Part 2

Goal: Create database based on IDEF1X model.

Steps:

1. Open the model created as the result of the first part of this work, saved in the “delivery.erwin” file.

2. Select physical model. Now instead of “entity” we will use the “table” definition, as well as instead “attribute” we will used “field”.

3. Change table field parameters

As the example we will consider parameters change of the field “price_per_item” in the table “Supplied_products”:

1) Right click on “Supplied_products” table and select “Columns…”;

2) Select “price_per_item” field and select data type “Currency” on the “Access” tab (fig. 28);

3) Click “Ok”.

Change data type of the field “price” of the table “Market_prices” into “Currency” in the same way.

4. Check the target DBMS

Select “Database” menu, then select “Choose Database”. Appeared window might be used to check and change settings related to the DBMS used to create database based on the designed model (fig. 29).

5. Create database using DBMS Access

Before create database based on the data model we need to create the empty database with no objects. The sequence of steps is following:

1) Create folder where database files will be placed (e.g. D:\ER_LAB);

2) Run DBMS Access;

3) Create new database, input its name “delivery.mdb”, and select location (fig. 30);

4) As the result new database with no objects will be created (fig. 31);

5) Close database window and close DBMS Access.

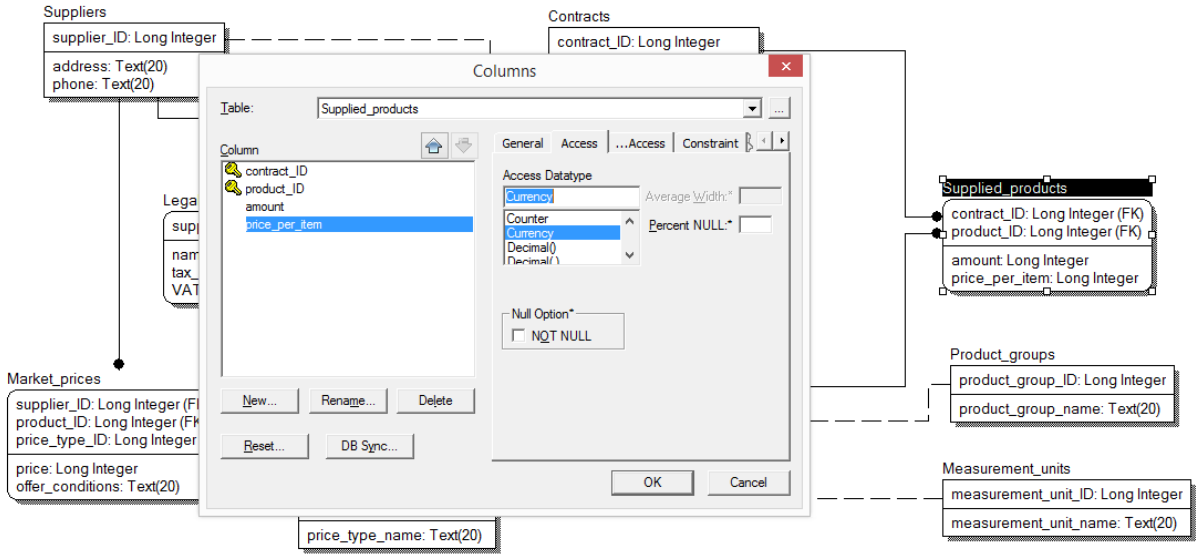


Fig. 28

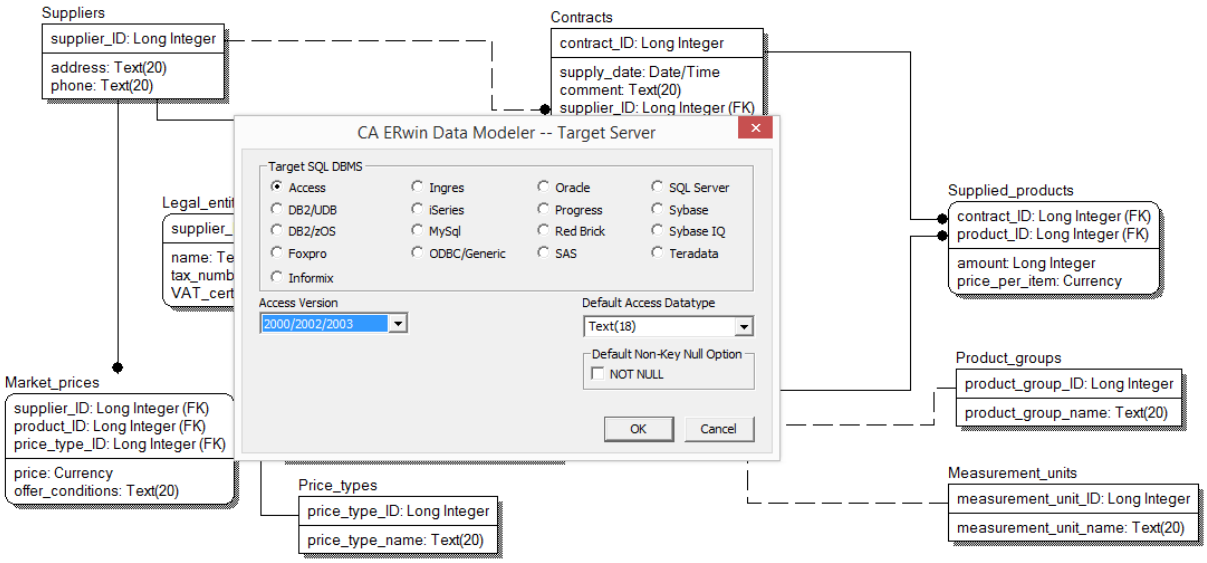
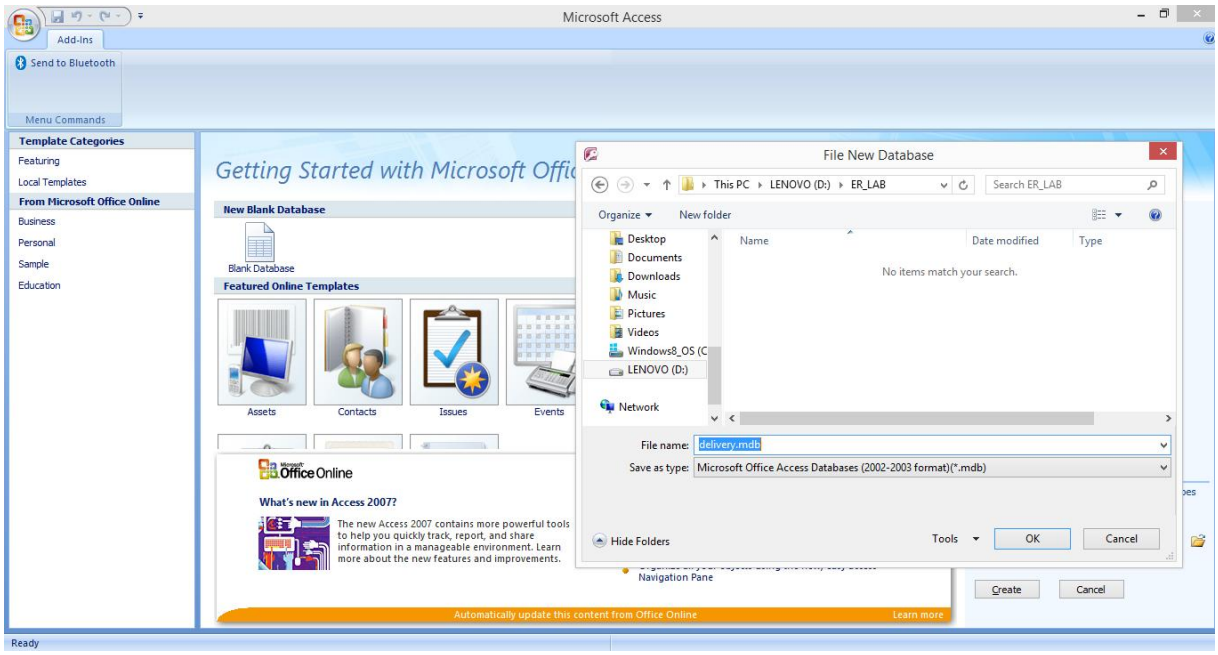


