



UNIUNEA EUROPEANĂ



GUVERNUL ROMÂNIEI



Instrumente Structurale
2007-2013



Platformă de e-learning și curriculum e-content pentru învățământul superior tehnic

Proiect nr. 154/323 cod SMIS – 4428 cofinanțat de prin Fondul European de Dezvoltare Regională “Investiții pentru viitorul dumneavoastră”.

Programul Operațional Sectorial Creșterea Competitivității Economice - POS CCE



UNIUNEA EUROPEANĂ



GUVERNUL ROMÂNIEI



Instrumente Structurale
2007-2013



Platformă de e-learning și curriculum e-content pentru învățământul superior tehnic

Sisteme CAD/CASE

18. Proiectarea unei scheme cu Xcase

Introducere

- XCase este un instrument CASE pentru modelarea conceptuală a datelor bazate pe XML și generează modelare conceptuală pentru mai multe sisteme de operare. XCase se bazează pe arhitectura MDA(*Model-Driven Architecture*).
- XCase este, în starea sa actuală, un experiment academic creat în scopul de a testa câteva idei noi de aplicare a MDA pentru modelarea XML a datelor într-un mod mult mai avansat, în comparație cu abordările actuale.
- XCase generează o schemă independentă de platforma pe care va rula aplicația, oferind o descriere XML a bazei de date pentru următoarele SGDB-uri: Oracle, SQLServer, Informix, DB2, FoxPro, Sybase, VFP, Interbase, MySQL, Firebird, PostgreSQL , MaxDB , SQL Anywhere, Jet (VB and Access).

Niveluri de modelare in XCase

- Instrumentul permite modelarea la următoarele două niveluri:
- **PIM** (*Platform-Independent Model Level*) :
 - Datele sunt modelate indiferent de reprezentarea în diferite formate XML ;
 - Diagramele de clase UML sunt folosite pentru modelarea pachetelor, claselor, relațiilor, etc.
- **PSM** (*Platform-Specific Model Level*):
 - Modelează cum sunt reprezentate datele în diferite tipuri de formate XML;
 - Fiecare tip de diagramă corespunde la un format XML;
 - Translatarea automată a diagramelor PSM în diagrame XML;
 - Utilizatorii pot lucra cu diferite componente ale diagramelor PIM pentru :
 - organizarea structurilor ierarhice;
 - reprezentarea structurilor complexe de date.

Editorul XCase

- Editorul XCase oferă următoarele facilități:
- Translatarea semiautomată a diagramelor PIM în diagrame PSM;
- Mai multe diagrame PIM pot fi obținute din una PSM;
- Userul poate selecta care părți dintr-o diagramă PSM pot fi translatare;
- Se creează automat o diagramă PSM;
- Userul poate selecta modelul de diagramă XML dorit;
- Permite translatarea inversă a unei diagrame PIM în una PSM;

Screenshots ale instrumentului XCase

The screenshot displays the XCase Editor interface. The main workspace shows a UML class diagram with the following classes and relationships:

- Region**: Attributes: name
- Supplier**: Attributes: supplier-number, email, phone
- Part**: Attributes: part-name, number
- Address**: Attributes: street, postcode, city
- Shop**: Attribute: shop-number
- Dealer**: Attribute: dealer-number
- Supply**: Attributes: amount, supply-date, unit-price
- ProductSet**: Attributes: amount, completion-date
- Customer**: Attributes: customer-number, name, email
- Purchase**: Attributes: purchase-number, date
- Item**: Attributes: amount, position
- Product**: Attributes: product-number, title, unit-price, description

Relationships shown in the diagram:

- Region** (1) **is** **Address** (0..*)
- Supplier** (1) **supplies** **Part** (0..*)
- Supplier** (1) **supplied by** **Supply** (0..*)
- Shop** (0..2) **made in** **Address** (0..*)
- Dealer** (0..1) **made by** **Supply** (0..*)
- Supply** (0..*) **for** **ProductSet** (0..*)
- ProductSet** (0..*) **products** **Product** (0..*)
- Customer** (0..2) **delivers to** **Address** (0..*)
- Customer** (0..*) **buys** **Purchase** (0..*)
- Purchase** (0..*) **embodied in** **Item** (0..*)
- Item** (0..*) **purchase** **Product** (0..*)

