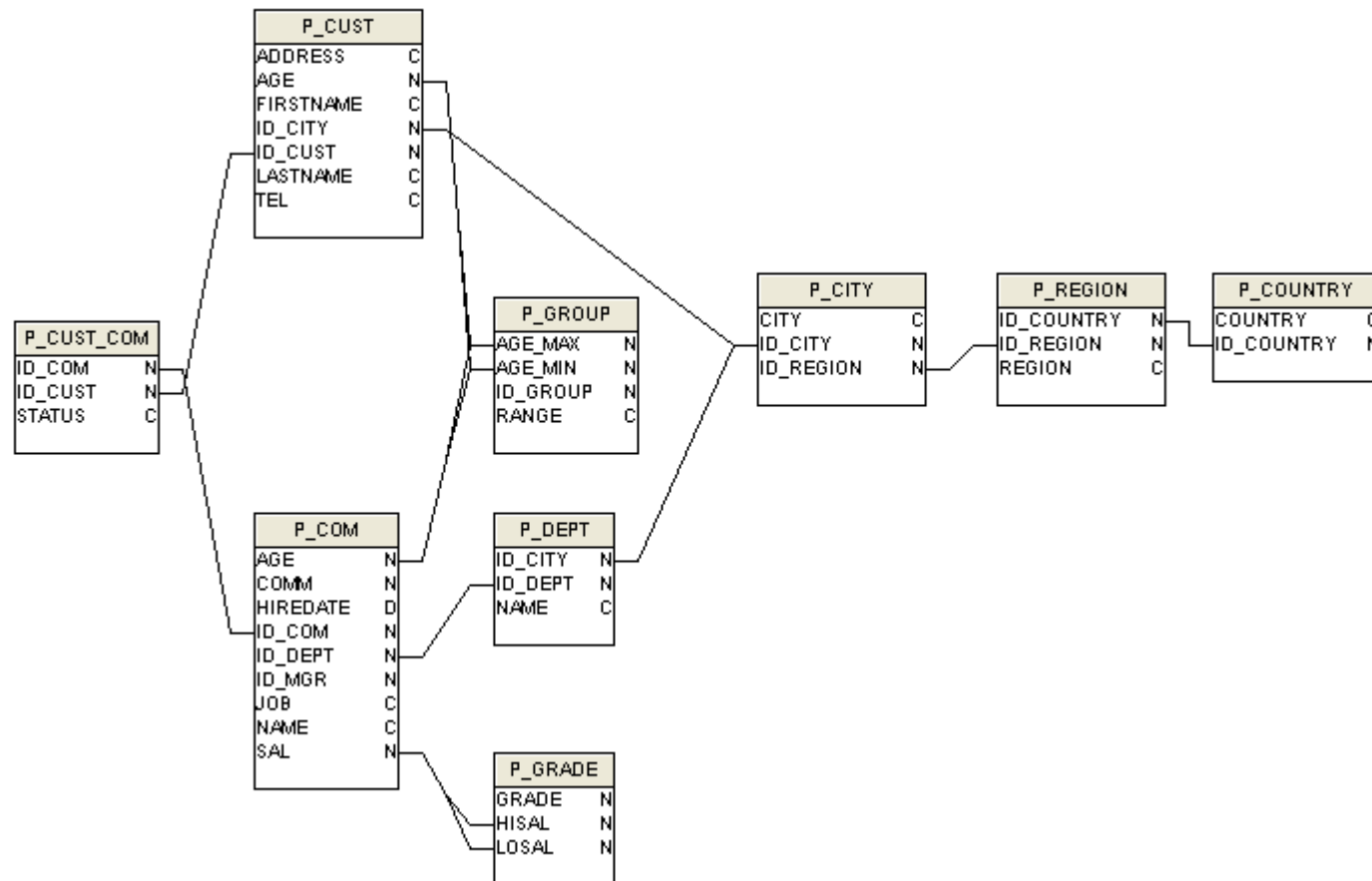


Create Universe step by step

- Presentation of database relational schema (schema 1)



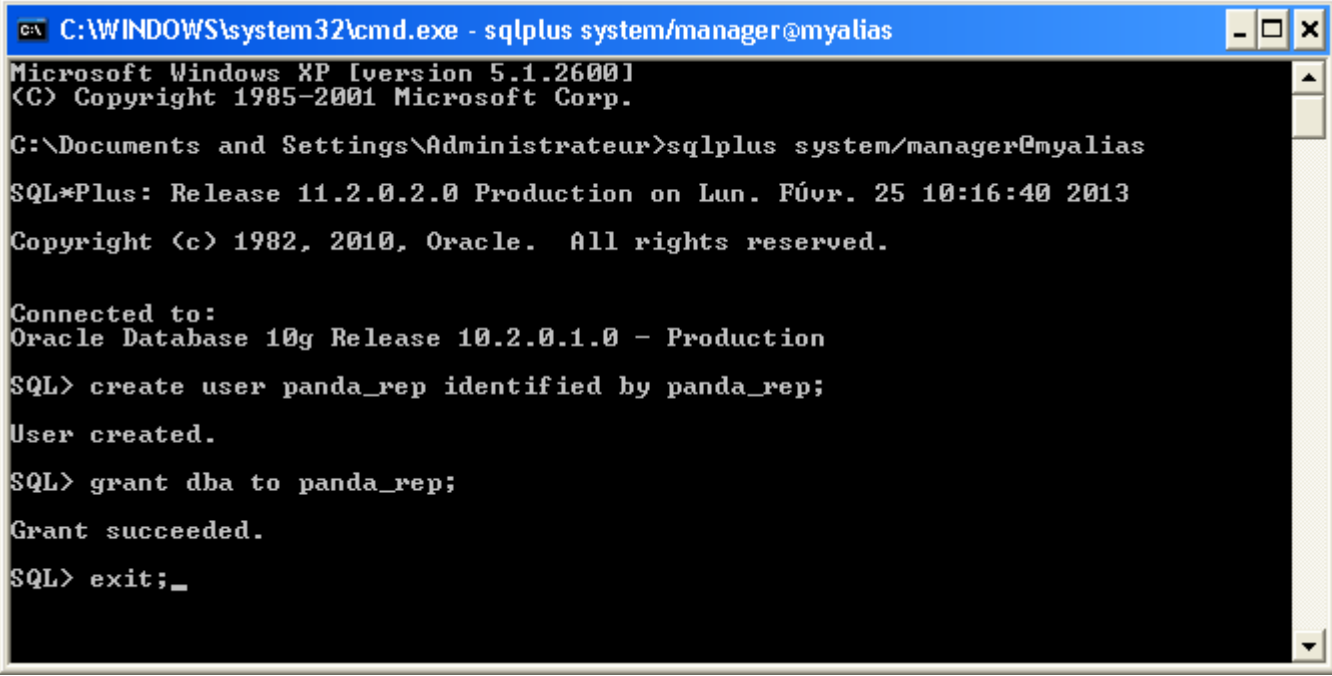
Create Universe step by step

The steps are as follows :

- 1 Create Oracle schema
- 2 Connect with administration module
- 3 Create repository
- 4 Create universe
- 5 Choose tables
- 6 Create aliases and tables
- 7 Create joins
- 8 Create classes and objects
- 9 Save universe
- 10 Connect with query module
- 11 Run query

Create Universe step by step

- Step 1, Create Oracle schema



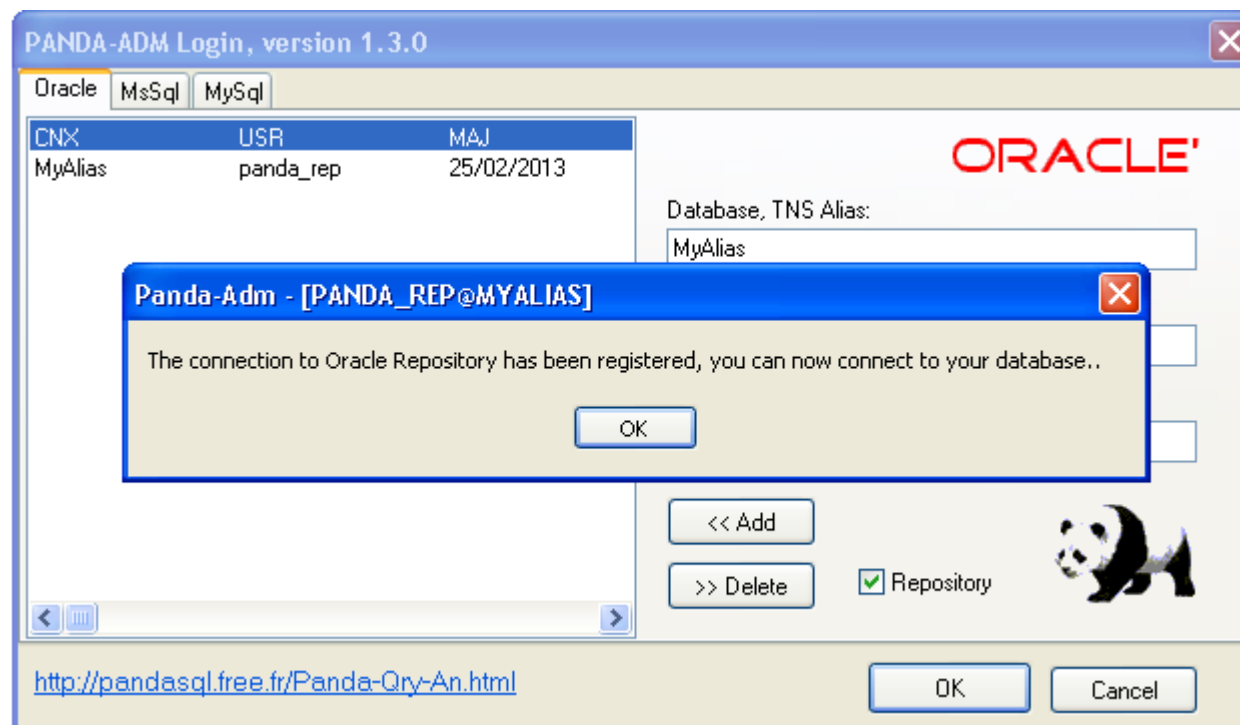
```
C:\WINDOWS\system32\cmd.exe - sqlplus system/manager@myalias
Microsoft Windows XP [version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Administrateur>sqlplus system/manager@myalias
SQL*Plus: Release 11.2.0.2.0 Production on Lun. F vr. 25 10:16:40 2013
Copyright (c) 1982, 2010, Oracle. All rights reserved.

Connected to:
Oracle Database 10g Release 10.2.0.1.0 - Production
SQL> create user panda_rep identified by panda_rep;
User created.
SQL> grant dba to panda_rep;
Grant succeeded.
SQL> exit;_
```