Fig. 29


Microsoft Access
Add-Ins
Send to Bluetooth
Menu Commands
Template Categories
Featuring
Local Templates
From Microsoft Office Online
Business
Personal
Sample
Education
Getting Started with Microsoft Offic
New Blank Database
Blank Database
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Search ER_LAB
Organize
New folder
Desktop
Documents
Downloads
Music
Pictures
Videos
Windows8_OS (C
LENOVO (D:)
Network
Name
Date modified
Type
No items match your search.
File name: delivery.mdb
Save as type: Microsoft Office Access Databases (2002-2003 format)(*.mdb)
Hide Folders
Tools
OK
Cancel
Ready

Fig. 30

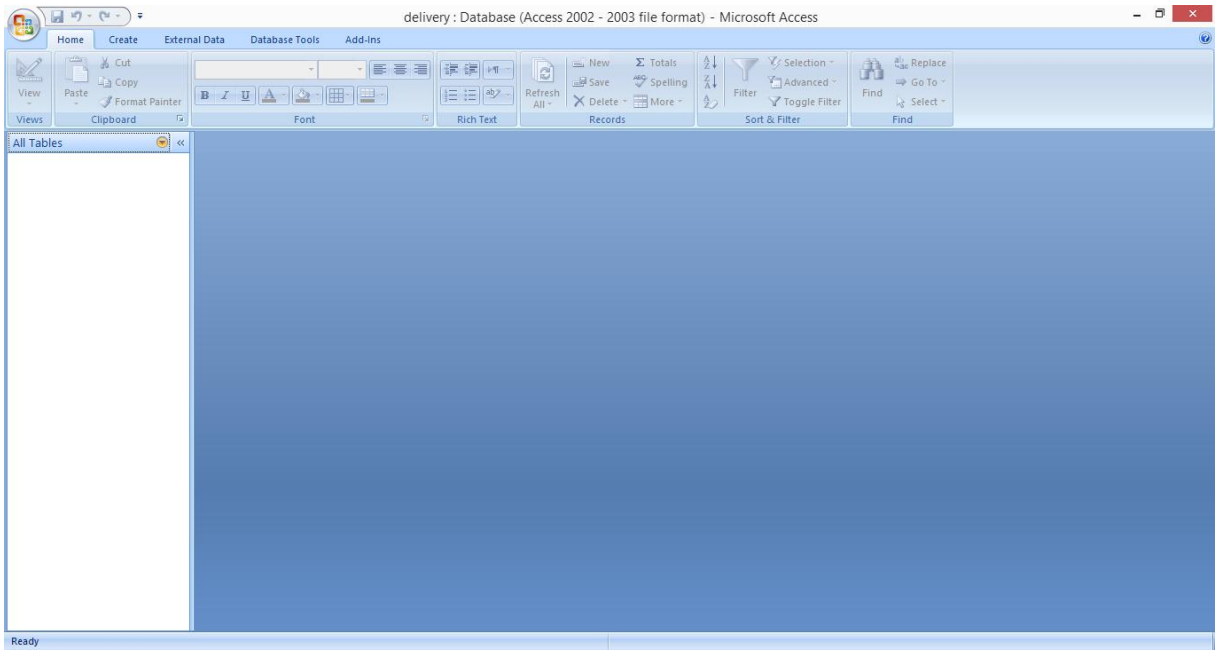
delivery : Database (Access 2002 - 2003 file format) - Microsoft Access
Home
Create
External Data
Database Tools
Add-Ins
View
Cut
Copy
Format Painter
Paste
Views
Clipboard
Font
Rich Text
Refresh All
New
Save
Delete
Totals
Spelling
More
Records
Filter
Selection
Advanced
Toggle Filter
Sort & Filter
Find
Replace
Go To
Select
All Tables
Ready

