

## BÀI TẬP THỰC HÀNH 2

### -- MO HÌNH QUAN HE

```
CREATE TABLE NhanVien (MaSoNV CHAR(10) NOT NULL, HoTen  
VARCHAR2(20), NamSinh NUMBER, PRIMARY KEY (MaSoNV));
```

```
CREATE TABLE NgoaiNgu (MaSoNN CHAR(10) NOT NULL, TenNN  
VARCHAR2(20), TrinhDoNN VARCHAR(20), PRIMARY KEY (MaSoNN));
```

```
CREATE TABLE NhanVien_NgoaiNgu (MaSoNV CHAR(10) NOT NULL, MaSoNN  
CHAR(10) NOT NULL, PRIMARY KEY (MaSoNV, MaSoNN), FOREIGN KEY  
(MaSoNV) REFERENCES NhanVien (MaSoNV), FOREIGN KEY (MaSoNN)  
REFERENCES NgoaiNgu (MaSoNN));
```

### --CRUD CHO MO HÌNH QUAN HE

```
INSERT INTO NhanVien VALUES ('NV1','Tran Van A',1999);
```

```
INSERT INTO NhanVien VALUES ('NV2','Nguyen Thi B',1998);
```

```
INSERT INTO NhanVien VALUES ('NV3','Le Van C',1990);
```

```
INSERT INTO NhanVien VALUES ('NV4','Hoang Van D',1991);
```

```
INSERT INTO NhanVien VALUES ('NV5','Nguyen Van E',1997);
```

```
INSERT INTO NgoaiNgu VALUES ('NN01','Tieng Anh','B1');
```

```
INSERT INTO NgoaiNgu VALUES ('NN02','Tieng Phap','B2');
```

```
INSERT INTO NgoaiNgu VALUES ('NN03','Tieng Duc','A1');
```

```
INSERT INTO NgoaiNgu VALUES ('NN04','Tieng Trung','A2');
```

```
INSERT INTO NgoaiNgu VALUES ('NN05','Tieng Anh','C1');
```

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV1','NN01');
```

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV1','NN02');
```

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV2','NN02');
```

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV2','NN03');
```

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV3','NN04');
```

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV3','NN05');
```

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV4','NN02');
```

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV4','NN04');
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV5','NN01');
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV5','NN05');
```

--HIEN THI THONG TIN

```
SELECT NV.* FROM NhanVien NV;
```

```
SELECT NN.* FROM NgoaiNgu NN;
```

```
SELECT NVNN.* FROM NhanVien_NgoaiNgu NVNN;
```

```
SELECT NV.MaSoNV, HoTen, NamSinh, NN.MaSoNN, TenNN, TrinhDoNN FROM
NhanVien NV INNER JOIN NhanVien_NgoaiNgu NVNN
```

```
ON NV.MaSoNV = NVNN.MaSoNV
```

```
INNER JOIN NgoaiNgu NN
```

```
ON NN.MaSoNN = NVNN.MaSoNN
```

--CHO BIET HO TEN, TEN NGOAI NGU VA TRINH DO CUA CAC NHAN VIEN

```
SELECT HoTen, TenNN, TrinhDoNN FROM NhanVien NV INNER JOIN
NhanVien_NgoaiNgu NVNN
```

```
ON NV.MaSoNV = NVNN.MaSoNV
```

```
INNER JOIN NgoaiNgu NN
```

```
ON NN.MaSoNN = NVNN.MaSoNN
```

--BO SUNG NGOAI NGU VA TRINH DO CHO 1 NHAN VIEN DUA VAO MA SO NHAN VIEN

```
INSERT INTO NhanVien_NgoaiNgu VALUES ('NV5','NN03');
```

--THAY DOI TRINH DO NGOAI NGU CUA 1 NHAN VIEN DUA VAO MA SO NHAN VIEN

```
UPDATE NgoaiNgu NN
```

```
SET NN.TrinhDoNN = 'B1'
```

```
WHERE NN.TrinhDoNN = 'A1' AND NN.MaSoNN IN (SELECT NVNN.MaSoNN  
FROM NhanVien_NgoaiNgu NVNN WHERE NVNN.MaSoNV = 'NV5')
```