Create Universe step by step

- Step 2, Connect with administration module
- Run module « Panda-Adm »
- Define Oracle repository connection
- Enter connection parameters, check box «Repository», click on «OK»



Create Universe step by step

- Define Oracle «data» connection
- Enter connection parameters, click on «OK»

PANDA-ADM Login, version 1.3.0

Oracle MsSql MySql

CNX	USR	MAJ
MyAlias	panda_rep	25/02/2013

Database, TNS Alias:
MyAlias

User / Schema:
panda_rep

Password:

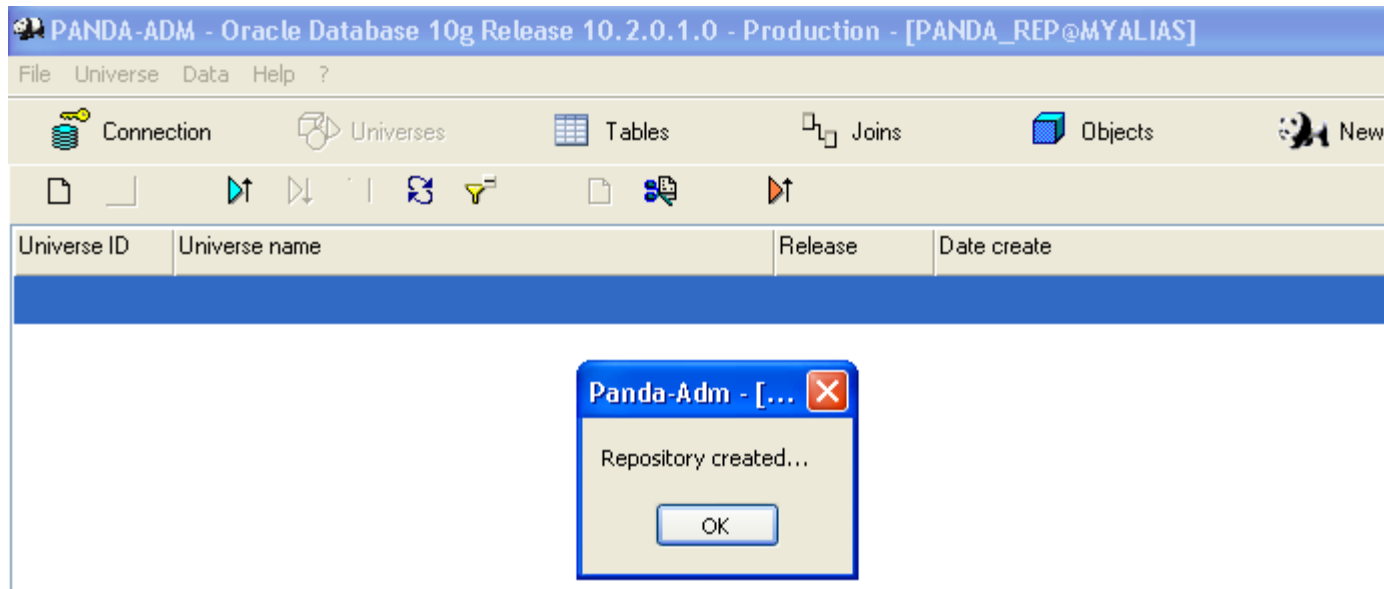
<< Add >> Delete ☐ Repository



<http://pandasql.free.fr/Panda-Qry-An.html> OK Cancel

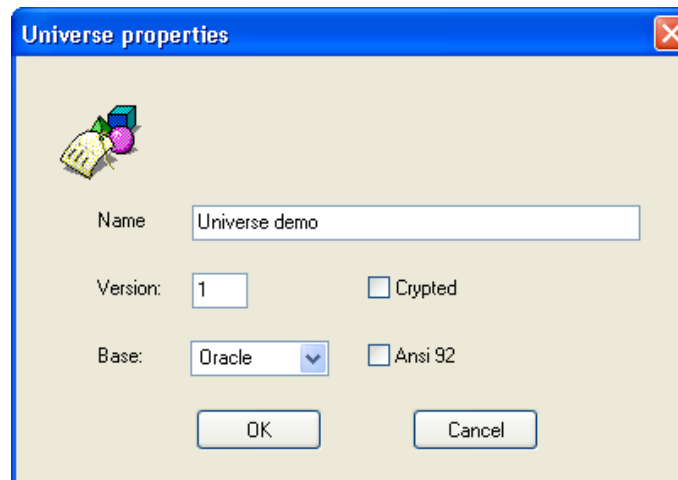
Create Universe step by step

- Step 3, Create repository
- Click on icon « Create Repository » :



Create Universe step by step

- Step 4, Create universe (this demonstration universe is available, click on icon « Import universe », choose « Univers_Demo_Ora8i.unv », then go to step 9)
- Click on icon « Create universe » :



- The universe is initialized, it appears in the list.

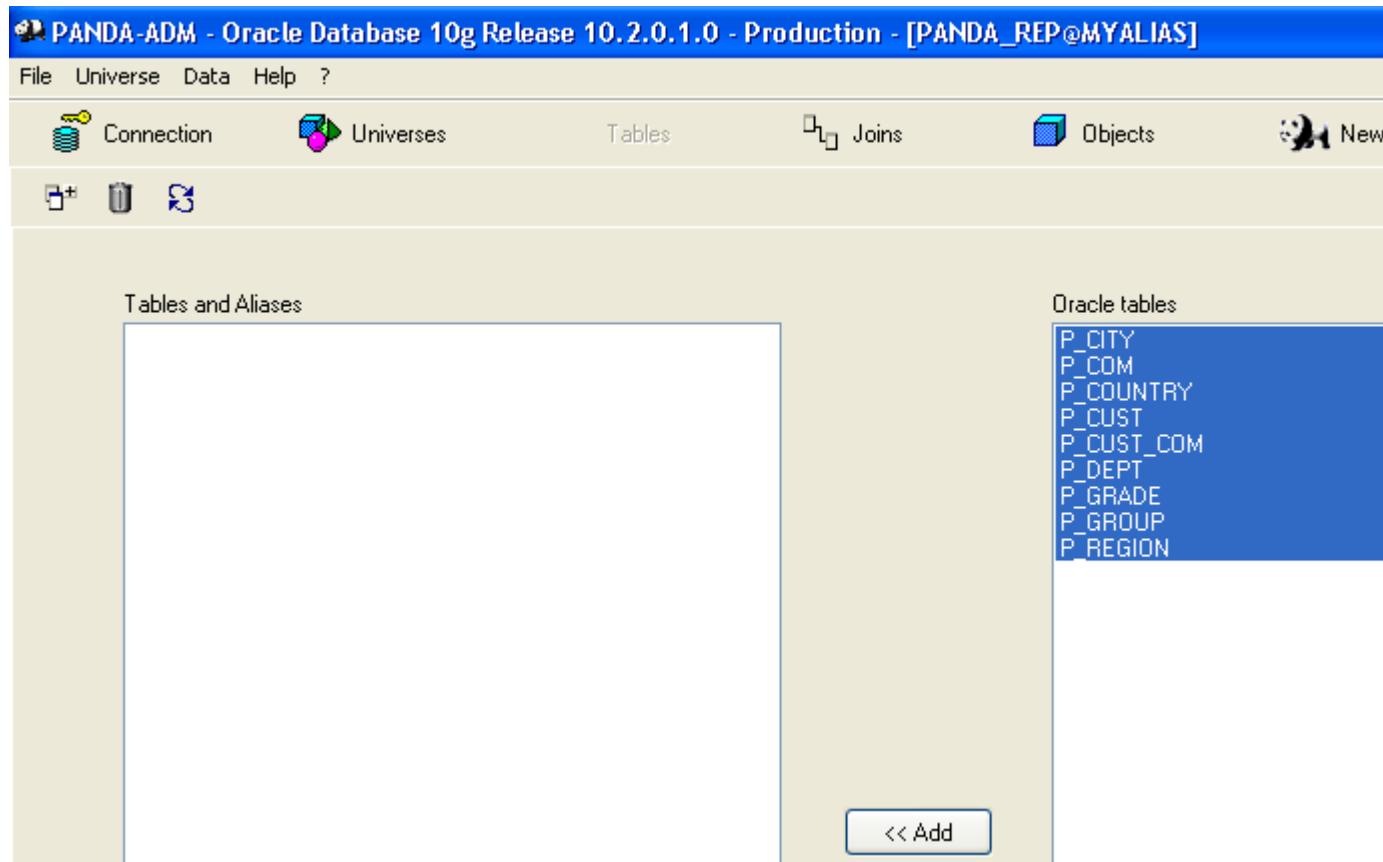
PANDA-ADM - Oracle Database 10g Release 10.2.0.1.0 - Production - [PANDA_REP@MYALIAS]			
File Universe Data Help ?			
Connection Universes Tables Joins Objects New			
[Icons]			
Universe ID	Universe name	Release	Date create
1	Univers_demo compatible Oracle 8i	1	25/02/2013 10:56:23