Fig. 31

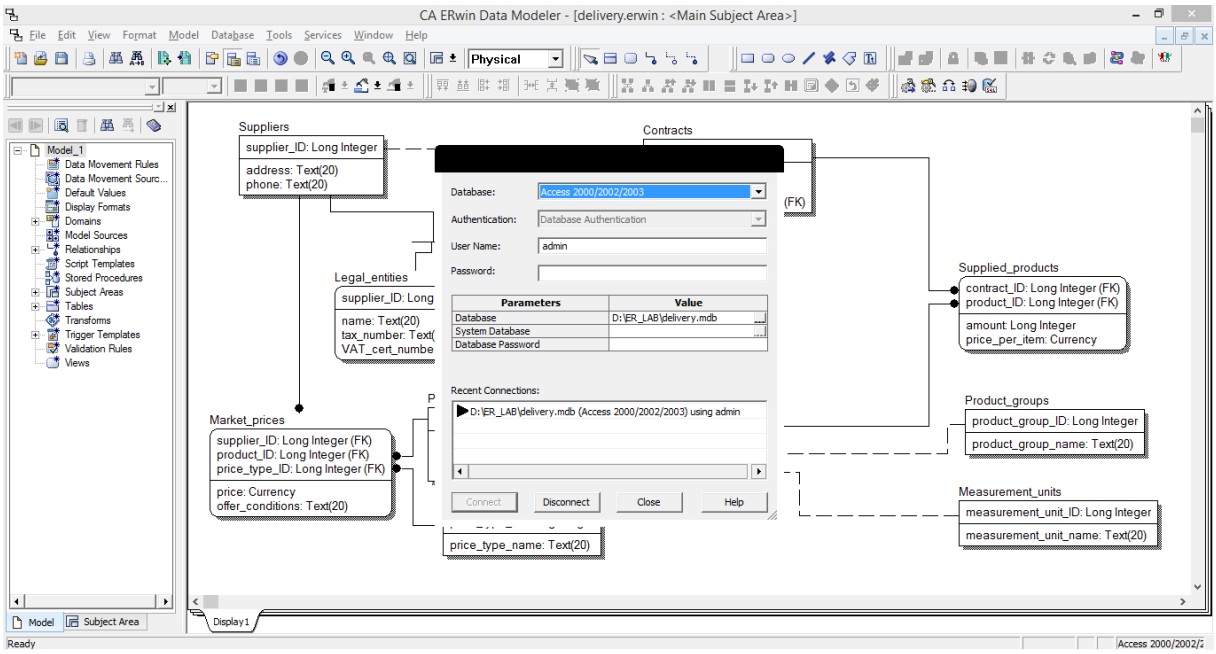
CA ERwin Data Modeler - [delivery.erwin : <Main Subject Area>]
File Edit View Format Model Database Tools Services Window Help
Physical
Model_1
Data Movement Rules
Data Movement Sourc...
Default Values
Display Formats
Domains
Model Sources
Relationships
Script Templates
Stored Procedures
Subject Areas
Tables
Transforms
Trigger Templates
Validation Rules
Views
Suppliers
supplier_ID: Long Integer
address: Text(20)
phone: Text(20)
Contracts
(FK)
Database:
Access 2000/2002/2003
Authentication:
Database Authentication
User Name:
admin
Password:
Parameters
Value
Database
D:\ER_LAB\delivery.mdb
System Database
Database Password
Recent Connections:
D:\ER_LAB\delivery.mdb (Access 2000/2002/2003) using admin
Connect
Disconnect
Close
Help
Legal_entities
supplier_ID: Long
name: Text(20)
tax_number: Text(
VAT_cert_numbe
Supplied_products
contract_ID: Long Integer (FK)
product_ID: Long Integer (FK)
amount: Long Integer
price_per_item: Currency
Market_prices
supplier_ID: Long Integer (FK)
product_ID: Long Integer (FK)
price_type_ID: Long Integer (FK)
price: Currency
offer_conditions: Text(20)
price_type_name: Text(20)
Product_groups
product_group_ID: Long Integer
product_group_name: Text(20)
Measurement_units
measurement_unit_ID: Long Integer
measurement_unit_name: Text(20)
Model
Subject Area
Display1
Ready
Access 2000/2002/2

