

Creearea bazei de date:

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-- site: Oracle Database 11g

-- type: Oracle Database 11g

-- predefined type, no DDL - MDSYS.SDO_GEOMETRY

-- predefined type, no DDL - XMLTYPE

CREATE TABLE angajati (

id_angajat NUMBER NOT NULL,

nume VARCHAR2(20) NOT NULL,

ore_lucrate FLOAT(2) NOT NULL,

bonus_bani NUMBER(10)

)

LOGGING;

ALTER TABLE angajati

ADD CONSTRAINT angajati_num_ck CHECK (length(num_ame) > 1);

ALTER TABLE angajati

ADD CONSTRAINT angajati_ore_lucrate_ck CHECK (length(ore_lucrate) >= 0);

ALTER TABLE angajati ADD CONSTRAINT bonus_bani_ck CHECK (bonus_bani >= 0);

ALTER TABLE angajati ADD CONSTRAINT angajati_pk PRIMARY KEY (id_angajat);

CREATE TABLE boxe (

id_boxa NUMBER NOT NULL,

lungime NUMBER(2),

latime NUMBER(2)

)

LOGGING;

ALTER TABLE boxe ADD CONSTRAINT lung_ck CHECK (lungime > 0);

ALTER TABLE boxe ADD CONSTRAINT latime_ck CHECK (latime > 0);

ALTER TABLE boxe ADD CONSTRAINT boxe_pk PRIMARY KEY (id_boxa);

```

CREATE TABLE clienti (
    birthdate DATE NOT NULL,
    oras VARCHAR2(10) NOT NULL,
    nume_client VARCHAR2(30) NOT NULL,
    id_client NUMBER NOT NULL
)
LOGGING;

ALTER TABLE clienti
    ADD CONSTRAINT birthdate_ck CHECK ( birthdate > TO_DATE('1 JAN 1950', 'DD MON YYYY') );

ALTER TABLE clienti
    ADD CONSTRAINT ac_oras_ck CHECK ( length(oras) > 2 );

ALTER TABLE clienti
    ADD CONSTRAINT nume_cl_ck CHECK ( length(nume_client) > 1 );

ALTER TABLE clienti ADD CONSTRAINT an_clie_pk PRIMARY KEY ( id_client );

CREATE TABLE list_servicii (
    id_serviciu NUMBER NOT NULL,
    nume_serviciu VARCHAR2(30) NOT NULL,
    clasa VARCHAR2(2) NOT NULL,
    durata FLOAT NOT NULL,
    pret NUMBER(4) NOT NULL
)
LOGGING;

ALTER TABLE list_servicii
    ADD CONSTRAINT nume_serv_ck CHECK ( nume_serviciu IN ( 'detailing interior', 'detailing motor',
'detailing exterior' ) );

ALTER TABLE list_servicii
    ADD CONSTRAINT clasa_list_ck CHECK ( clasa IN ( 'A', 'B', 'C', 'D' ) );

ALTER TABLE list_servicii
    ADD CONSTRAINT durata_ck CHECK ( durata BETWEEN 0 AND 8 );

```

```

ALTER TABLE list_servicii ADD CONSTRAINT pret_ck CHECK ( pret > 0 );

ALTER TABLE list_servicii ADD CONSTRAINT list_servicii_pk PRIMARY KEY ( id_serviciu );

CREATE TABLE programari (
    id_prog    NUMBER NOT NULL,
    data       DATE NOT NULL,
    ora        FLOAT NOT NULL,
    id_client  NUMBER NOT NULL,
    id_serviciu NUMBER NOT NULL,
    id_boxa    NUMBER NOT NULL,
    id_angajat NUMBER NOT NULL
)

LOGGING;

ALTER TABLE programari
    ADD CONSTRAINT programari_ora_ck CHECK ( ora BETWEEN 0 AND 24 );

ALTER TABLE programari ADD CONSTRAINT programari_pk PRIMARY KEY ( id_prog );

ALTER TABLE programari ADD CONSTRAINT prog_dob UNIQUE ( data,
                                     ora );

CREATE TABLE salar (
    id_angajat NUMBER NOT NULL,
    salar       NUMBER(20) NOT NULL,
    bonus       NUMBER(10),
    total       NUMBER(30) NOT NULL
)

LOGGING;

ALTER TABLE salar ADD CONSTRAINT salar_sal_ck CHECK ( salar > 1000 );

ALTER TABLE salar ADD CONSTRAINT bonus_ck CHECK ( bonus >= 0 );

ALTER TABLE salar ADD CONSTRAINT total_ck CHECK ( total > 1000 );

ALTER TABLE salar ADD CONSTRAINT bani_pe_luna_pk PRIMARY KEY ( id_angajat );