Create Universe step by step

- Step 5, choose tables
- Click on icon « Load demonstration tables »
- Click on button « Tables »
- Insert only tables necessary to make up universe, Select following tables :
 - P_CITY
 - P_COUNTRY
 - P_CUST_COM
 - P_CUST
 - P_DEPT
 - P_COM
 - P_GRADE
 - P_GROUP
 - P_REGION

Create Universe step by step

- Click on button « <<Add »



Create Universe step by step

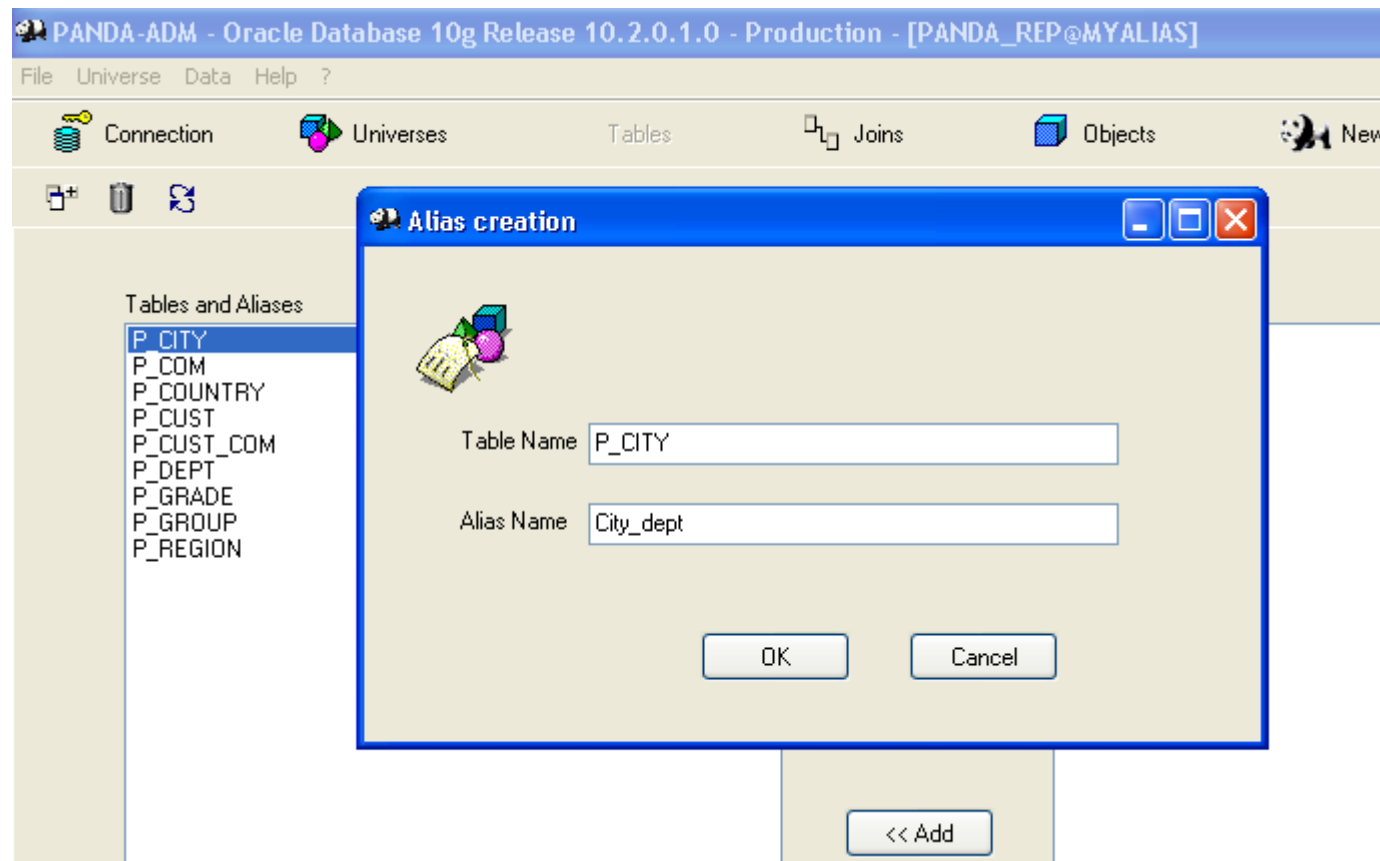
- Step 6, Create aliases and tables
- The schema (schema 1) show loops in links between tables.
- The loops are not allowed in the universe. Aliases are required to remove the loops.

- To solve the loops, create the following aliased tables:
 - City_dept pour P_CITY
 - Region_dept pour P_REGION
 - Country_dept pour P_COUNTRY
 - Group_com pour P_GROUP

- To link table P_COM with itself, create the following aliased table:
 - Manager pour P_COM

Create Universe step by step

- Creation of Aliases and tables
- On left, put cursor on P_CITY, then Click on icon « Create alias »



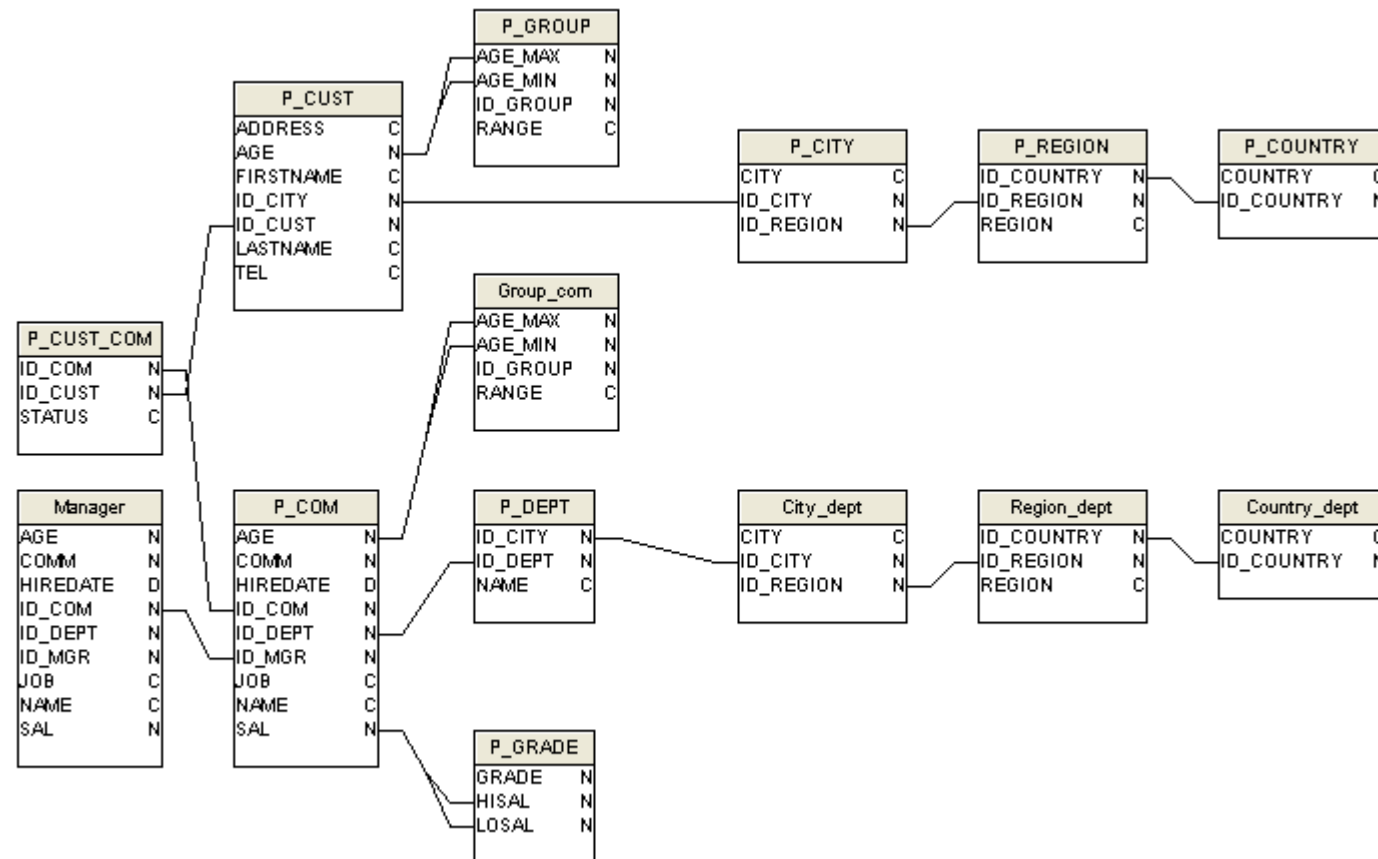
Create Universe step by step

- Enter the name of the alias and then click on "OK", the alias appears in the list of tables and Alias.
- Repeat for each alias, you must obtain:



Create Universe step by step

- With Aliases, schema without loop will reach the following (schema 2) :



Create Universe step by step

➤ Step 7, Create joins

➤ Tables without joins : Cartesian product

```
select P_COM.NAME, P_DEPT.NAME from P_COM, P_DEPT ;
```

Table P_COM

ID_COM	NAME	JOB	ID_MGR	HIREDATE	SAL	COMM	ID_DEPT	AGE
7369	SMITH	CLERK	7902	17/12/1980	800		20	40
7499	ALLEN	SALESMAN	7698	20/02/1981	1600	300	30	28
7521	WARD	SALESMAN	7698	22/02/1981	1250	500	30	35

Table P_DEPT

ID_DEPT	NAME	ID_CITY
10	ACCOUNTING	17
20	RESEARCH	11

➤ Query result : « Cartesian product not allowed »

NAME	NAME_1
SMITH	ACCOUNTING
ALLEN	ACCOUNTING
WARD	ACCOUNTING
SMITH	RESEARCH
ALLEN	RESEARCH
WARD	RESEARCH

Create Universe step by step

➤ Definition

A join established a relationship between two tables on one or more columns in each table. It synchronizes the rows from both tables

➤ Four types of joins

- Equi-join
- Outer join
- Complex join
- Auto-join

Create Universe step by step

➤ Equi-join

```
select P_COM.ID_COM, P_COM.NAME, P_COM.JOB, P_DEPT.NAME from P_COM, P_DEPT
where P_DEPT.ID_DEPT = P_COM.ID_DEPT;
```

Table P_COM

ID_COM	NAME	JOB	ID_MGR	HIREDATE	SAL	COMM	ID_DEPT	AGE
7369	SMITH	CLERK	7902	17/12/1980	800		20	40
7499	ALLEN	SALESMAN	7698	20/02/1981	1600	300	30	28
7521	WARD	SALESMAN	7698	22/02/1981	1250	500	30	35

Table P_DEPT

ID_DEPT	NAME	ID_CITY
10	ACCOUNTING	17
20	RESEARCH	11

Query result

ID_COM	NAME	JOB	NAME_1
7369	SMITH	CLERK	RESEARCH

Create Universe step by step

➤ Outer join

```
select P_COM.ID_COM, P_COM.NAME, P_COM.JOB, P_DEPT.NAME from P_COM, P_DEPT
where P_DEPT.ID_DEPT(+) = P_COM.ID_DEPT;
```

Table P_COM

ID_COM	NAME	JOB	ID_MGR	HIREDATE	SAL	COMM	ID_DEPT	AGE
7369	SMITH	CLERK	7902	17/12/1980	800		20	40
7499	ALLEN	SALESMAN	7698	20/02/1981	1600	300	30	28
7521	WARD	SALESMAN	7698	22/02/1981	1250	500	30	35

Table P_DEPT

ID_DEPT	NAME	ID_CITY
10	ACCOUNTING	17
20	RESEARCH	11

Query Result

ID_COM	NAME	JOB	NAME_1
7369	SMITH	CLERK	RESEARCH
7521	WARD	SALESMAN	
7499	ALLEN	SALESMAN	

Create Universe step by step

➤ Complex Join

```
select P_COM.ID_COM, P_COM.NAME, P_COM.JOB, P_GROUP.RANGE from P_COM, P_GROUP
where P_COM.AGE >= P_GROUP.AGE_MIN and P_COM.AGE <= P_GROUP.AGE_MAX;
```

Table P_COM

ID_COM	NAME	JOB	ID_MGR	HIREDATE	SAL	COMM	ID_DEPT	AGE
7369	SMITH	CLERK	7902	17/12/1980	800		20	40
7499	ALLEN	SALESMAN	7698	20/02/1981	1600	300	30	28
7521	WARD	SALESMAN	7698	22/02/1981	1250	500	30	35

Table P_GROUP

ID_GROUP	AGE_MIN	AGE_MAX	RANGE
1	18	30	18-30
2	31	40	30-40
3	41	50	40-50
4	51	60	50-60
5	61	100	60

Query result

ID_COM	NAME	JOB	RANGE
7369	SMITH	CLERK	30-40
7521	WARD	SALESMAN	30-40
7499	ALLEN	SALESMAN	18-30

Create Universe step by step

➤ Auto-Join

select * from P_CUST_COM where STATUS = 1;

Table P_CUST_COM

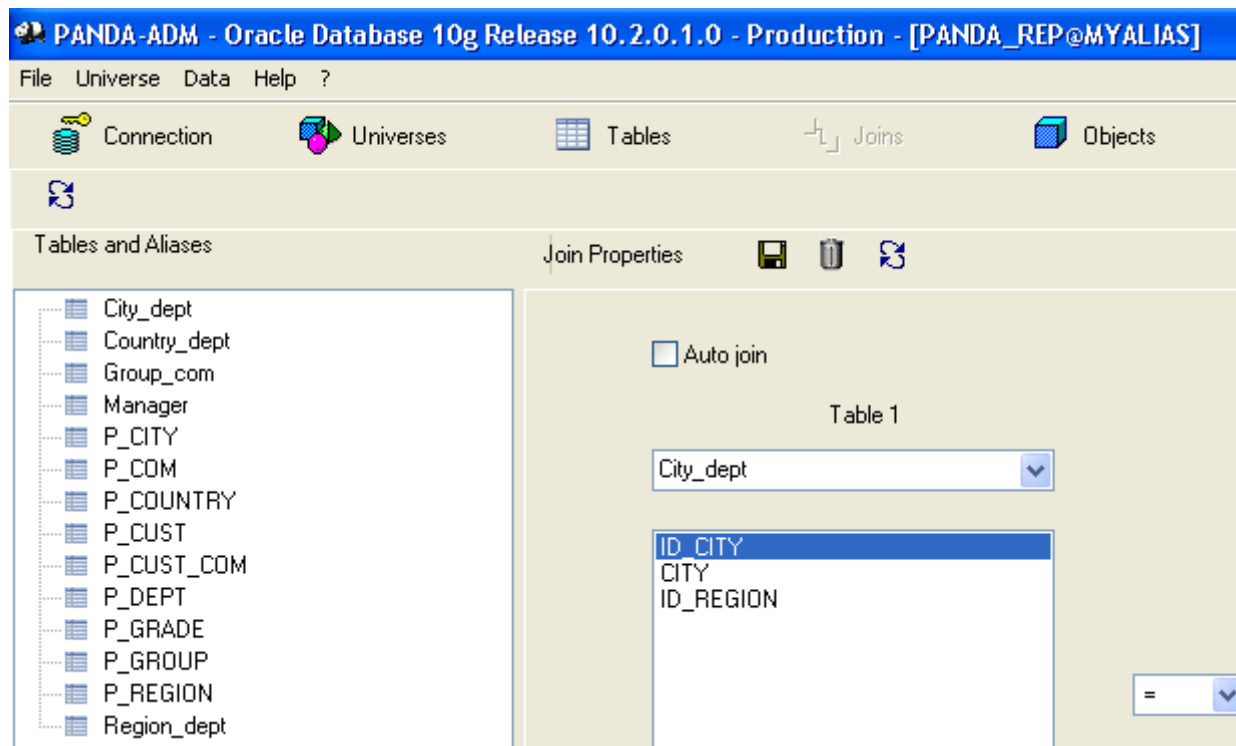
ID_CUST	ID_COM	STATUS
101	7499	1
102	7499	1
103	7499	0
104	7499	1
105	7499	0

Query result

ID_CUST	ID_COM	STATUS
101	7499	1
102	7499	1
104	7499	1

Create Universe step by step

- Edit join
- Click on button « Joins »



- All available tables appear at the same level on the left. They are not linked.

