Technisches Gewerbe Museum

DEZSY

Distributed Databases

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Contents

1 Task description

The Task description can be found in elearning. Because we didn't want to translate it, it is not in this protocol.
Basically, the task is about writing a little distributed database and run some test.

2 Working time

2.1 Estimated working time

Task	**Person**	**Time in hours**
ER-diagram	Aly Siegel	1 3
DDL	Aly Siegel	1 3
SQL	Aly Siegel	1 2
Installation and Setup of OrcaleEX	Aly Siegel	3 1
Fragmentation	Aly Siegel	3 3
Testing of some queries	Aly Siegel	2 2
Documentation	Aly Siegel	2 2
Total	Aly Siegel	13 16
Total Team		**29 hours**

2.2 Actual time

Task	**Person**	**Time in hours**
ER-diagram	Aly Siegel	3 4
DDL	Aly Siegel	2 2
Installation and Setup of OrcaleEX	Aly Siegel	1 0
Fragmentation	Aly Siegel	0.5 0
Creating a Link	Aly Siegel	0.5 0.5
Doing some inserts	Aly Siegel	0.5 0.5
Testing of some queries	Aly Siegel	0.5 0.5
Documentation	Aly Siegel	1 2
Total	Aly Siegel	9 9
Total Team		**18 hours**

3 Implementation

3.1 Database-design

3.1.1 Understanding the Task

We copied the task description which can be found in elearning into an word document. Then we were deleting all the superficial information, until we had some sort of inofficial RM:

Meal(ID, name, type starter, main_dish,dessert)
A meal contains a *quantity* of
Ingredient(ID, name, unit kg, l price)
Cafeteria (ID,name)
A cafeteria has vendors
Vendor(ID, address)
Storage (ID,Ingredient.ID, quantity)
Order(ID,Vendor.ID, date_ordered, date_delivered)
Orderinclude(Order.ID,Ingredient.ID, quantity, price)
Bill(ID, Order.ID, IBAN, BIC, total_sum)
Menu(ID,name,price)
Day(ID, date, starter, main_dish, dessert)

3.1.2 ER-Diagram

We decided to use Astah. We have never used it before and so it was a little bit difficult to get all the relationships right. In figure 1 our first database design can be seen.

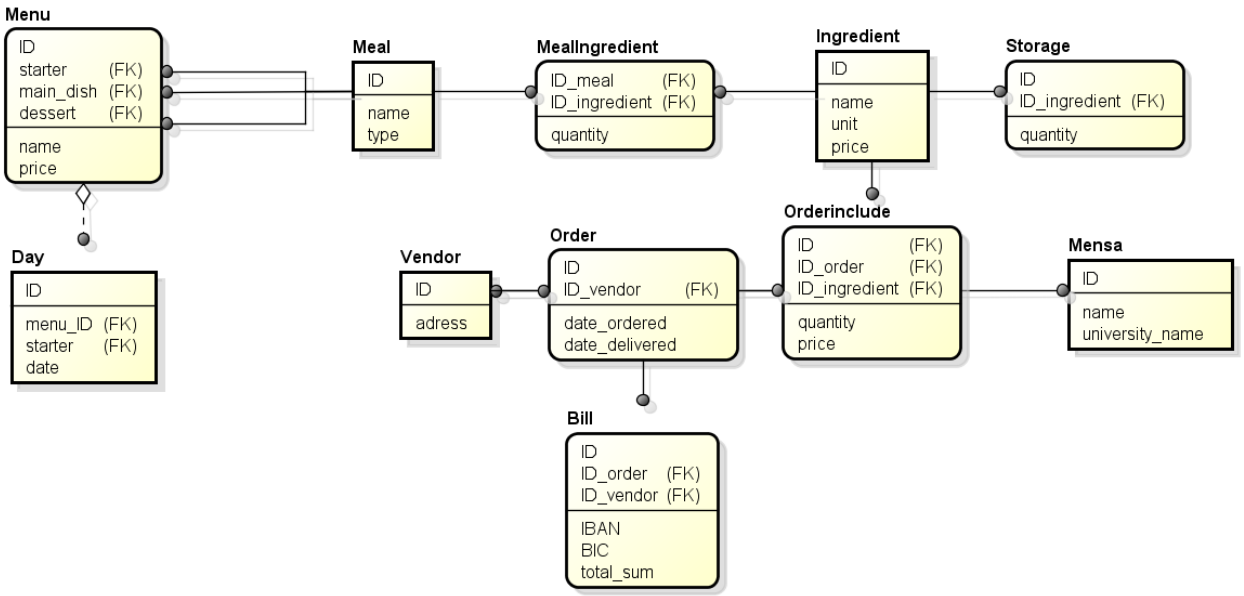

Figure 1: The first try to make an working ER-Diagram with Astah

In figure 2 our second database design can be seen.

