



Database Systems

Laboratory Worksheet 2



AUGUST 15, 2022
IT20167028
Thiranjaya W.A.L.N

01)

a).

```
create type dept_t
/
```

```
create type emp_t AS OBJECT(
    EMPNO      CHAR (6) ,
    FIRSTNAME   VARCHAR(12),
    LASTNAME    VARCHAR (15),
    WORKDEPT    REF dept_t ,
    SEX         CHAR(1)    ,
    BIRTHDATE   DATE,
    SALARY      NUMBER (8,2)
)
/
```

```
create type dept_t AS OBJECT(
    EMPNO      CHAR (3) ,
    DEPTNAME   VARCHAR(12),
    MGRNO      REF emp_t
    ADMRDEPT   REF dept_t
)
/
```

b)

```
create table ORDEPT of emp_t (
    Constraint ORDEPT_PK PRIMARY KEY (EMPNO),
    Constraint ORDEPT_FIRSTNAME_NN FIRSTNAME NOT NULL,
    Constraint ORDEPT_LASTNAME_NN LASTNAME NOT NULL,
    Constraint ORDEPT_SEC_CK CHECK (SEX= "M" OR SEX="F" OR SEX= "m" OR
                                     SEX="f" )
)
/
```

```
Create table ORDEPT dept_t (
    Constraint ORDEPT_PK PRIMARY KEY (DEPTNO),
    Constraint ORDEPT_DEPTNAME_NN DEPTNAME NOT NULL,
    Constraint ORDEPT_MGRNO_FK FOREIGN KEY(MGRNO) REFERENCES OREMP,
    Constraint ORDEPT_ADMRDEPT_FK FOREIGN KEY(ADMRDEPT) REFERENCES ORDEPT,
)
/
```

```
ALTER TABLE OREMP
ADD constraint ORMP_WORKDEPT_FK FOREIGN KEY(WORKDEPT) REFERENCES OREPT
/
```

c)

```
Insert into ORDEPT values (DEPT_T("A00", "SPIFFY COMPUTER SERVICE DIV",null, null))
/
```

```
Insert into OREMP values (DEPT_T("B01","Planning", "null",
    (Select ref(d) from ORDEPT d where d.DEPTNO = "A00" )))
/
```

```
Insert into OREMP values (DEPT_T("C01","Information Center", "null",
    (Select ref(d) from ORDEPT D where d.DEPTNO = "A00" )))
/
```

```
Insert into OREMP values (DEPT_T("D01","Information Center", "null",
    (Select ref(d) from ORDEPT D where d.DEPTNO = "C01" )))
/
```

```
UPDATE ORDEPT d
Set d.ADMRDEPT = (SELECT REF(D) FROM ORDEPT d where d.DEPTNO = "A00")
Where d.DEPTNO = "A00"
/
```

```
Insert into OREMP values(EMP_T('000010','Christine', 'HasS',
    (select ref(d) from ORDEPT d where d. DEPTNO = ' A00'), 'F', '14-AUG-1953, 72750)
)
/
```

```
Insert into OREMP values (EMP_T(' 000020, 'Michell'
(select ref (d) from ORDEPT d where) 1. DEPTNO , 'Thompson' , 'B01'), 'M', '02-FEB-1968', 61250)
)
/
```

```
Insert into OREMP values (EMP_T(' 000030', *Sally', 'Kwan',
(select ref(d) from ORDEPT d where d. DEPTNO = '(01), 'F', '11-MAY-1971', 58250)
)
/
```

```
insert into OREMP values (EMP_T('000060', 'Irving'
(select ref(d) from ORDEPT d where d.DEPNO = 'DeL'). "N" . '07-JUL -1965' ,55555)
)
/
```

```
insert into OREMP values (EMP_T('000070','Eva','Pulaksi'
(select ref(d) from ORDEPT d where d. DEPTNO= 'Dei), 'Fi', '26-MAY-1973', 56170)
)
/
```

```
insert into OREMP values (EMP_T('000050', 'hon', 'Geyer'
(select ref(d) from ORDEPT d where d.DEPTNO= 'col'), 'M', '15-SEP-1955', 60175)
)
/
```

```
insert into OREMP values (EMP_T('000090','Eileen', 'Henderson'
(select ref(d) from ORDEPT d where d.DEPTNO = 'B01'), PA +15-MAY-1961', 49750)
)
/
```

```
insert into OREMP values (EMP_T('000100', 'Theodore'
(select ref (d) from ORDEPT d where d.DEPTNO = 'B01'), 'M', '18-AUG-1976', 46150)
)
/
```