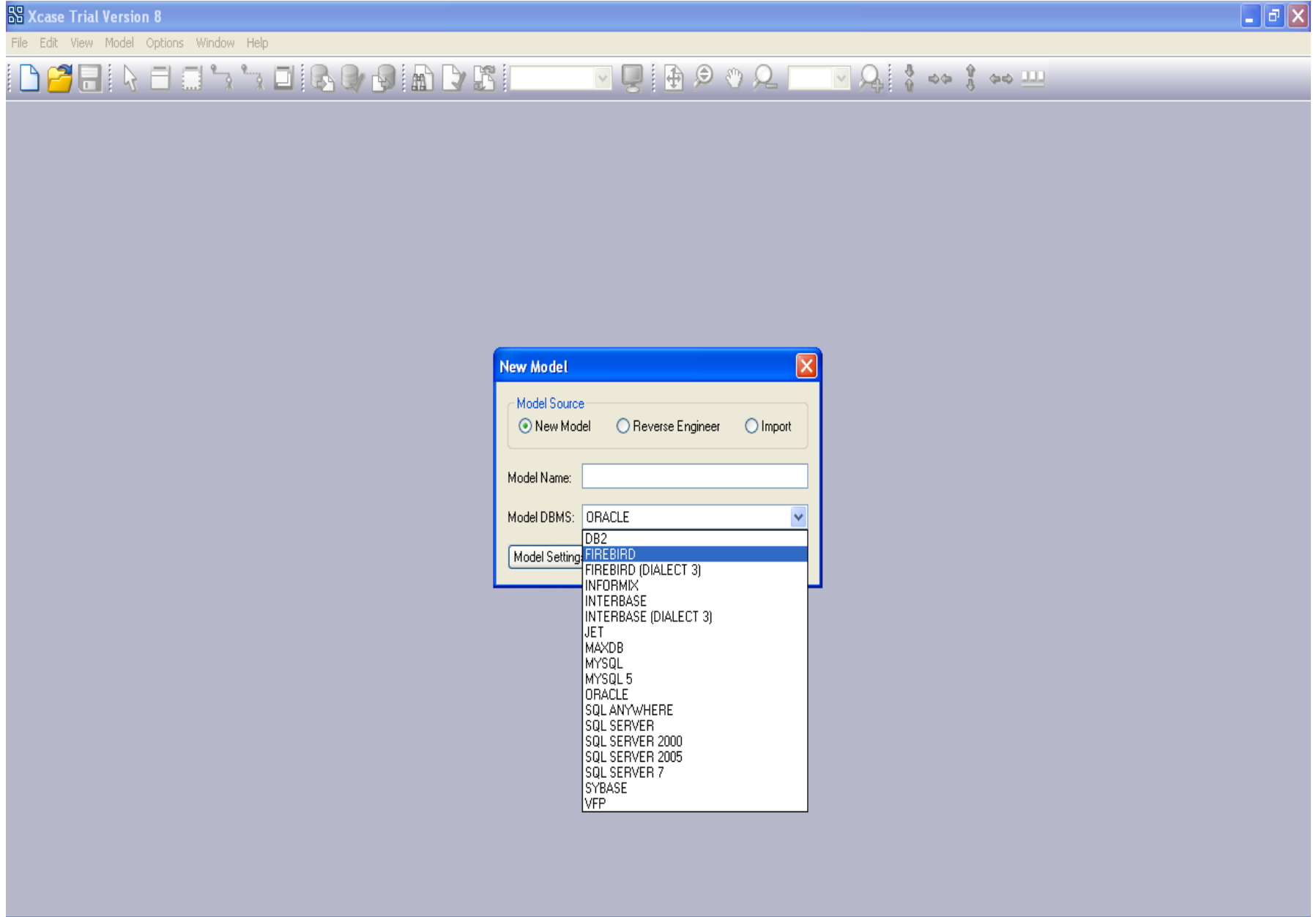
The right-hand panel shows the properties for the selected **Product** class:

Class	
Name	Product
Class attributes	
product-number	
title	
unit-price	
description	
Class appearance	
Width	default
Height	default
z	600
v	104

The bottom panel shows the project structure:

- Project1
 - Abstract Diagrams
 - AbstractDiagram1
 - Specific Diagrams
 - Generated XMI

Modeli DBMS disponibili in XCase



Screenshots ale instrumentului XCase - continuare

The screenshot displays the XCase Editor interface with several key components:

- UML Class Diagram:** Shows a class named **Class1** with properties `Property1`, `Property2` and operations `Operation1()`, `Operation2()`. A note box above it says "This is a class no. 2". A line connects **Class1** to another class, **Class2**.
- Properties Window:** A floating window titled "Properties" showing details for **Class2**.

Class	
Name	Class2
Class attributes	
Property1	
Property2	
Class operations	
Width	183.12
Height	173.18
x	75
y	107
- File Explorer:** A window titled "Uchit_jan" showing a file system view with folders like "Kata" and "Vizajul" and files like "Pozitel" and "lit".
- Navigator:** A window titled "Navigator" showing a tree view of the project structure, including "Model Classes" and "Nested Packages".

XCase - Data Dictionary Manager

Xcase Trial Version 8 - [Data Dictionary Globals]

File Edit View Model Options Window Help

Globals Entities Indexes Fields Relationships Sub-categories Views View Columns Connections Alternate Keys Triggers Constraints Procedures / Functions Rules / Defaults Table Space / Storage Sequences Entities

#	Category	Name	Title	Type	Len	Dec	Default	Values
1	Internal	DBMS	DBMS	Char	30			
2	Mandatory	ACCESSINI	Access INI file	Char	100			
3	Mandatory	B_SCRIPT	Beginning Script	Memo	10			
4	Mandatory	COLLATING	Collating Order	Char	4		General	1025 Arabic 1049 Russian 1029 Czech 1043 Dutch 1033 General 1032 Greek 1037 Hebrew 1038 Hungarian 1039 Cela
5	Mandatory	CONNECT	Connection	Memo (One Lin	10			
6	Mandatory	DBCX	Use DBCX	Logical	1		F	F No T Yes
7	Mandatory	DB_FILE	MDB File	Char	100			
8	Mandatory	DEL_C_CODE	On Delete Cascade	Logical	1		Yes	F No T Yes
9	Mandatory	DEL_D_CODE	On Delete Set Default	Logical	1		Yes	F No T Yes
10	Mandatory	DEL_R_CODE	On Delete Restrict	Logical	1		Yes	F No T Yes
11	Mandatory	DEL_S_CODE	On Delete Set Null	Logical	1		Yes	F No T Yes
12	Mandatory	DESIGNER	Designer	Char	30			
13	Mandatory	EXEC_DISC	Drop Temporary	Logical	1		Yes	F No T Yes
14	Mandatory	E_INTEGRIT	Model Integrity Errors	Logical	1		No	F No T Yes
15	Mandatory	E_SCRIPT	End Script	Memo	10			
16	Mandatory	FRGN_CODE	Define FK	Logical	1		No	F No T Yes
17	Mandatory	FRGN_INDEX	Foreign Indexes	Logical	1		No	F No T Yes
18	Mandatory	INDEX_TYPE	Index Format	Char	8		CDX	CDX CDX IDX IDX
19	Mandatory	JETVERSION	Jet Version	Char	10		Version 3.0	32 Version 3.0 4 Version 4.0

Long Description

The DBMS of the Model.