```

```
ALTER TABLE programari
```

```
ADD CONSTRAINT angajati_programari_fk FOREIGN KEY ( id_angajat )
```

```
REFERENCES angajati ( id_angajat )
```

```
NOT DEFERRABLE;
```

```
ALTER TABLE programari
```

```
ADD CONSTRAINT boxe_programari_fk FOREIGN KEY ( id_boxa )
```

```
REFERENCES boxe ( id_boxa )
```

```
NOT DEFERRABLE;
```

```
ALTER TABLE programari
```

```
ADD CONSTRAINT clienti_programari_fk FOREIGN KEY ( id_client )
```

```
REFERENCES clienti ( id_client )
```

```
NOT DEFERRABLE;
```

```
ALTER TABLE salar
```

```
ADD CONSTRAINT salar_angajati_fk FOREIGN KEY ( id_angajat )
```

```
REFERENCES angajati ( id_angajat )
```

```
NOT DEFERRABLE;
```

```
ALTER TABLE programari
```

```
ADD CONSTRAINT servicii_programari_fk FOREIGN KEY ( id_serviciu )
```

```
REFERENCES list_servicii ( id_serviciu )
```

```
NOT DEFERRABLE;
```

```
CREATE OR REPLACE TRIGGER Trg1
```

```
BEFORE INSERT OR UPDATE ON Programari
```

```
FOR EACH ROW
```

```
BEGIN
```

```
IF( :new.data < SYSDATE )
```

```
THEN
```

```
RAISE_APPLICATION_ERROR( -20001,
```

```
'Data invalida: ' || TO_CHAR( :new.data, 'DD.MM.YYYY' ) || ' trebuie sa fie mai mare decat data  
curenta.' );
```

END IF;

END;

/

CREATE SEQUENCE angajati_id_angajat_seq START WITH 1 NOCACHE ORDER;

CREATE OR REPLACE TRIGGER angajati_id_angajat_trg BEFORE

INSERT ON angajati

FOR EACH ROW

WHEN (new.id_angajat IS NULL)

BEGIN

:new.id_angajat := angajati_id_angajat_seq.nextval;

END;

/

CREATE SEQUENCE boxe_id_boxa_seq START WITH 1 NOCACHE ORDER;

CREATE OR REPLACE TRIGGER boxe_id_boxa_trg BEFORE

INSERT ON boxe

FOR EACH ROW

WHEN (new.id_boxa IS NULL)

BEGIN

:new.id_boxa := boxe_id_boxa_seq.nextval;

END;

/

CREATE SEQUENCE clienti_id_client_seq START WITH 1 NOCACHE ORDER;

```

CREATE OR REPLACE TRIGGER clienti_id_client_trg BEFORE
    INSERT ON clienti
    FOR EACH ROW
    WHEN ( new.id_client IS NULL )
BEGIN
    :new.id_client := clienti_id_client_seq.nextval;
END;
/

CREATE SEQUENCE list_servicii_id_serviciu_seq START WITH 1 NOCACHE ORDER;
CREATE OR REPLACE TRIGGER list_servicii_id_serviciu_trg BEFORE
    INSERT ON list_servicii
    FOR EACH ROW
    WHEN ( new.id_serviciu IS NULL )
BEGIN
    :new.id_serviciu := list_servicii_id_serviciu_seq.nextval;
END;
/

CREATE SEQUENCE programari_id_prog_seq START WITH 1 NOCACHE ORDER;
CREATE OR REPLACE TRIGGER programari_id_prog_trg BEFORE
    INSERT ON programari
    FOR EACH ROW
    WHEN ( new.id_prog IS NULL )
BEGIN
    :new.id_prog := programari_id_prog_seq.nextval;
END;
/

```

-- Oracle SQL Developer Data Modeler Summary Report:

--

-- CREATE TABLE	6	
-- CREATE INDEX	0	
-- ALTER TABLE	28	
-- CREATE VIEW	0	
-- ALTER VIEW	0	
-- CREATE PACKAGE	0	
-- CREATE PACKAGE BODY	0	
-- CREATE PROCEDURE	0	
-- CREATE FUNCTION	0	
-- CREATE TRIGGER	6	
-- ALTER TRIGGER	0	
-- CREATE COLLECTION TYPE	0	
-- CREATE STRUCTURED TYPE	0	
-- CREATE STRUCTURED TYPE BODY	0	0
-- CREATE CLUSTER	0	
-- CREATE CONTEXT	0	
-- CREATE DATABASE	0	
-- CREATE DIMENSION	0	
-- CREATE DIRECTORY	0	
-- CREATE DISK GROUP	0	
-- CREATE ROLE	0	
-- CREATE ROLLBACK SEGMENT	0	0
-- CREATE SEQUENCE	5	
-- CREATE MATERIALIZED VIEW	0	
-- CREATE MATERIALIZED VIEW LOG	0	0
-- CREATE SYNONYM	0	

```
-- CREATE TABLESPACE          0
-- CREATE USER                  0
--
-- DROP TABLESPACE             0
-- DROP DATABASE                0
--
-- REDACTION POLICY             0
--
-- ORDS DROP SCHEMA             0
-- ORDS ENABLE SCHEMA           0
-- ORDS ENABLE OBJECT           0
--
-- ERRORS                       0
-- WARNINGS                     0
```

Inserare in baza de date:

```
INSERT INTO BOXE(lungime,latime) VALUES(3,2);
INSERT INTO BOXE(lungime,latime) VALUES(3,3);
INSERT INTO BOXE(lungime,latime) VALUES(1,2);
INSERT INTO BOXE(lungime,latime) VALUES(4,2);
INSERT INTO BOXE(lungime,latime) VALUES(5,1);
INSERT INTO BOXE(lungime,latime) VALUES(2,2);
INSERT INTO BOXE(lungime,latime) VALUES(1,2);
```

```
select * from boxe;
```



```
INSERT INTO ANGAJATI(ume,ore_lucrate,bonus_bani) VALUES('Ionel',0,0);
INSERT INTO ANGAJATI(ume,ore_lucrate,bonus_bani) VALUES('David',0,0);
INSERT INTO ANGAJATI(ume,ore_lucrate,bonus_bani) VALUES('Andrei',0,0);
INSERT INTO ANGAJATI(ume,ore_lucrate,bonus_bani) VALUES('Gabriel',0,0);
INSERT INTO ANGAJATI(ume,ore_lucrate,bonus_bani) VALUES('Ioana',0,0);
INSERT INTO ANGAJATI(ume,ore_lucrate,bonus_bani) VALUES('Delia',0,0);
INSERT INTO ANGAJATI(ume,ore_lucrate,bonus_bani) VALUES('Cosmin',0,0);
```

```
select * from angajati;
```

```
INSERT INTO SALAR values (1,1001,0,1500);
INSERT INTO SALAR values (2,1001,0,1700);
INSERT INTO SALAR values (3,1001,0,1200);
INSERT INTO SALAR values (4,1001,0,1100);
INSERT INTO SALAR values (5,1001,0,1900);
INSERT INTO SALAR values (6,1001,0,1900);
```

```
select * from salar;
```

```
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing interior','A',3,300);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing interior','B',3.5,350);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing interior','C',4,400);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing interior','D',4.5,450);
```

```
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing exterior','A',4,400);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing exterior','B',4.5,450);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing exterior','C',5,500);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing exterior','D',5.5,550);
```

```
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing motor','A',1,100);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing motor','B',1.5,125);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing motor','C',2,150);
INSERT INTO LIST_SERVICII(ume_serviciu,clasa,durata,pret) VALUES('detailing motor','D',3,300);
```

```
select * from list_servicii;
```

```
INSERT INTO CLIENTI(birthdate,oras,nume_client) VALUES(TO_DATE('24/11/2012','DD/MM/YYYY'),'IASI','Geani');  
INSERT INTO CLIENTI(birthdate,oras,nume_client) VALUES(TO_DATE('24/11/2012','DD/MM/YYYY'),'BUC','Alex');  
INSERT INTO CLIENTI(birthdate,oras,nume_client) VALUES(TO_DATE('26/11/2012','DD/MM/YYYY'),'BRASOV','Calu');  
INSERT INTO CLIENTI(birthdate,oras,nume_client) VALUES(TO_DATE('26/11/2000','DD/MM/YYYY'),'GALATI','Daria');  
INSERT INTO CLIENTI(birthdate,oras,nume_client) VALUES(TO_DATE('28/11/2000','DD/MM/YYYY'),'VASLUI','Anastasia');
```

```
select * from clienti;
```

```
INSERT INTO programari(data,ora,id_client,id_serviciu,id_boxa,ID_ANGAJAT)  
VALUES(TO_DATE('24/11/2022','DD/MM/YYYY'),14.5,1,1,1,1);  
INSERT INTO programari(data,ora,id_client,id_serviciu,id_boxa,ID_ANGAJAT)  
VALUES(TO_DATE('24/11/2022','DD/MM/YYYY'),15.5,3,2,1,2);  
INSERT INTO programari(data,ora,id_client,id_serviciu,id_boxa,ID_ANGAJAT)  
VALUES(TO_DATE('26/11/2022','DD/MM/YYYY'),14.5,2,3,2,3);  
INSERT INTO programari(data,ora,id_client,id_serviciu,id_boxa,ID_ANGAJAT)  
VALUES(TO_DATE('26/11/2022','DD/MM/YYYY'),15.5,4,4,3,4);  
INSERT INTO programari(data,ora,id_client,id_serviciu,id_boxa,ID_ANGAJAT)  
VALUES(TO_DATE('28/11/2022','DD/MM/YYYY'),15.5,5,5,4,5);
```

```
select * from programari;
```