/

Update ORDEPT d

Set d.MGRNO = (select ref (e) from OREMP e where e.EMPNO = "000010")
where d.DEPTNO = "A00"

/

Update ORDEPT d

Set d.MGRNO = (select ref (e) from OREMP e where e.EMPNO = "000020")
where d.DEPTNO = "B01"

/

Update ORDEPT d

Set d.MGRNO = (select ref (e) from OREMP e where e.EMPNO = "000030")
where d.DEPTNO = "C01"

/

Update ORDEPT d

Set d.MGRNO = (select ref (e) from OREMP e where e.EMPNO = "000060")
where d.DEPTNO = "D01"

/

***** Question. *****

- a) select d.DEPTNAME, d.MGRNO.LASTNAME AS MANAGER
FROM ORDEPT d
/
- b) select e.EMPNO, e.LASTNAME, e.WORKDEPT.DEPTNAME AS DEPTNAME
FROM OREMP e
/
- c) select d.DEPTNO, d.DEPTNAME, d.ADMRDEPT.DEPTNAME AS ADMRNAME
FROM ORDEPT d
/
- d) select d.DEPTNO, d.DEPTNAME, d.ADMRDEPT.DEPTNAME AS ADMRNAME,
d.ADMRDEPT.MGRNO.LASTNAME AS ADMANAGER
FROM ORDEPT d
/
- e) select e.EMPNO,
e.FIRSTNAME,
e.LASTNAME,
e.SALARY,
e.WORKDEPT.MGRNO.LASTNAME AS MANAGER,
e.WORKDEPT.MGRNO.SALARY AS MGRSAL
FROM OREMP e
/
- f) select e.WORKDEPT.DEPTNO AS DEPTNO, e.WORKDEPT.DEPTNAME AS DEPTNAME,
e.SEX, AVG(e.SALARY) AS AVGSAL
from OREMP e

```
group by e.WORKDEPT.DEPTNO, e.WORKDEPT.DEPTNAME, e.SEX
/
```

```
select *
from user_types
/
```

```
select *
from user_type_attrs
/
```

02)

(a)

```
SELECT d.DEPTNAME, d.MGRNO.LASTNAME AS LAST_NAME
FROM ORDEPT d
/
```

(b)

```
SELECT E.EMPNO, e.LASTNAME, E.WORKDEPT.DEPTNAME AS DEPARTMENT_NAME
FROM OREMP e
/
```

(c)

```
SELECT d.DEPTNO, d.DEPTNAME, d.ADMRDEPT.DEPTNAME AS S      UB_DEPT
FROM ORDEPT d
/
```

(d)

```
SELECT d.DEPTNO, d.DEPTNAME, d.ADMRDEPT.DEPTNAME AS S      SUB_DEPT,
D.MGRNO.LASTNAME AS MANAGER_LAST_NAME
FROM ORDEPT d
/
```

(e)

```
SELECT e.EMPNO,
       e.FIRSTNAME,
       e.LASTNAME,
       e.SALARY,
       e.WORKDEPT.MGRNO.LASTNAME AS MANAGER_NAME,
       e.WORKDEPT.MGRNO.SALARY  AS MANAGER_SALARY
FROM OREMP e
/
```

(f)

```
SELECT d.DEPTNO, d.DEPTNAME
FROM ORDEPT d
/
```

```
SELECT e.WORKDEPT.DEPTNO  AS DEPARTMENT_NO,
       e.WORKDEPT.DEPTNAME AS DEPARTMENT_NAME, e.SEX,
       AVG(e.SALARY)
AS AVERAGE_SALARY
FROM OREMP e
GROUP BY
e.WORKDEPT.DEPTNO, e.WORKDEPT.DEPTNAME, e.SEX
```

/

COMMIT;