Create Universe step by step

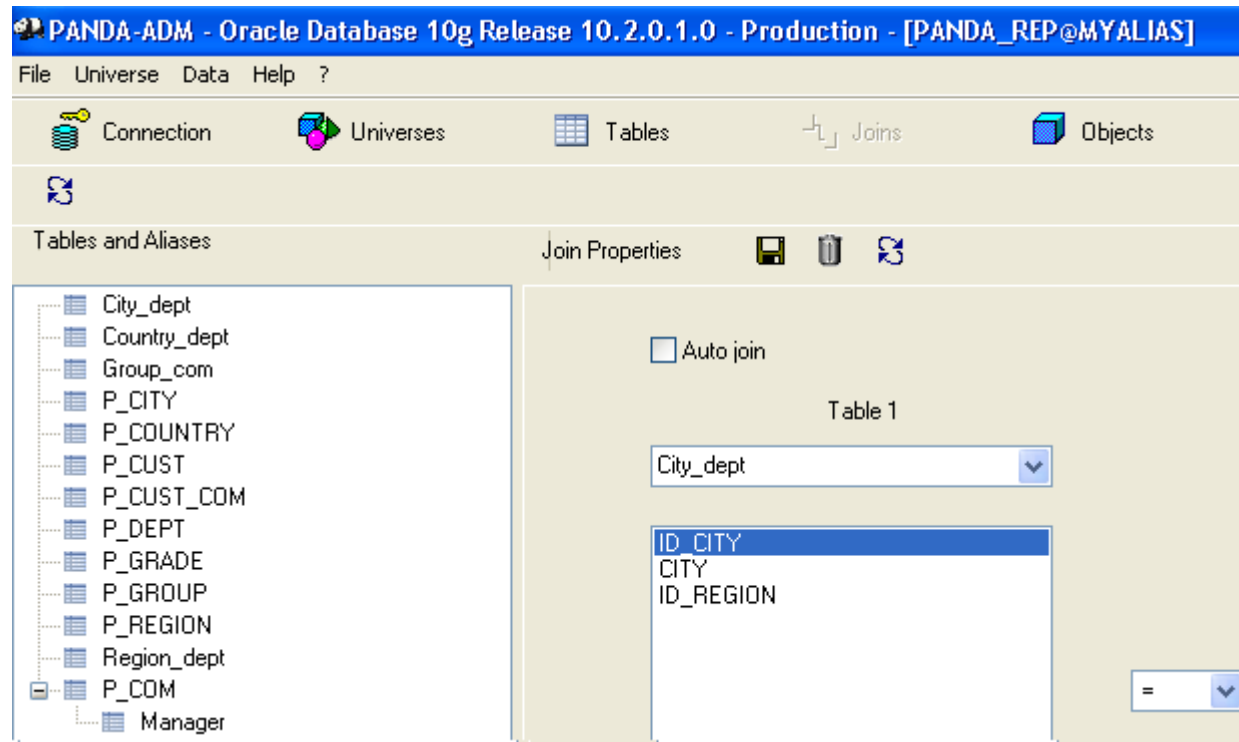
- Edition of join between table P_COM and Manager, it is an outer join.
- On left, place cursor on table P_COM, On right Choose « Manager » in list « Table 2 »
- Place cursor on column « ID_MGR » of «table 1»
- Place cursor on column « ID_COM» of «table 2», check « Outer join » under «table 1»

The screenshot shows a 'Create Universe' dialog box with the following configuration:

- Auto join:** ☐
- Table 1:** P_COM (selected in dropdown)
- Table 2:** Manager (selected in dropdown)
- Table 1 Columns:** ID_COM, NAME, JOB, ID_MGR (highlighted), HIREDATE, SAL, COMM, ID_DEPT, AGE
- Table 2 Columns:** ID_COM (highlighted), NAME, JOB, ID_MGR, HIREDATE, SAL, COMM, ID_DEPT, AGE
- Join Operator:** = (selected in dropdown)
- Outer join (Table 1):** ☒
- Outer join (Table 2):** ☐
- Expression:** P_COM.ID_MGR=Manager.ID_COM(+)
- Analyze:** Button

Create Universe step by step

- Click on icon « Save »
- On left, tables « P_COM » and « Manager » appear to be linked.



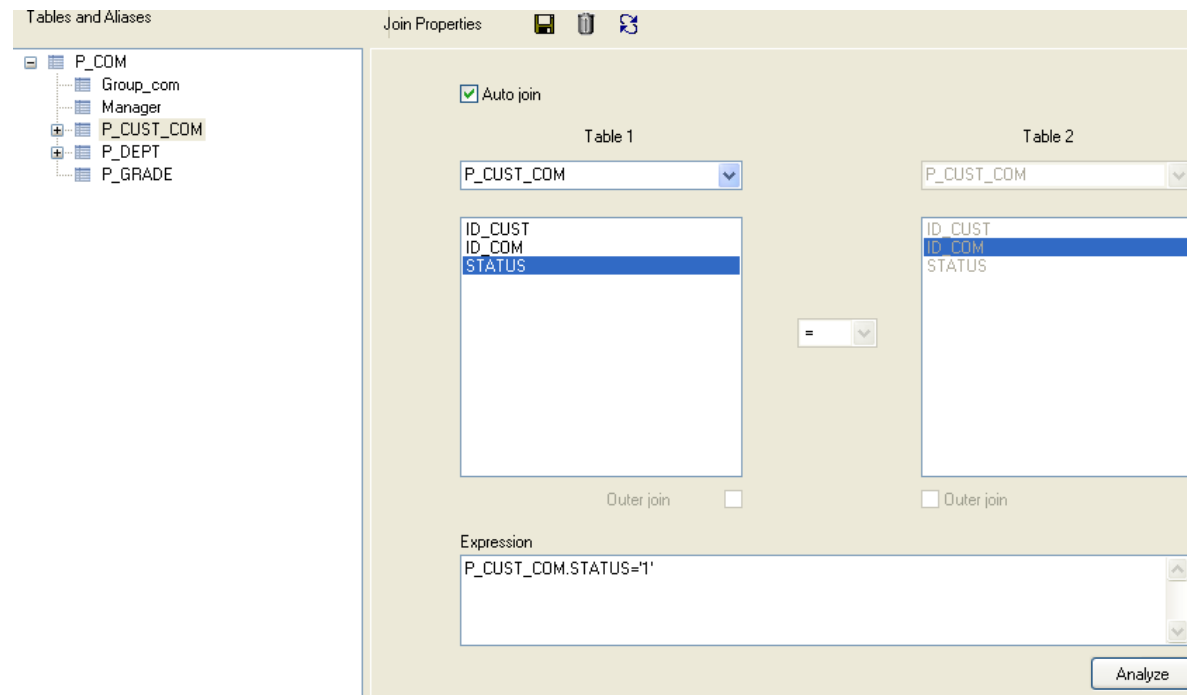
Create Universe step by step

- Repeat the operation to perform all joins appearing in the (schema 2)
- The full list of expressions to set in zone "expression" before saving the join.

Table 1	Table 2	Expression
P_COM	Manager	P_COM.ID_MGR=Manager.ID_COM(+)
P_COM	P_CUST_COM	P_COM.ID_COM=P_CUST_COM.ID_COM(+)
P_CUST_COM	P_CUST	P_CUST.ID_CUST(+)=P_CUST_COM.ID_CUST
P_CUST	P_CITY	P_CUST.ID_CITY=P_CITY.ID_CITY(+)
P_CITY	P_REGION	P_REGION.ID_REGION(+)=P_CITY.ID_REGION
P_REGION	P_COUNTRY	P_REGION.ID_COUNTRY=P_COUNTRY.ID_COUNTRY(+)
P_CUST	P_GROUP	P_CUST.AGE >=P_GROUP.AGE_MIN(+) and P_CUST.AGE <=P_GROUP.AGE_MAX(+)
P_COM	P_DEPT	P_COM.ID_DEPT=P_DEPT.ID_DEPT
P_DEPT	City_dept	City_dept.ID_CITY=P_DEPT.ID_CITY
City_dept	Region_dept	City_dept.ID_REGION=Region_dept.ID_REGION
Region_dept	Country_dept	Country_dept.ID_COUNTRY=Region_dept.ID_COUNTRY
P_COM	Group_com	P_COM.AGE>= Group_com.AGE_MIN and P_COM.AGE<= Group_com.AGE_MAX
P_COM	P_GRADE	P_COM.SAL>=P_GRADE.LOSAL and P_COM.SAL<=P_GRADE.HISAL