Verificare constrangeri:

Verificare in Programari

/* Daca data ora si boxa sunt diferita

unique constraint (BD043.PROG_DOB) violated

*/

```
INSERT          INTO          programari(data,ora,nume,id_client,id_serviciu,id_boxa,ID_ANGAJAT)
VALUES(TO_DATE('28/11/2022','DD/MM/YYYY'),15.5,5,5,2,5);
```

/*Data trebuie sa fie mai mare ca data curenta

ORA-04088: error during execution of trigger 'BD043.TRG1'

*/

```
INSERT          INTO          programari(data,ora,nume,id_client,id_serviciu,id_boxa,ID_ANGAJAT)
VALUES(TO_DATE('28/11/2012','DD/MM/YYYY'),15.5,5,5,2,5);
```

/*Ora intre 0 si 24

ORA-02290: check constraint (BD043.PROGRAMARI_ORA_CK) violated

*/

```
INSERT          INTO          programari(data,ora,nume,id_client,id_serviciu,id_boxa,ID_ANGAJAT)
VALUES(TO_DATE('28/11/2023','DD/MM/YYYY'),-2,5,5,2,5);
```

Verificare in Clienti

/*Sa fie nascut macar pe 1 jan 1950

ORA-02290: check constraint (BD043.BIRTHDATE_CK) violated

*/

```
INSERT          INTO          CLIENTI(birthdate,oras,nume_client)
VALUES(TO_DATE('24/11/1949','DD/MM/YYYY'),'IASI','Geani');
```

/*Oras macar 2 litere

ORA-02290: check constraint (BD043.AC_ORAS_CK) violated

*/

```
INSERT INTO CLIENTI(birthdate,oras,nume_client) VALUES(TO_DATE('24/11/2000','DD/MM/YYYY'),'I','Geani');
```

```
/*Nume mai lung ca 1
```

```
ORA-02290: check constraint (BD043.NUME_CL_CK) violated
```

```
*/
```

```
INSERT INTO CLIENTI(birthdate,oras,nume_client) VALUES(TO_DATE('24/11/1950','DD/MM/YYYY'),'IASI','G');
```

```
/*verificare stergere cont ORA-02292: integrity constraint (BD043.CLIENTI_PROGRAMARI_FK) violated - child record found */
```

```
DELETE FROM CLIENTI WHERE ID_client=1;
```

Verificare in Boxe

```
/*Lungime pozitiva
```

```
ORA-02290: check constraint (BD043.LUNG_CK) violated
```

```
*/
```

```
INSERT INTO BOXE(lungime,latime) VALUES(-1,2);
```

```
/*Latime pozitiva ORA-02290: check constraint (BD043.LATIME_CK) violated
```

```
*/
```

```
INSERT INTO BOXE(lungime,latime) VALUES(6,-1);
```

```
/*Verificare stergere
```

```
ORA-02292: integrity constraint (BD043.BOXE_PROGRAMARI_FK) violated - child record found
```

```
*/
```

```
DELETE FROM BOXE where ID_BOXA = 1;
```

