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Bài tập thực hành

**5.1 Ordinary Relations and Object Relations**

CREATE TABLE people (ID number PRIMARY KEY, name VARCHAR2(30), phone VARCHAR2(20));

INSERT into people VALUES (0, 'Smith', '546-4364');

INSERT into people VALUES (1, 'Miller', '556-4374');

INSERT into people VALUES (2, 'Jones', '536-4386');

CREATE TYPE phone\_nested AS TABLE OF VARCHAR2(12);

CREATE TYPE people\_type AS OBJECT (person\_ID number, name VARCHAR2(30), phone\_list phone\_nested);

CREATE TABLE people\_object\_table OF people\_type

NESTED TABLE phone\_list STORE AS p\_table;

INSERT INTO people\_object\_table

SELECT ID, name, phone\_nested(phone) FROM people;

CREATE VIEW people\_object\_view OF people\_type WITH OBJECT IDENTIFIER (person\_ID) AS

SELECT ID, name, phone\_nested(phone) AS phone\_list from people;

Exercises 29: Create a relational table "department", which has columns dno, dname, dstreet, dstreetnumber, dcity and dpostalcode. Create a type for the address information (or use the address type from previous exercises). Create a type "dept\_type" with columns deptno, deptname and deptaddress. Create an object view dept\_view that views the data from the relational table.

CREATE TABLE department(dno NUMBER PRIMARY KEY, dname VARCHAR2(20), dstreet VARCHAR2(30), dstreetnumber VARCHAR2(20), dcity VARCHAR2(30), dpostalcode VARCHAR2(8));/

CREATE OR REPLACE TYPE address\_typ AS OBJECT (dstreet VARCHAR2(30), dstreetnumber VARCHAR2(20), dcity VARCHAR2(30), dpostalcode VARCHAR2(8));/

CREATE OR REPLACE TYPE dept\_type AS OBJECT (deptno NUMBER, deptname VARCHAR2(20), deptaddress address\_typ);/

CREATE VIEW dept\_view OF dept\_type WITH OBJECT IDENTIFIER (deptno) AS

SELECT dno, dname , address\_typ(d.dstreet, d.dstreetnumber, d.dcity, d.dpostalcode) AS address\_list from department d;

Exercises 30: Insert three rows into the department table. Use the object view to view the rows. Can you use the object view to insert further rows?

INSERT INTO department VALUES (1, 'Tran Thi A', 'Nguyen Van Cu', '02', 'TP.Vinh', '098-8372');/

INSERT INTO department VALUES (2, 'ST', '400 Oracle Pkwy', 'Redwood S', 'CA', '94065');

INSERT INTO department VALUES (3, 'Apps', '310 Open', 'RedSan', 'TA', '73826');

INSERT INTO dept\_view VALUES (4, 'Apple', address\_typ('300 Close', 'Footsan', 'HN', '089-2928'));/

SELECT v.deptno, v.deptname, v.deptaddress.dstreet, v.deptaddress.dcity FROM dept\_view v;

**5.2 Using Nested Tables in Views**

CREATE TABLE phone\_nrs (ID number, phone VARCHAR2(20));

INSERT into phone\_nrs VALUES (0, '546-4364');

INSERT into phone\_nrs VALUES (0, '546-4123');

INSERT into phone\_nrs VALUES (1, '556-4374');

INSERT into phone\_nrs VALUES (2, '536-4386');

CREATE VIEW people\_object\_view2 OF people\_type WITH OBJECT IDENTIFIER (person\_ID) AS

SELECT p.ID, p.name, CAST(MULTISET (SELECT phone FROM phone\_nrs n

WHERE n.ID = p.ID) AS phone\_nested)

FROM people p;

Exercises 31: Create a relational table employees with columns empID, empname and deptno. Insert a few rows into this table. Create an object type employee\_t with columns eID and ename. Create a type employee\_list\_t which is a nested table of employee\_t. Create a type dept\_t with columns deptno, deptname and emp\_list where emp\_list is of type employee\_list\_t. Finally, create an object view that combines the department data from the previous exercises with the employees from the employees table.

CREATE TABLE employees (empID NUMBER PRIMARY KEY, empname VARCHAR2(20), deptno NUMBER REFERENCES department(dno));/

CREATE OR REPLACE TYPE employee\_t AS OBJECT (eID NUMBER, ename VARCHAR2(20)) ;/

CREATE OR REPLACE TYPE employee\_list\_t AS TABLE OF employee\_t ;/

CREATE OR REPLACE TYPE dept\_t AS OBJECT(deptno NUMBER, deptname VARCHAR2(20), address address\_typ, emp\_list employee\_list\_t);/

CREATE VIEW dept\_view1 OF dept\_t WITH OBJECT IDENTIFIER (deptno) AS

SELECT d.dno, d.dname, address\_typ(d.dstreet, d.dstreetnumber, d.dcity, d.dpostalcode) AS address\_list, CAST(MULTISET (SELECT e.empID, e.empname FROM

employees e WHERE e.deptno = d.dno) AS employee\_list\_t) AS emp\_list FROM department d;

INSERT INTO employees VALUES (100, 'John', 1);/

INSERT INTO employees VALUES (200, 'Robert', 2 );/

INSERT INTO employees VALUES (300, 'Mary', 3);/

SELECT dv.deptno, dv.deptname, dv.address.dstreet, e.\* FROM dept\_view1 dv, TABLE(dv.emp\_list) e WHERE dv.deptno = 1;/