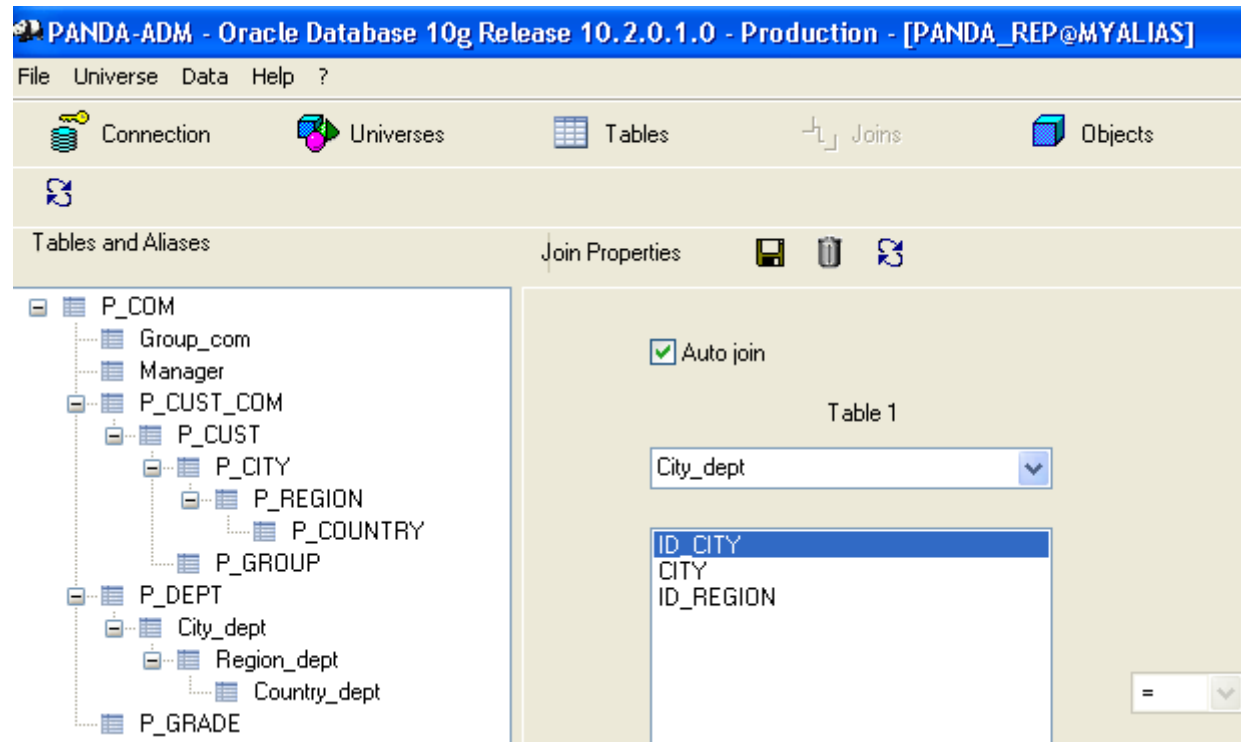
Create Universe step by step

- Create Auto-join
- Select table « P_CUST_COM » in list « Table 1 »
- Check box « Auto join »
- Select column « STATUS » of table « P_CUST_COM »
- Set zone « Expression » with value « P_CUST_COM.STATUS='1' »
- Click on icon « Save »



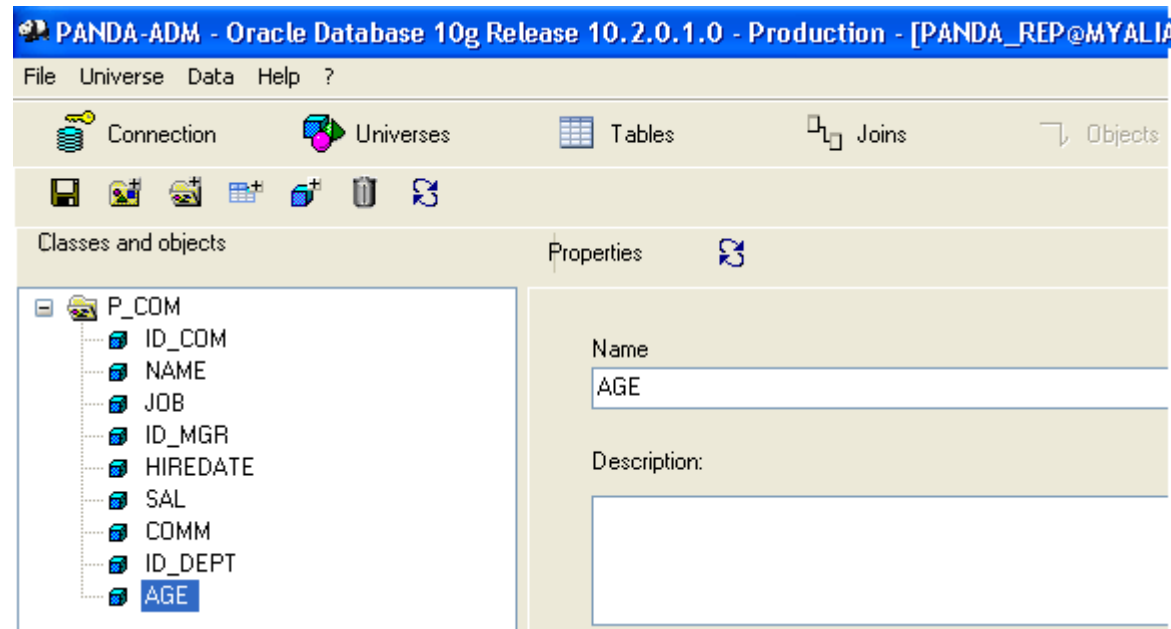
Create Universe step by step

- Once the joins created, click the "Expand All", we obtain the following tree to the left:



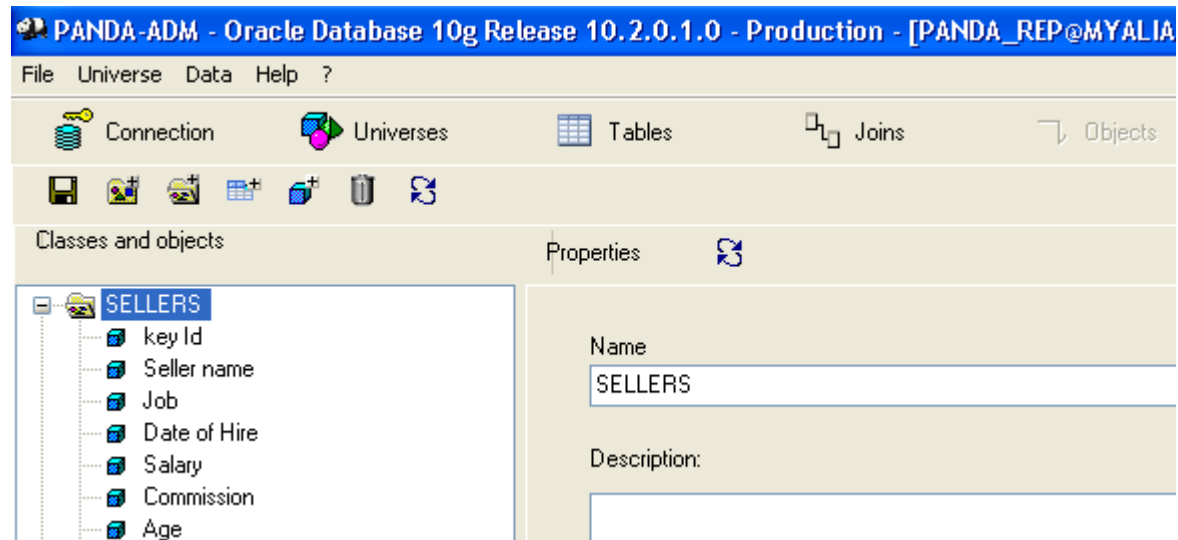
Create Universe step by step

- Step 8, Create classes and objects
- Classes are a logical grouping of objects
- Click on button « Objects »
- Click on icon « Add table » and create classe « SELLERS » from table « P_COM », we obtain:



Create Universe step by step

- Click twice (slowly) on the name of the class and objects to rename them
- Click on icon "Delete" to delete an object, we obtain :



Create Universe step by step

- Click on icon « Add object », Add following objects:

Nom	Type	Select
Grade	Alphanumeric	P_GRADE.GRADE
Person in charge	Alphanumeric	Manager.NAME
Age group	Alphanumeric	Group_com.RANGE

- Similarly create the class "SERVICES" from the table "P_DEPT"
- Click on icon "Add subclass", add a subclass "LOCATION"
- In classe « LOCATION » add following objects:

Nom	Type	Select
City	Alphanumeric	City_dept.CITY
Region	Alphanumeric	Region_dept.REGION
Country	Alphanumeric	Country_dept.COUNTRY

Create Universe step by step

- Similarly create the class "CUSTOMERS" from the table "P_CUST", add the following objects:

Name	Type	Select
Customers count	Numeric	Count(P_CUST.ID_CUST)
Age group	Alphanumeric	P_GROUP.RANGE

- Add a class in "LOCATION", then add the following objects:

Name	Type	Select
City	Alphanumeric	P_CITY.CITY
Region	Alphanumeric	P_REGION.REGION
Country	Alphanumeric	P_COUNTRY.COUNTRY

- Always Click the "OK" to validate inputs or changes, then click the icon "Save"

Where:

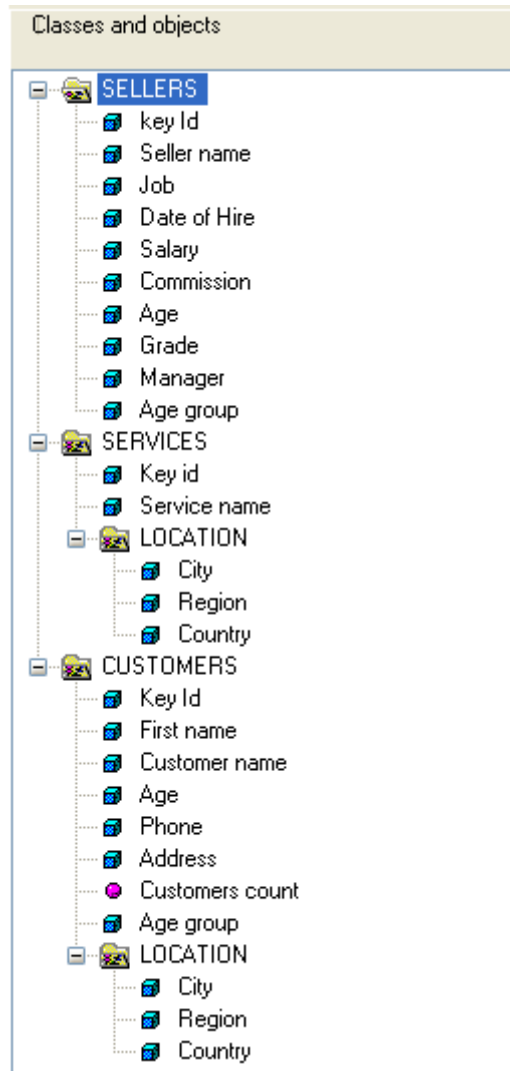
>>

Tables... Analyze

OK Cancel

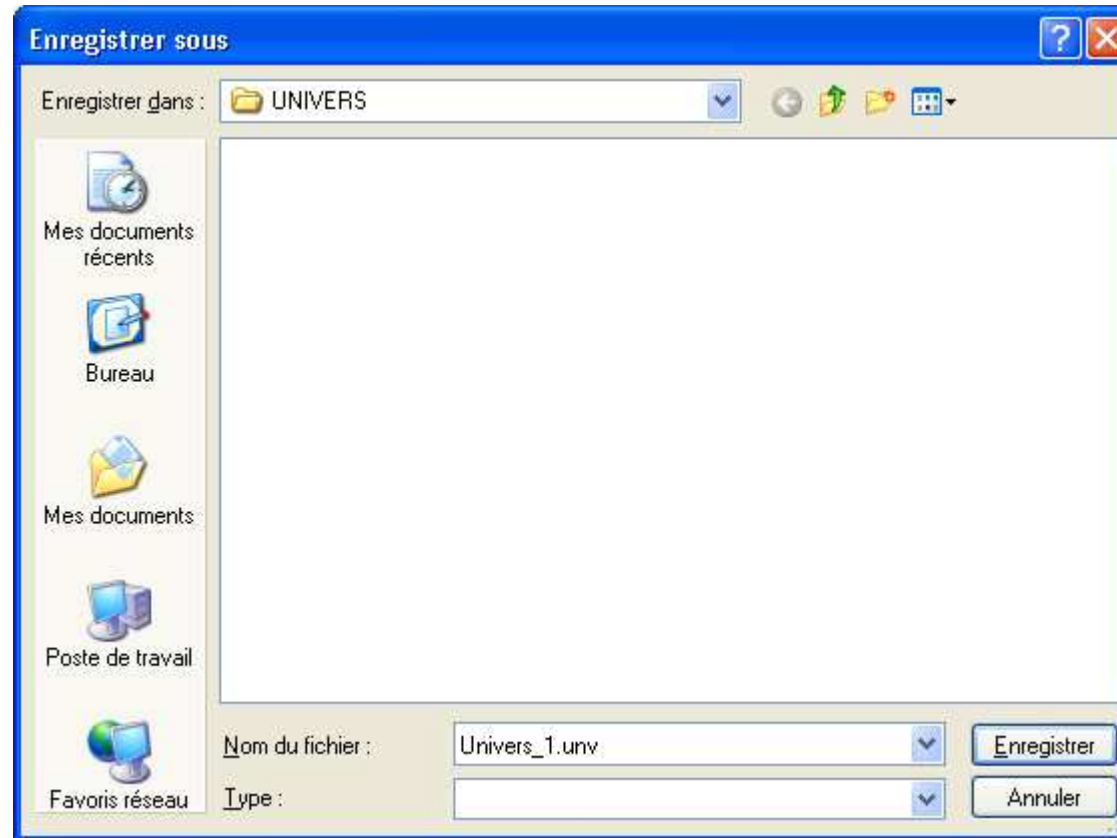
Create Universe step by step

Click the "Expand All", we obtain the following tree to the left:



Create Universe step by step

- Step 9, Save univers
- Click on button « Universe », then on icon « Export universe »



Create Universe step by step

- Step 10, Connect with query module
- Connection to Oracle Database, Run module « Panda-Qry»

PANDA-QRY Login, version 1.3.0

Oracle MsSql MySql

CNX	USR	MAJ
MyAlias	panda_rep	25/02/2013

ORACLE'

Database, TNS Alias:
MyAlias

User / Schema:
panda_rep

Password:
xxxxxxx

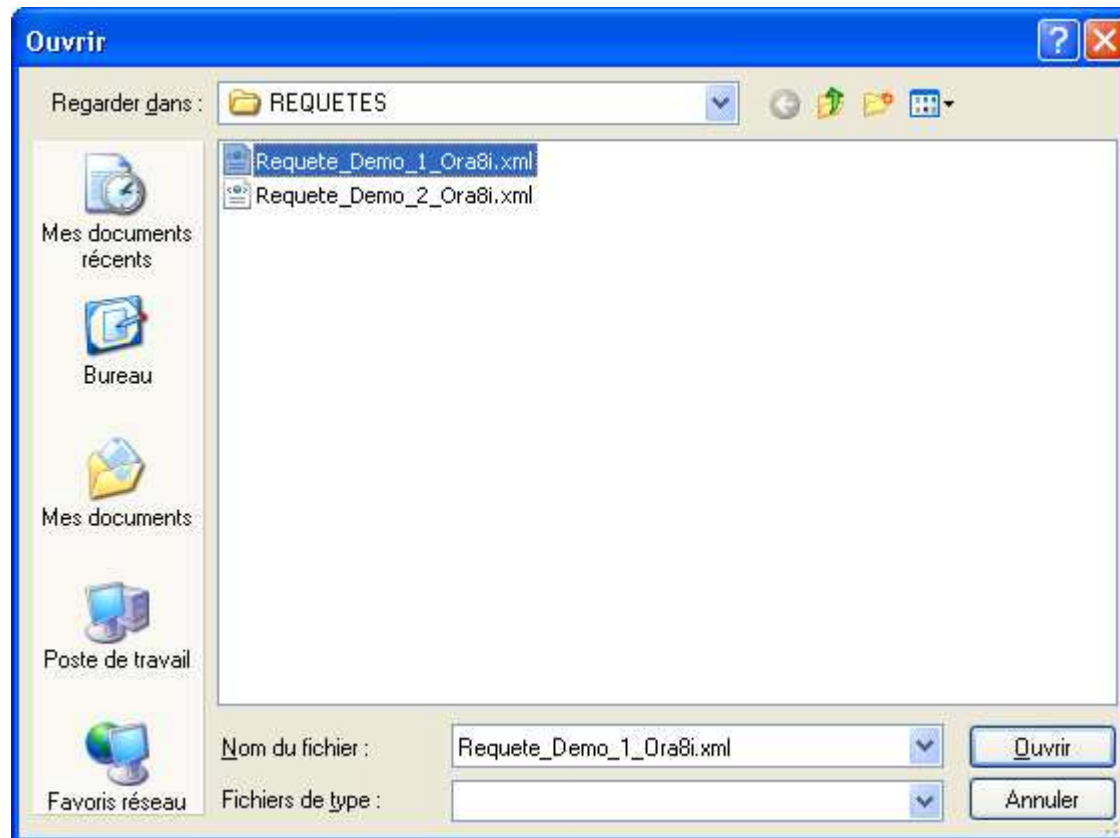
<< Add >> Delete ☐ Repository



<http://pandasql.free.fr/Panda-Qry-An.html> OK Cancel

Create Universe step by step

- Step 11, Run a query
- Click on button « Query »
- Click on icon « Open query », choose « Requete_Demo_1_Ora8i.xml »



Create Universe step by step

➤ We obtain the following screen :

PANDA-QRY - Oracle Database 10g Release 10.2.0.1.0 - Production - [PANDA_REP@MYALIAS]

File Grid Data Help ?