Fig. 32

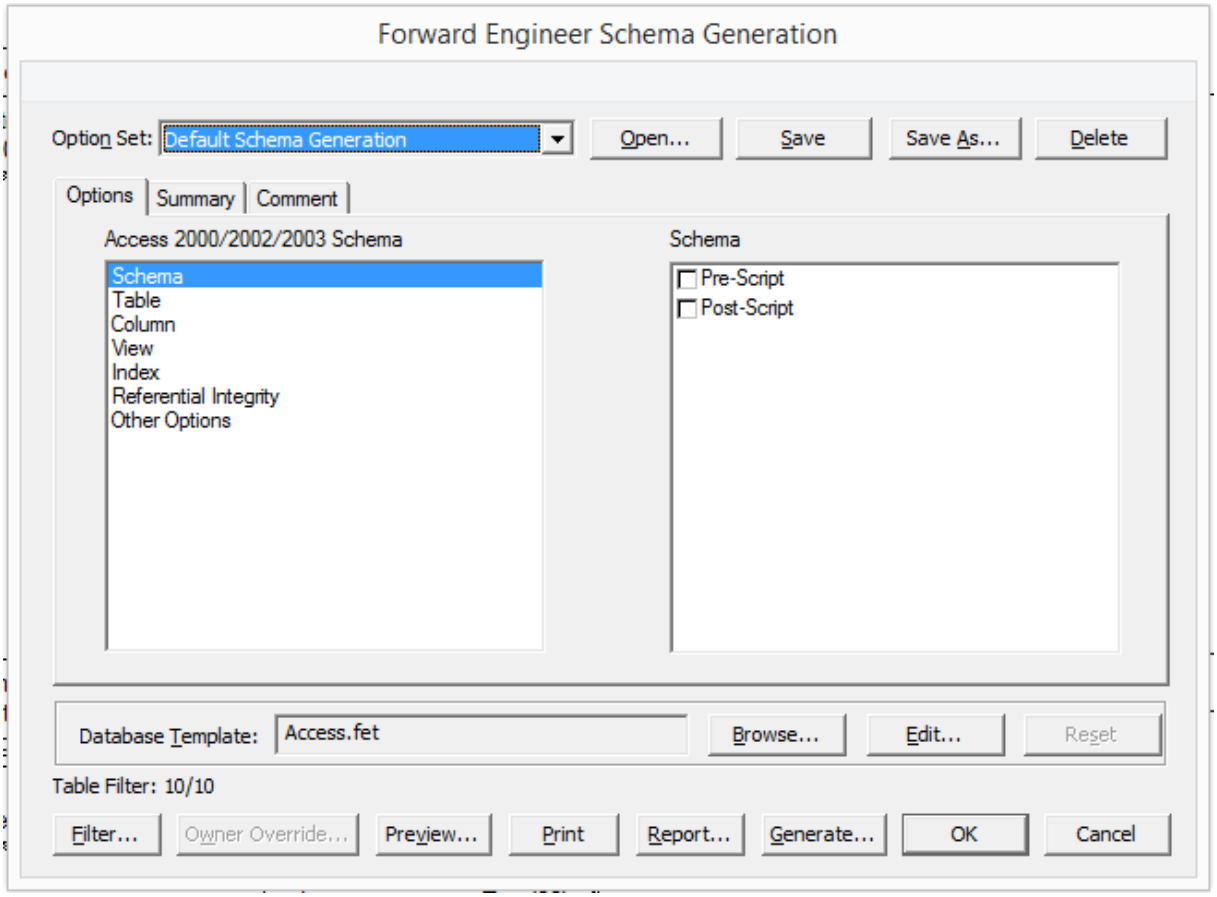
Forward Engineer Schema Generation
Option Set:
Default Schema Generation
Open...
Save
Save As...
Delete
Options
Summary
Comment
Access 2000/2002/2003 Schema
Schema
Table
Column
View
Index
Referential Integrity
Other Options
Schema
Pre-Script
Post-Script
Database Template:
Access.fet
Browse...
Edit...
Reset
Table Filter: 10/10
Filter...
Owner Override...
Preview...
Print
Report...
Generate...
OK
Cancel