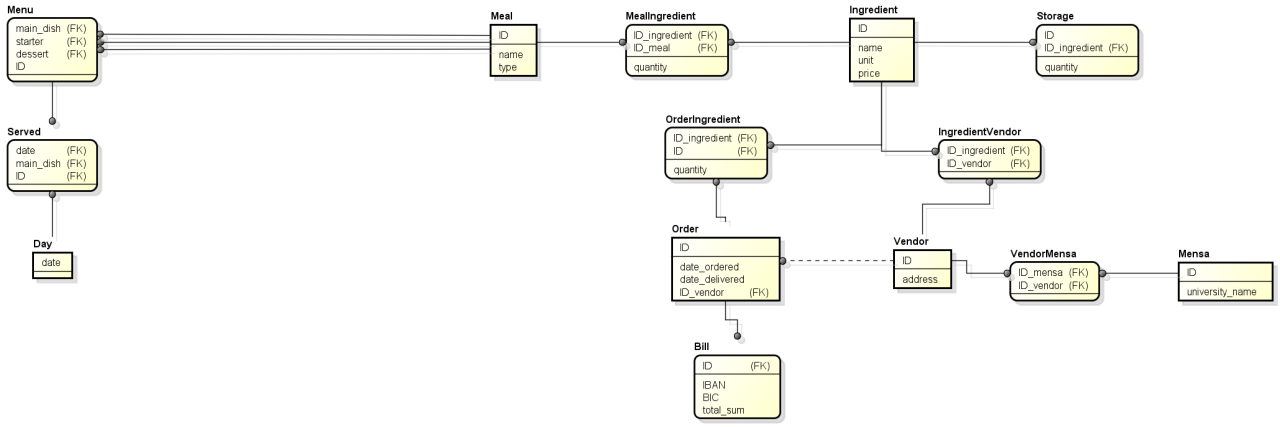

Figure 2: The second try to make an ER-Diagram using Astah

After trying it for the second time to get the ER right, we decided that we will simply use the last ER-diagram and to change the little faults in the DDL manually.

3.1.3 DDL

Whenever using Astah, it is possible to export the ER-diagram into an SQL file.
Unfortunately this didn't work out, because we were not able to import the file which has been exported by Astah. The syntax of the Order table was not right and we were not able to find a solution. The exported file will be in the disposal of this exercise.

We then decided to simply code the DDL by our selves, because we already know how to do so. It took us a little bit longer because there were some unnecessary faults, like a semi-colon missing. We tried this using mysql at first and then we were migrating the code into an SQL-Language which could be understood by an Oracle Database as well. In the end, we had an working DDL.

3.2 Setting up the Oracle DB

First of all, we had to download the oracle VM from [1]. Then it had to be imported into the VM-Ware. This process has been described under [2].

3.2.1 Importing the DDL

Adding the DDL-file was quite easy:
`@<filepath>`

3.2.2 Doing some Inserts

We were doing an Insert in each Database. Doing inserts in Distributed Databases was exactly the same as if we'd done it on a normal one.

3.3 Setting up an Distributed Database

3.3.1 Fragmentation

Oracle doesn't support vertical fragmentation.
Therefore we had to use a horizontal fragmentation, and nothing had to be changed.

3.3.2 Creating a Link

Creating a Link was surprisingly easy, as it can be seen in figure 3.
All we had to do was running:
`CREATE PUBLIC DATABASE LINK <remote-name> CONNECT TO <user> IDENTIFIED BY <password> USING '//<ip>:<port>/<service-name>';`

3.3.3 Running some Selects

Whenever a select statement should be done on a distributed database, the second database must be addressed using its link and an union: `SELECT * FROM <table> UNION SELECT * FROM <table>@<remote-name>` The output of one of these selects can be seen in figure 3

```
SQL> create public database link link2 connect to aaly identified by Aly1234 usi
ng '//10.0.105.35:1521/XE';

Database link created.

SQL> SELECT * FROM Ingredient UNION SELECT * FROM Ingredient@link2;

        ID
----------
NAME
--------------------------------------------------------------------------------
UNIT            PRICE
---------- ----------
         1
yutat1
kg               2.31

         2
yutat2
l                2.25

        ID
----------
NAME
--------------------------------------------------------------------------------
UNIT            PRICE
---------- ----------


SQL>
```

Figure 3: Setting up a link and making a select

List of Figures

References

[1] **Virtual Machine for the Oracle Communications Service Delivery Platform (SDP) Products**
http://www.oracle.com/technetwork/apps-tech/sdp-vm-2121008.html
last used: 16.10.2014, 15:34

[2] **Oracle Communication Service Delivery Platform Environment**
http://download.oracle.com/otn/vm/sdp/SDP_VM_Instructions.pdf?AuthParam=1413466760_74071
last used: 16.10.2014, 15:37