Connection Universe Query Result SQL Editor New

Classes and objects

Result objects

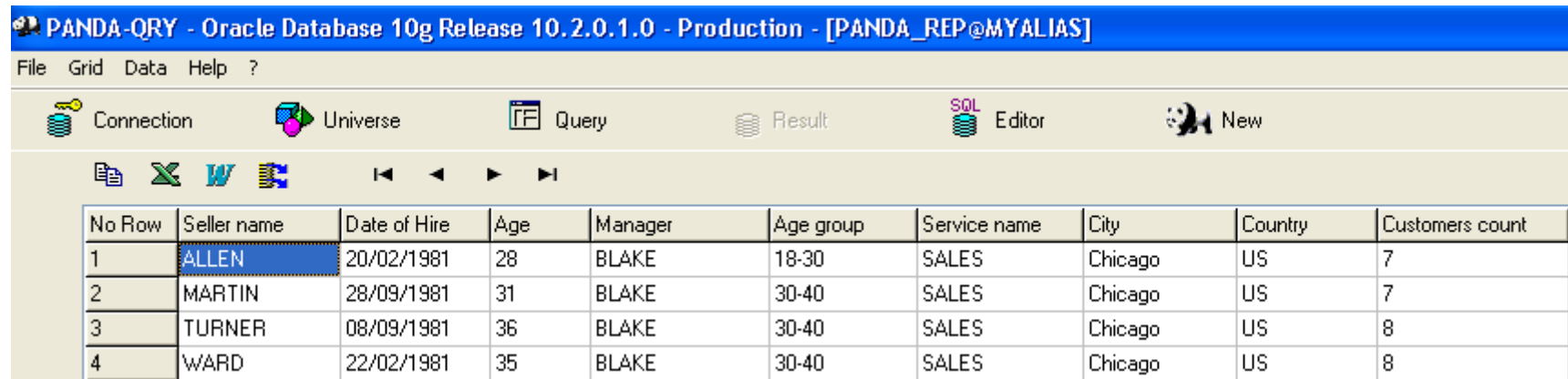
Id	Measure	Object
2	0	Seller name
5	0	Date of Hire
9	0	Age
30	0	Manager
11	0	Age group
13	0	Service name
15	0	City
17	0	Country
28	1	Customers count

Query Filters

Id	) Op	(Object	Operator	? Operand
28	AND	Customers count	Greater than	5

Create Universe step by step

- Click on icon « Run query »
- We obtain the following screen :

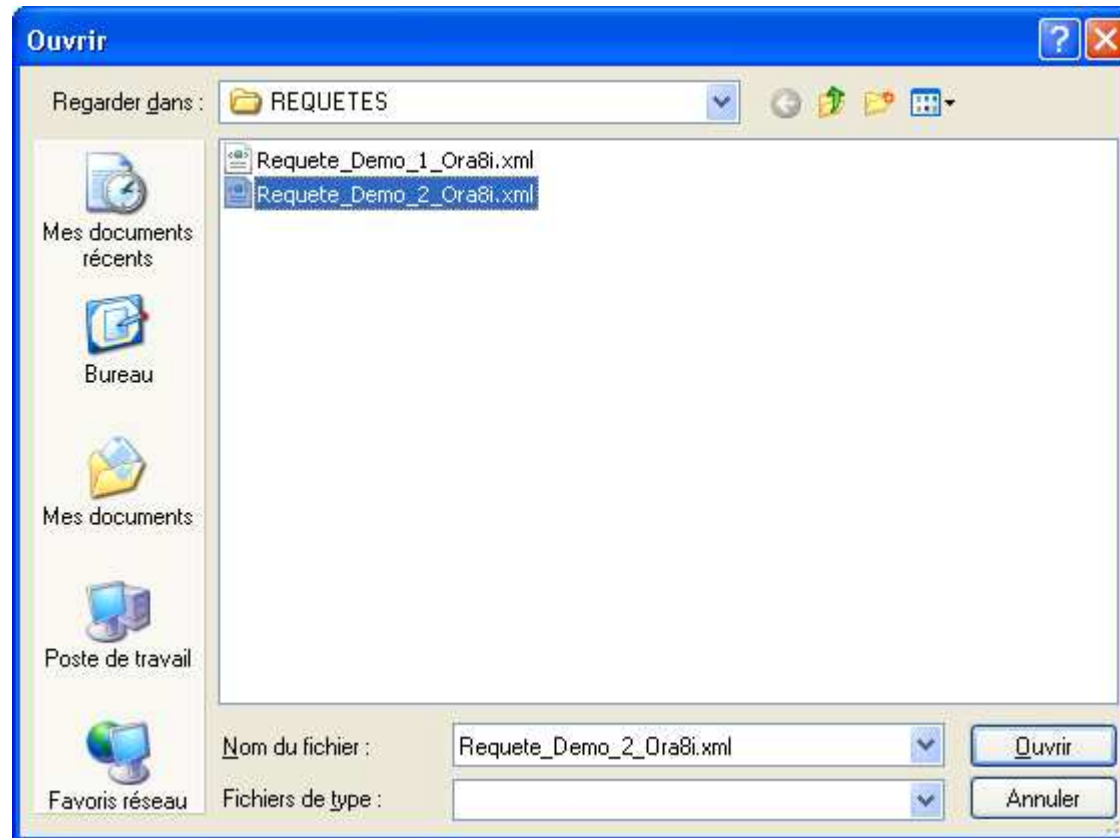


The screenshot shows the PANDA-QRY application window. The title bar reads "PANDA-QRY - Oracle Database 10g Release 10.2.0.1.0 - Production - [PANDA_REP@MYALIAS]". The menu bar includes "File", "Grid", "Data", and "Help ?". The toolbar contains icons for "Connection", "Universe", "Query", "Result", "SQL Editor", and "New". Below the toolbar is a row of icons for document operations and navigation. The main area displays a table with the following data:

No Row	Seller name	Date of Hire	Age	Manager	Age group	Service name	City	Country	Customers count
1	ALLEN	20/02/1981	28	BLAKE	18-30	SALES	Chicago	US	7
2	MARTIN	28/09/1981	31	BLAKE	30-40	SALES	Chicago	US	7
3	TURNER	08/09/1981	36	BLAKE	30-40	SALES	Chicago	US	8
4	WARD	22/02/1981	35	BLAKE	30-40	SALES	Chicago	US	8

Create Universe step by step

- Click on button « Query »
- Click on icon « Open query », choose « Requete_Demo_2_Ora8i.xml »



Create Universe step by step

➤ We obtain the following screen :

PANDA-QRY - Oracle Database 10g Release 10.2.0.1.0 - Production - [PANDA_REP@MYALIAS]

File Grid Data Help ?

Connection Universe Query Result Editor New

Classes and objects Result objects

SELLERS
SERVICES
CUSTOMERS

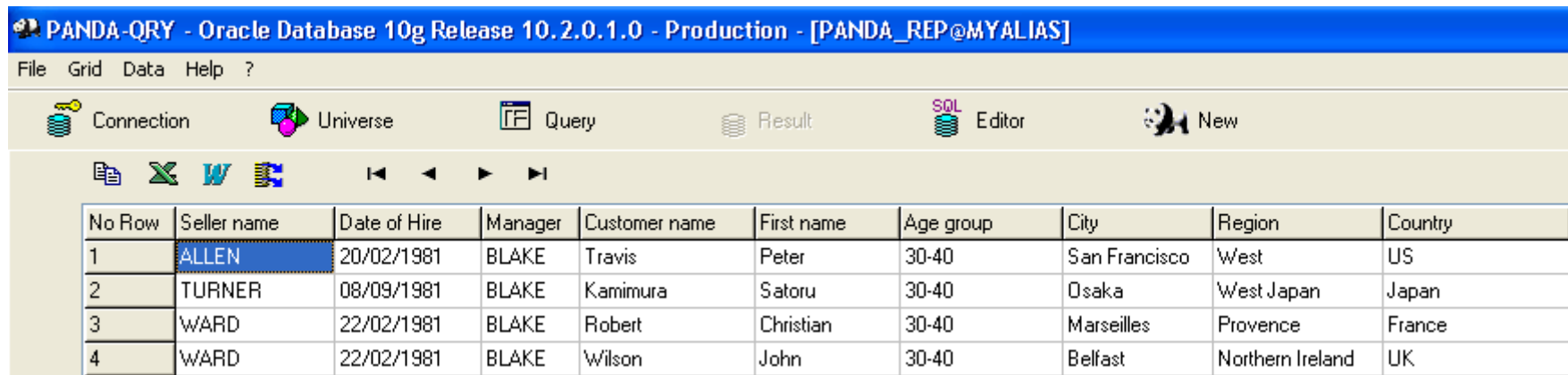
Id	Measure	Object
2	0	Seller name
5	0	Date of Hire
30	0	Manager
20	0	Customer name
19	0	First name
29	0	Age group
25	0	City
26	0	Region
27	0	Country

Query Filters

Id	)	Op	(	Object	Operator	? Operand
20		AND		Customer name	Is not null	
29		AND		Age group	Equal to	'30-40'

Create Universe step by step

- Click on icon « Run query»
- We obtain the following screen :



The screenshot shows the PANDA-QRY application window. The title bar reads "PANDA-QRY - Oracle Database 10g Release 10.2.0.1.0 - Production - [PANDA_REP@MYALIAS]". The menu bar includes "File", "Grid", "Data", and "Help ?". The toolbar contains icons for "Connection", "Universe", "Query", "Result", "Editor", and "New". Below the toolbar is a row of icons for document operations and navigation. The main area displays a table with 10 columns: "No Row", "Seller name", "Date of Hire", "Manager", "Customer name", "First name", "Age group", "City", "Region", and "Country". The table contains 4 rows of data, with the first row highlighted in blue.

No Row	Seller name	Date of Hire	Manager	Customer name	First name	Age group	City	Region	Country
1	ALLEN	20/02/1981	BLAKE	Travis	Peter	30-40	San Francisco	West	US
2	TURNER	08/09/1981	BLAKE	Kamimura	Satoru	30-40	Osaka	West Japan	Japan
3	WARD	22/02/1981	BLAKE	Robert	Christian	30-40	Marseilles	Provence	France
4	WARD	22/02/1981	BLAKE	Wilson	John	30-40	Belfast	Northern Ireland	UK

- You can now create your own universes and Queries!