Fig. 33

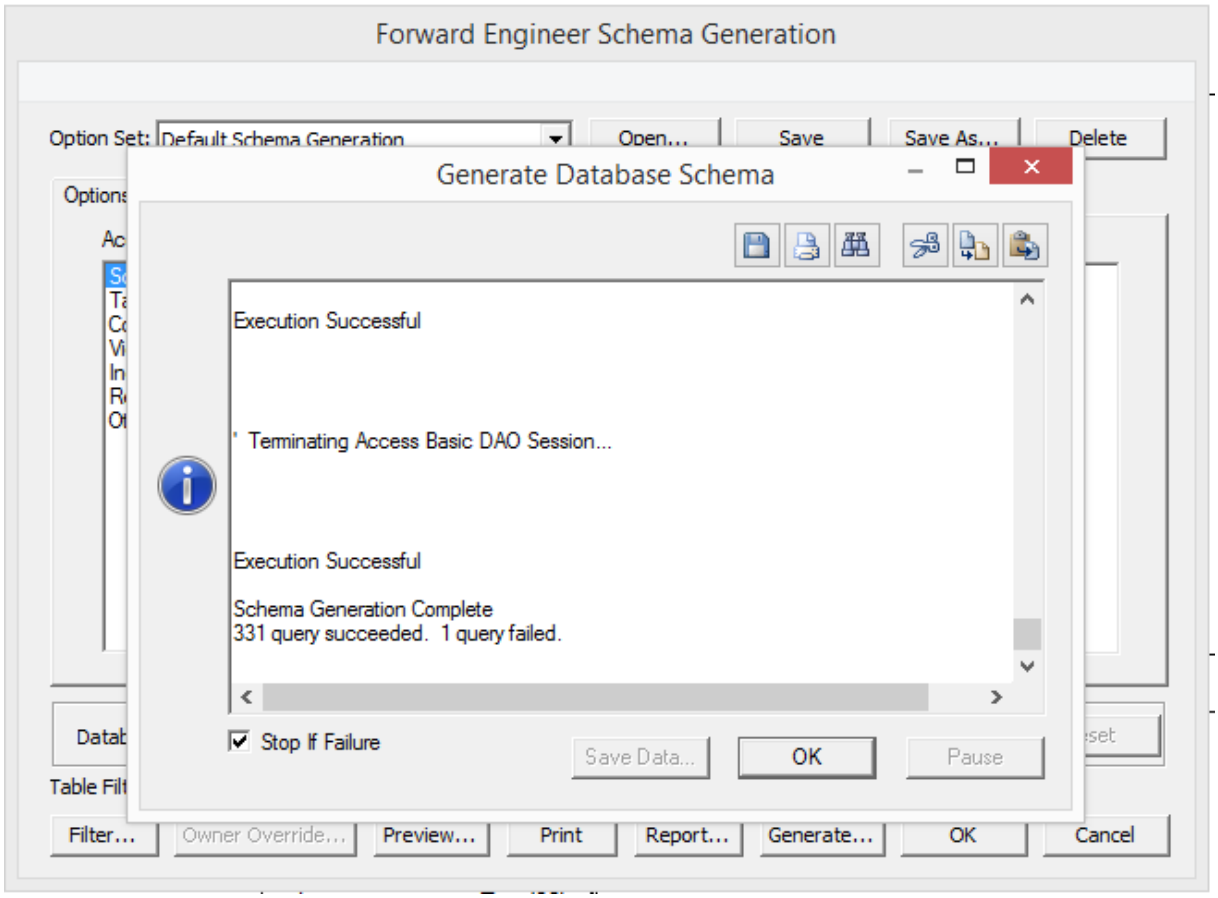
Forward Engineer Schema Generation
Option Set: Default Schema Generation
Open...
Save
Save As...
Delete
Generate Database Schema
Execution Successful
' Terminating Access Basic DAO Session...
Execution Successful
Schema Generation Complete
331 query succeeded. 1 query failed.
Stop If Failure
Save Data...
OK
Pause
Filter...
Owner Override...
Preview...
Print
Report...
Generate...
OK
Cancel