--CHO BIET SO LUONG NHAN VIEN CO TRINH DO TIENG ANH B1

```
SELECT TenNN, TrinhDoNN, COUNT(NV.MaSoNV) SLNV FROM NhanVien NV  
INNER JOIN NhanVien_NgoaiNgu NVNN  
ON NV.MaSoNV = NVNN.MaSoNV  
INNER JOIN NgoaiNgu NN  
ON NN.MaSoNN = NVNN.MaSoNN  
GROUP BY TenNN, TrinhDoNN  
HAVING TrinhDoNN = 'B1' AND TenNN = 'Tieng Anh'
```

```
DELETE FROM NhanVien_NgoaiNgu NVNN  
WHERE NVNN.MaSoNV = 'NV3' AND NVNN.MaSoNN ='NN05';
```

**-- MO HINH QUAN HE – DOI TUONG VOI VARRAY**

```
CREATE OR REPLACE TYPE TrinhDoNN AS OBJECT(TenNgoaiNgu  
VARCHAR(20), TrinhDo CHAR(20));/
```

```
CREATE OR REPLACE TYPE Kieu_bang_ngoai_ngu AS VARRAY(5) OF  
TrinhDoNN ;
```

```
CREATE TABLE Tbl_Giang_vien(MaGV NUMBER(10), Ho_ten_GV  
VARCHAR(20), Namsinh NUMBER(10), Ngoai_ngu Kieu_bang_ngoai_ngu ) ;/
```

**--CRUD CHO MO HINH QUAN HE – DOI TUONG VOI VARRAY**

```
INSERT INTO Tbl_Giang_vien VALUES ( 1, 'Cao Thanh Son', 1997, (  
Kieu_bang_ngoai_ngu(TrinhDoNN ('Anh','A1'), TrinhDoNN ('Đức','A2'), TrinhDoNN  
('Pháp','B1') ) ) )
```

```
INSERT INTO Tbl_Giang_vien VALUES ( 2, 'Nguyen Hoai Linh', 1999, (  
Kieu_bang_ngoai_ngu(TrinhDoNN ('Trung','B2'), TrinhDoNN ('Đức','A2') ) ) )
```

```
INSERT INTO Tbl_Giang_vien VALUES ( 3, 'Le Van B', 1998, (  
Kieu_bang_ngoai_ngu(TrinhDoNN ('Đức','B2'), TrinhDoNN ('Anh','A2') ) ) )
```

```
INSERT INTO Tbl_Giang_vien VALUES ( 4, 'Nguyen Dinh Hieu', 1999, (  
Kieu_bang_ngoai_ngu(TrinhDoNN ('Anh','B1'), TrinhDoNN ('Đức','A2') ) ) )
```

```
INSERT INTO Tbl_Giang_vien VALUES ( 5, 'Nguyen Van C', 1999, (  
Kieu_bang_ngoai_ngu(TrinhDoNN ('Pháp','B2'), TrinhDoNN ('Đức','A2') ) ) )
```

**--CHO BIET HO TEN, TEN NGOAI NGU VA TRINH DO CUA CAC GV**

```
SELECT gv.Ho_ten_GV, nn.TenNgoaiNgu, nn.TrinhDo  
FROM Tbl_Giang_vien gv, table(gv.Ngoai_ngu) nn
```

**--BO SUNG NGOAI NGU VA TRINH DO CHO 1 NHAN VIEN DUA VAO MA SO  
GV**

```
UPDATE Tbl_Giang_vien gv
```

```
SET gv.Ngoai_ngu = Kieu_bang_ngoai_ngu(TrinhDoNN ('Anh','C2'), TrinhDoNN  
('Đức','A2'))
```

```
WHERE gv.MaGV = 2;
```