Verificare in List_Servicii

```
/*Nume sa fie in lista
```

```
ORA-02290: check constraint (BD043.NUME_SERV_CK) violated
```

```
*/
```

```
INSERT INTO LIST_SERVICII(num_serviciu,clasa,durata,pret) VALUES('spalare geam','D',4.5,450);
```

```
/*clasa sa fie a b c sau d
```

```
ORA-02290: check constraint (BD043.CLASA_LIST_CK) violated
```

```
*/
```

```
INSERT INTO LIST_SERVICII(nume_serviciu,clasa,durata,pret) VALUES('detailing interior','E',4.5,450);
```

```
/*durata unui serviciu intre 0 si 8 ore
```

```
ORA-02290: check constraint (BD043.DURATA_CK) violated
```

```
*/
```

```
INSERT INTO LIST_SERVICII(nume_serviciu,clasa,durata,pret) VALUES('detailing interior','D',-4,450);
```

```
/*pret pozitiv
```

```
ORA-02290: check constraint (BD043.PRET_CK) violated
```

```
*/
```

```
INSERT INTO LIST_SERVICII(nume_serviciu,clasa,durata,pret) VALUES('detailing interior','D',2,-9);
```

```
/*Verificare stergere
```

```
ORA-02292: integrity constraint (BD043.SERVICII_PROGRAMARI_FK) violated - child record found
```

```
*/
```

```
DELETE FROM LIST_SERVICII WHERE ID_serviciu =1;
```

Verificare in Angajati

```
/*nume invalid
```

```
ORA-02290: check constraint (BD043.ANGAJATI_NUME_CK) violated
```

```
*/
```

```
INSERT INTO ANGAJATI(nume,ore_lucrate,bonus_bani) VALUES('I',0,0);
```

```
/*bonus bani >= 0
```

```
ORA-02290: check constraint (BD043.BONUS_BANI_CK) violated
```

```
*/
```

```
INSERT INTO ANGAJATI(nume,ore_lucrate,bonus_bani) VALUES('IA',-1,-1);
```

```
/*Verificare Stergere
```

```
ORA-02292: integrity constraint (BD043.ANGAJATI_PROGRAMARI_FK) violated - child record found
```

```
*/
```

```
DELETE FROM ANGAJATI WHERE nume = 'Ionel';
```

Verificare in Salar

/*total mai mic ca 1000

ORA-02290: check constraint (BD043.TOTAL_CK) violated

*/

INSERT INTO SALAR values (1,1001,1,900);

/*salar mai mic ca 1000

ORA-02290: check constraint (BD043.SALAR_SAL_CK) violated

*/

INSERT INTO SALAR values (1,001,1,1900);

/*bonus negativ

ORA-02290: check constraint (BD043.BONUS_CK) violated

*/

INSERT INTO SALAR values (1,1001,-1,10000);

Interogarea bazei de date:

/*RESETARE LA ORE LUCRATE SI BONUS BANI (pentru inceput de luna)*/

UPDATE ANGAJATI SET ore_lucrate=0, bonus_bani=0;

/*Dupa o renovare se schimba dimensiunile unor boxe, de exemplu boxa nr1*/

UPDATE BOXE SET lungime = 6, latime = 5 WHERE ID_BOXA = 1;

/*Angajatul cu id-ul 1 primeste o marire de 25%*/

UPDATE salar SET salar=salar*1.25 WHERE ID_ANGAJAT=1;

/*Se sterge o programare cu id-ul 1*/

DELETE FROM PROGRAMARI WHERE ID_PROG = 1;

/*Se modifica boxa la care se face programarea pt programarea cu id-ul 2*/

UPDATE programari SET ID_BOXA=7 where id_prog =2;

/*cum se calculeaza salarul total pentru angajatul cu id-ul 2*/

```
UPDATE SALAR SET TOTAL = (SELECT SALAR+BONUS from salar where id_angajat=2) where id_angajat=2;
```

```
/*Cate programari au fost facute in total*/
```

```
SELECT max(id_prog) total_prog FROM PROGRAMARI;
```

```
/*cat costa serviciul facut de clientul 2*/
```

```
SELECT pret from list_servicii ls,programari p where p.id_client = 2 and p.id_serviciu=ls.id_serviciu;
```

```
/*ce angajat a lucrat cele mai multe ore*/
```

```
SELECT nume,ore_lucrate FROM angajati WHERE ore_lucrate=(SELECT MAX(ore_lucrate) FROM angajati);
```