Fig. 34

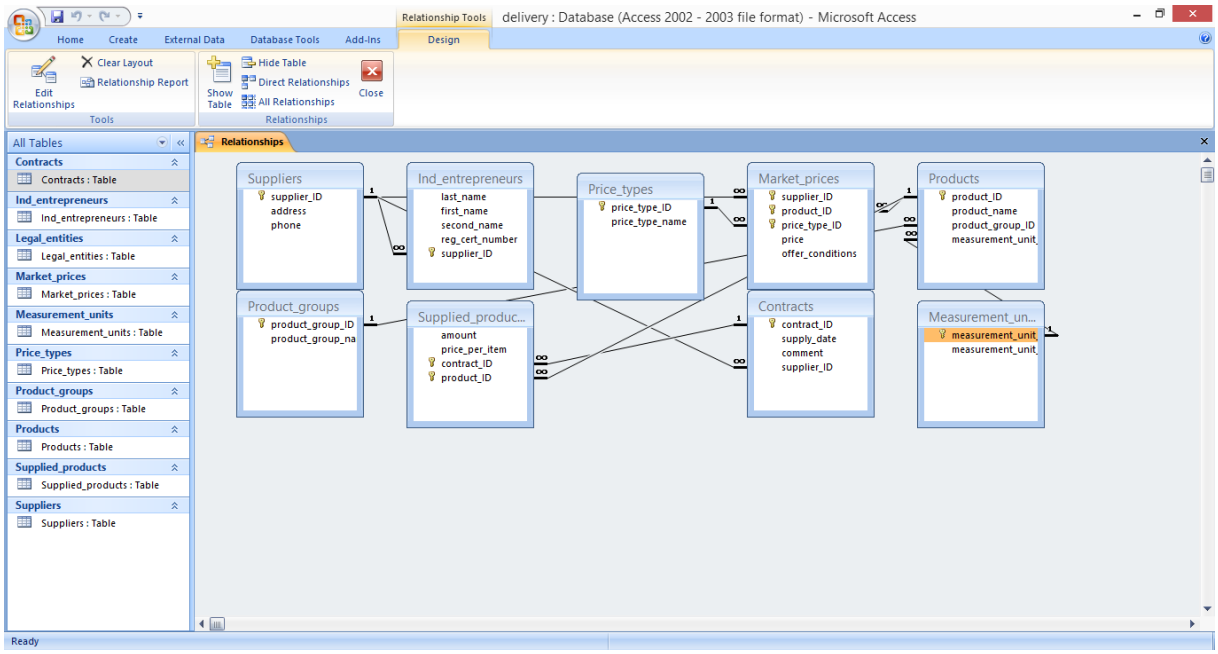
delivery : Database (Access 2002 - 2003 file format) - Microsoft Access
Relationship Tools
Home
Create
External Data
Database Tools
Add-Ins
Design
Edit Relationships
Clear Layout
Relationship Report
Show Table
Hide Table
Direct Relationships
All Relationships
Close
Tools
Relationships
All Tables
Contracts
Contracts : Table
Ind_entrepreneurs
Ind_entrepreneurs : Table
Legal_entities
Legal_entities : Table
Market_prices
Market_prices : Table
Measurement_units
Measurement_units : Table
Price_types
Price_types : Table
Product_groups
Product_groups : Table
Products
Products : Table
Supplied_products
Supplied_products : Table
Suppliers
Suppliers : Table
Suppliers
supplier_ID
address
phone
Ind_entrepreneurs
last_name
first_name
second_name
reg_cert_number
supplier_ID
Price_types
price_type_ID
price_type_name
Market_prices
supplier_ID
product_ID
price_type_ID
price
offer_conditions
Products
product_ID
product_name
product_group_ID
measurement_unit
Product_groups
product_group_ID
product_group_na
Supplied_produc...
amount
price_per_item
contract_ID
product_ID
Contracts
contract_ID
supply_date
comment
supplier_ID
Measurement_un...
measurement_unit
measurement_unit
Ready