--CHO BIET SO LUONG NHAN VIEN CO TRINH DO TIENG DUC A2

SELECT nn.TrinhDo, nn.TenNgoaiNgu, COUNT(gv.MaGV) soGV

FROM Tbl\_Giang\_vien gv, table(gv.Ngoai\_ngu) nn

WHERE nn.TrinhDo = 'A2' AND nn.TenNgoaiNgu = 'Đức'

GROUP BY TrinhDo, nn.TenNgoaiNgu

DELETE FROM Tbl\_Giang\_vien gv

WHERE gv.MaGV = 2

**-- MO HINH QUAN HE – DOI TUONG VOI NESTED TABLE**

```
CREATE OR REPLACE TYPE TrinhDoNN AS OBJECT(TenNgoaiNgu
VARCHAR(20), TrinhDo CHAR(20));/

CREATE OR REPLACE TYPE Kieu_Nested_Table_ngoai_ngu IS TABLE OF
TrinhDoNN ;/

CREATE TABLE TBL_NHANVIEN(MaNV NUMBER(10), Ho_ten_NV
VARCHAR(20), Namsinh NUMBER(10), Ngoai_ngu Kieu_Nested_Table_ngoai_ngu )
NESTED TABLE Ngoai_ngu STORE AS nested_tab_nv;
```

**--CRUD CHO MO HINH QUAN HE – DOI TUONG VOI NESTED TABLE**

```
INSERT INTO TBL_NHANVIEN VALUES ( 1, 'Tran Van B', 1999, (
Kieu_Nested_Table_ngoai_ngu (TrinhDoNN ('Đức','A1'), TrinhDoNN ('Pháp','A2')) ) )

INSERT INTO TBL_NHANVIEN VALUES ( 2, 'Tran Van C', 1999, (
Kieu_Nested_Table_ngoai_ngu (TrinhDoNN ('Anh','C1'), TrinhDoNN ('Đức','A2')) ) )

INSERT INTO TBL_NHANVIEN VALUES ( 3, 'Tran Van D', 1997, (
Kieu_Nested_Table_ngoai_ngu (TrinhDoNN ('Pháp','A1'), TrinhDoNN ('Anh','A2')) ) )

INSERT INTO TBL_NHANVIEN VALUES ( 4, 'Tran Van E', 1995, (
Kieu_Nested_Table_ngoai_ngu (TrinhDoNN ('Đức','A1'), TrinhDoNN ('Anh','A1')) ) )

INSERT INTO TBL_NHANVIEN VALUES ( 5, 'Tran Van F', 1991, (
Kieu_Nested_Table_ngoai_ngu (TrinhDoNN ('Anh','B1'), TrinhDoNN ('Trung','A2')) ) )
```

**--CHO BIET HO TEN, TEN NGOAI NGU VA TRINH DO CUA CAC NHAN VIEN**

```
SELECT nv.MaNV, nv.Ho_ten_NV, nn.* FROM TBL_NHANVIEN nv,
table(nv.Ngoai_ngu) nn
```

**--BO SUNG NGOAI NGU VA TRINH DO CHO 1 NHAN VIEN DUA VAO MA SO NHAN VIEN**

```
UPDATE TBL_NHANVIEN nv

SET nv.Ngoai_ngu = Kieu_Nested_Table_ngoai_ngu(TrinhDoNN ('Trung','C1'))

WHERE nv.MaNV = 3;
```

```
UPDATE TABLE (SELECT Ngoai_ngu FROM TBL_NHANVIEN nv WHERE
nv.MaNV=5) A
```

SET A.TrinhDo ='B2'

WHERE A.TrinhDo ='C1' AND A.TenNgoaiNgu = 'Trung'

--CHO BIET SO LUONG NHAN VIEN CO TRINH DO TIENG TRUNG B2

SELECT nn.TrinhDo, nn.TenNgoaiNgu, COUNT(nv.MaNV) soNV

FROM TBL\_NHANVIEN nv, table(nv.Ngoai\_ngu) nn

WHERE nn.TrinhDo = 'B2' AND nn.TenNgoaiNgu = 'Trung'

GROUP BY TrinhDo, nn.TenNgoaiNgu

DELETE FROM TBL\_NHANVIEN nv

WHERE nv.MaNV = 5