Attribute Number

XCase- Data Dictionary Attributes

Data Dictionary Attributes (ALL DBMS)

1 of 51 Total:880 100% 880 of 951

Preview

DDM.rpt

- A) Model
- B) Domain
- C) Entity
- D) Field
- E) Index
- F) Index El
- G) Relation
- H) Foreign
- I) Alternate
- J) Trigger
- K) Check C
- L) View
- M) View El
- N) Stored F
- O) Rule & C
- P) Connect
- Q) Table S

Data Dictionary Attributes (ALL DBMS)

A) Model

C	Name	Title	T	Len	Description
I	DBMS	DBMS	C	30	The DBMS of the Model.
I	I_DBCDEF	Default DBC	N	5	
I	I_VIEWSDBC	Views DBC	N	5	
I	MODEL_NAME	Model Name	C	30	The name of the Model.
I	P_MODEL	Copied From Model	C	10	The DBMS of the Model, this Model was copied from.
I	VERSION	Version	N	4	A number which identifies the current Version of the Model under development. It is incremented automatically each time you save, if modifications were made since the last "Save".
M	ACCESSINI	Access INI file	C	100	JET Attribute Full path and name of the Access INI file
M	AUTO_P_KEY	Flag PK as KEY_FIELD	L	1	
M	B_SCRIPT	Beginning Script	M		Beginning Script
M	CASE_SENS	Case Sensitive	L	1	SQL SERVER & SYBASE Attribute. Yes if the database is set as Case Sensitive.
M	CHK_AK	Check Alternate Key Constraints	L	1	
M	CHK_CHECK	Check Check Constraints	L	1	
M	CHK_DETAIL	Report Data Integrity Detail	L	1	
M	CHK_ENUM	Check Enumerated Constraints	L	1	
M	CHK_INDEX	Check Unique Indexes Constraints	L	1	
M	CHK_M_CLD	Check Mandatory Children	L	1	
M	CHK_NULL	Check Null Constraints	L	1	
M	CHK_ORPHAN	Check Orphans	L	1	
M	CHK_PK	Check Primary Key Constraints	L	1	
M	CHK_TITLE	Display Titles when Checking Integrity	L	1	

Screenshots ale instrumentului XCase - continuare

The screenshot displays the XCase Trial Version 8 interface. The main window title is "Xcase Trial Version 8 - [Data Dictionary Globals]". The menu bar includes File, Edit, View, Model, Options, Window, and Help. The toolbar contains various icons for file operations and navigation. Below the toolbar, there are tabs for "Globals", "Entities", "Indexes", "Fields", "Relationships", "Sub-categories", "Views", "View Columns", "Connections", "Alternate Keys", "Triggers", "Constraints", "Procedures / Functions", "Rules / Defaults", "Table Space / Storage", "Sequences", and "Entities". The "Globals" tab is active, showing a table with the following data:

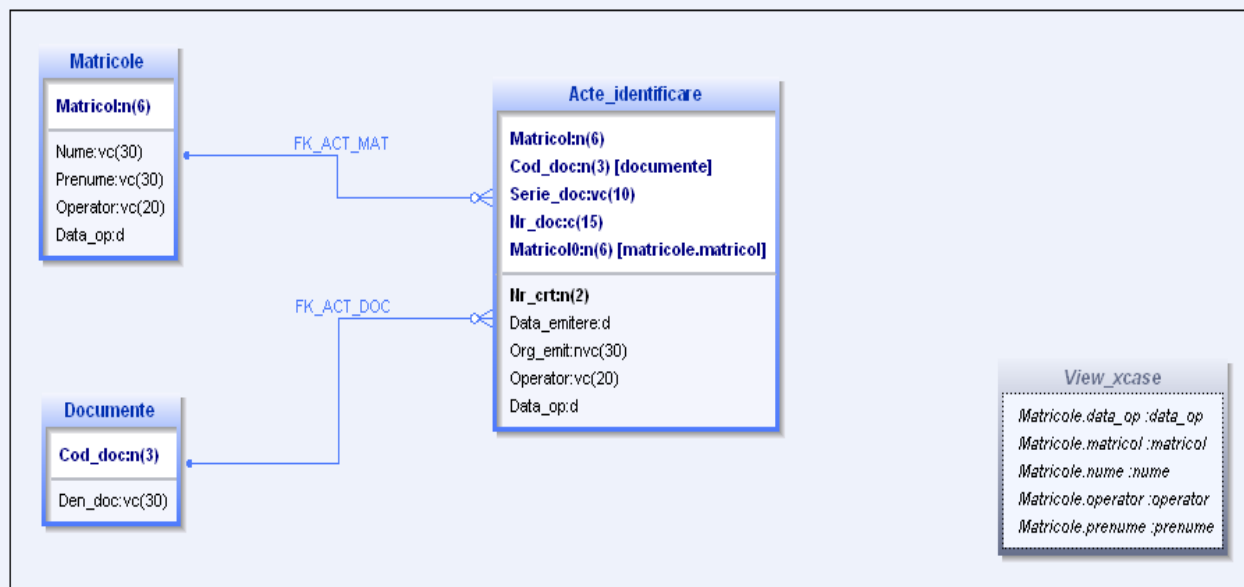
#	Category	Name	Title	Type	Len	Dec	Default	Values
1	Internal	DBMS	DBMS	Char	30			
2	Mandatory	ACCESSINI	Access INI file	Char	100			
3	Mandatory	B_SCRIPT	Beginning Script	Memo	10			
4	Mandatory	COLLATING	Collating Order	Char	4		General	1025 Arabic 1049 Russian 1029 Czech 1043 Dutch 1033 General 1032 Greek 1037 Hebrew 1038 Hungarian 1039 Cela
5	Mandatory	CONNECT	Connection	Memo (One Lin	10			
6	Mandatory	DBCX	Use DBCX	Logical	1		F	F No T Yes
7	Mandatory	DB_FILE	MDB File	Char	100			
8	Mandatory	DEL_C_CODE	On Delete Cascade	Logical	1		Yes	F No T Yes
9	Mandatory	DEL_D_CODE	On Delete Set Default	Logical	1		Yes	F No T Yes
10	Mandatory	DEL_R_CODE	On Delete Restrict	Logical	1		Yes	F No T Yes
11	Mandatory	DEL_S_CODE	On Delete Set Null	Logical	1		Yes	F No T Yes
12	Mandatory	DESIGNER	Designer	Char	30			
13	Mandatory	EXEC_DISC	Drop Temporary	Logical	1		Yes	F No T Yes
14	Mandatory	E_INTEGRIT	Model Integrity Errors	Logical	1		No	F No T Yes
15	Mandatory	E_SCRIPT	End Script	Memo	10			
16	Mandatory	FRGN_CODE	Define FK	Logical	1		No	F No T Yes
17	Mandatory	FRGN_INDEX	Foreign Indexes	Logical	1		No	F No T Yes
18	Mandatory	INDEX_TYPE	Index Format	Char	8		CDX	CDX CDX IDX IDX
19	Mandatory	JETVERSION	Jet Version	Char	10		Version 3.0	32 Version 3.0 4 Version 4.0

Below the table, there is a "Long Description" section with the text: "The DBMS of the Model."

At the bottom left of the window, the text "Attribute Number" is visible.

Diagrama entitate-asociere in XCase

ex1_diagram - Windows Picture and Fax Viewer



Script XCase generat pentru un SGDB Oracle – creare tabel

- **CREATE TABLE matricole**
- **(matricol NUMBER(6) NOT NULL ,**
- **nume VARCHAR2(30) NULL ,**
- **prenume VARCHAR2(30) NULL ,**
- **operator VARCHAR2(20) NULL ,**
- **data_op DATE NULL ,**
- **CONSTRAINT PK_matricole PRIMARY KEY (matricol) NOT DEFERRABLE Initially IMMEDIATE**
- **USING INDEX**
- **PCTFREE 10**
- **INITRANS 2**
- **MAXTRANS 255**
- **STORAGE**
- **(INITIAL 64K**
- **NEXT 0K**
- **MINEXTENTS 1**
- **MAXEXTENTS 2147483645**
- **PCTINCREASE 0))**
- **PCTFREE 10**
- **PCTUSED 40**
- **INITRANS 1**
- **MAXTRANS 255**
- **STORAGE**
- **(INITIAL 64K**
- **NEXT 0K**
- **MINEXTENTS 1**
- **MAXEXTENTS 2147483645**
- **PCTINCREASE 0)**