Fig. 35

6. Connect model to the created database.

The sequence of steps is following:

1) Open ERWin;

2) Select “Database” in menu, then select “Database Connection”;

3) In the appeared window “Access Connection” type “admin” in the field “User Name”, then type “D:\ER_LAB\delivery.mdb” in the field “Database” (fig. 32);

4) Click “Connect”.

7. Create database based on the designed model.

The sequence of steps is following:

1) Select “Tools” in menu, then select “Forward Engineer/Schema Generation…”;

2) As the result, the window “Access Schema Generation” will be appeared (fig. 33);

3) Click “Generate”;

4) After process is end, click “Ok” in the “Generate Database Schema” window (fig. 34), and then click “Ok” in the “Access Schema Generation” window.

8. Check database creation result.

The sequence of steps is following:

1) Run DBMS Access;

2) Open database “delivery.mdb” and check presence of tables and their conformance to the tables created while modeling;

3) Open data scheme and check presence of relationships between database tables (fig. 35);

4) Check alternate keys of the table “Ind_entrepreneurs”. It requires the following steps:

– Right click on “Ind_entrepreneurs” table and select “Design View”;

– Select “Design” in the main menu, and then select “Indexes”. Appeared window shows the list of indexes of this table (fig. 36). As it is shown, there are two alternate keys despite of the PK. These alternate keys are also unique.

– Close the window of table indexes;

– Close the window of the database structure;

5) Close the database window and DBMS.

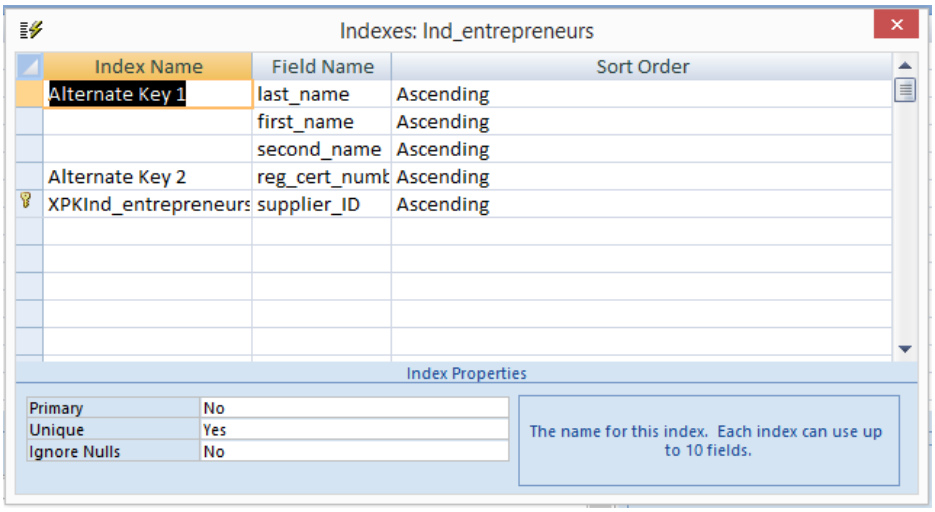

Fig. 36

9. Save created model and finish work.

10. Report requirements:

1) Briefly describe the main stages of performed work;

2) Depict created database (e.g. data scheme) in order to illustrate it correctness;

3) Describe problems you have faced with and analyze their reasons. Describe how these problems were solved.