Script XCase generat pentru un SGDB Oracle – creare tabel

- CREATE TABLE ACTE_IDENTIFICARE
- (matricol NUMBER(6) NOT NULL ,
- cod_doc NUMBER(3) NOT NULL ,
- nr_crt NUMBER(2) NOT NULL ,
- serie_doc VARCHAR2(10) NOT NULL ,
- nr_doc CHAR(15) NOT NULL ,
- data_emitere DATE NULL ,
- org_emit NVARCHAR2(30) NULL ,
- operator VARCHAR2(20) NULL ,
- data_op DATE NULL ,
- matricol0 NUMBER(6) NOT NULL ,
- CONSTRAINT PK_acte_identificare PRIMARY KEY (matricol0,matricol,cod_doc,serie_doc,nr_doc) NOT DEFERRABLE Initially IMMEDIATE
- USING INDEX
- PCTFREE 10
- INITRANS 2
- MAXTRANS 255
- STORAGE
- (INITIAL 64K
- NEXT 0K
- MINEXTENTS 1
- MAXEXTENTS 2147483645
- PCTINCREASE 0))
- PCTFREE 10
- PCTUSED 40
- INITRANS 1
- MAXTRANS 255
- STORAGE
- (INITIAL 64K
- NEXT 0K
- MINEXTENTS 1
- MAXEXTENTS 2147483645
- PCTINCREASE 0)

Script XCase generat pentru un SGDB Oracle – creare view si definire chei externe

- CREATE OR REPLACE FORCE VIEW v_angajati
- AS SELECT ALL dep.den_dep , ang.data_ang , ang.salariu , ang.ume
- FROM ang ang , dep dep
- WHERE data_ang>'1-1-2000' and salariu>500 and ang.id_dep=dep.id_dep

- ALTER TABLE acte_identificare ADD
- (
 - CONSTRAINT FK_ACT_MAT FOREIGN KEY
 - (matricol0)
 - REFERENCES matricole
 - (matricol)
 - NOT DEFERRABLE Initially IMMEDIATE
-)

- ALTER TABLE acte_identificare ADD
- (
 - CONSTRAINT FK_ACT_DOC FOREIGN KEY
 - (cod_doc)
 - REFERENCES documente
 - (cod_doc)
 - NOT DEFERRABLE Initially IMMEDIATE
-)

Script XCase generat pentru un SGDB Oracle – creare procedura

- CREATE OR REPLACE CREATE OR REPLACE PROCEDURE Proc_xcase IS
- m NUMBER;
- min_d NUMBER;
- contor NUMBER;
- departament dept.dname%TYPE;
- BEGIN
- contor:=0;
- select min(avg(sal+nvl(comm,0))) INTO m from emp group by deptno;

- FOR a in (select deptno from dept)
- LOOP
- min_d:=determina_min(a.deptno);
- IF min_d = m
- THEN
- FOR j in (select empno,ename,sal,comm,hiredate,deptno from emp where deptno = a.deptno order by (sal+nvl(comm,0)),hiredate)
- LOOP
- contor:=contor+1;
- IF contor < 3
- then
- select dname into departament from dept where j.deptno = deptno;
- insert into temp(ename,sal,hiredate,dep_name)
- VALUES(j.ename,j.sal+NVL(j.comm,0),j.hiredate,departament);
- end if;
- END LOOP;
- END if;
- END LOOP;
- COMMIT;
- END;

Script XCase generat pentru un SGDB Oracle – creare trigger

- CREATE OR REPLACE CREATE OR REPLACE CREATE OR REPLACE TRIGGER DEL_ANGAJATI
- After Delete ON angajati
- REFERENCING NEW AS NEW OLD AS OLD
- FOR EACH ROW
- DECLARE
- useru VARCHAR2(20);
- tip VARCHAR2(10);
- valold NUMBER(7,2);
- valnew NUMBER(7,2);
- orah NUMBER;
- minm NUMBER;
- numar NUMBER;
- begin
- select user into useru from dual;
- orah := trunc((sysdate - trunc(sysdate)) * 24);
- SELECT TO_NUMBER(TO_CHAR (SYSDATE,'mi')) into minm FROM SYS.DUAL;
- if deleting
- then tip:= 'delete';
- valold := :old.sal;
- valnew := NULL;
- numar := :old.empno;
- end if;
- insert into logemp values(useru, tip, sysdate,orah, minm, valold, valnew,numar);
- end;