**IT23452916**

**Booso M.L**

**02.01**

**-- 1A**

CREATE TYPE dept\_t;

/

CREATE TYPE emp\_t AS OBJECT (

empno CHAR(6),

firstname VARCHAR2(12),

lastname VARCHAR2(15),

workdept REF dept\_t,

sex CHAR(1),

birthdate DATE,

salary NUMBER(8,2)

);

/

CREATE TYPE dept\_t AS OBJECT (

deptno CHAR(3),

deptname VARCHAR2(36),

mgrno REF emp\_t,

admrdept REF dept\_t

);

/

**-- 1B**

CREATE TABLE ordept OF dept\_t (

deptno PRIMARY KEY,

deptname NOT NULL

);

/

CREATE TABLE oremp OF emp\_t (

empno PRIMARY KEY,

firstname NOT NULL,

lastname NOT NULL

);

/

ALTER TABLE ordept ADD SCOPE FOR (mgrno) IS oremp;

ALTER TABLE ordept ADD SCOPE FOR (admrdept) IS ordept;

ALTER TABLE oremp ADD SCOPE FOR (workdept) IS ordept;

**-- 1C**

INSERT INTO oremp VALUES ('000010', 'CHRISTINE', 'HAAS', NULL, 'F', TO\_DATE('14/AUG/1953', 'DD/MON/YYYY'), 72750);

INSERT INTO oremp VALUES ('000020', 'MICHAEL', 'THOMPSON', NULL, 'M', TO\_DATE('02/FEB/1968', 'DD/MON/YYYY'), 61250);

INSERT INTO oremp VALUES ('000030', 'SALLY', 'KWAN', NULL, 'F', TO\_DATE('11/MAY/1971', 'DD/MON/YYYY'), 58250);

INSERT INTO oremp VALUES ('000060', 'IRVING', 'STERN', NULL, 'M', TO\_DATE('07/JUL/1965', 'DD/MON/YYYY'), 55555);

INSERT INTO oremp VALUES ('000070', 'EVA', 'PULASKI', NULL, 'F', TO\_DATE('26/MAY/1973', 'DD/MON/YYYY'), 56170);

INSERT INTO oremp VALUES ('000050', 'JOHN', 'GEYER', NULL, 'M', TO\_DATE('15/SEP/1955', 'DD/MON/YYYY'), 60175);

INSERT INTO oremp VALUES ('000090', 'EILEEN', 'HENDERSON', NULL, 'F', TO\_DATE('15/MAY/1961', 'DD/MON/YYYY'), 49750);

INSERT INTO oremp VALUES ('000100', 'THEODORE', 'SPENSER', NULL, 'M', TO\_DATE('18/DEC/1976', 'DD/MON/YYYY'), 46150);

/

INSERT INTO ordept VALUES ('A00', 'SPIFFY COMPUTER SERVICE DIV.', NULL, NULL);

INSERT INTO ordept VALUES ('B01', 'PLANNING', NULL, NULL);

INSERT INTO ordept VALUES ('C01', 'INFORMATION CENTRE', NULL, NULL);

INSERT INTO ordept VALUES ('D01', 'DEVELOPMENT CENTRE', NULL, NULL);

/

UPDATE oremp SET workdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'A00') WHERE empno = '000010';

UPDATE oremp SET workdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'B01') WHERE empno = '000020';

UPDATE oremp SET workdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'C01') WHERE empno = '000030';

UPDATE oremp SET workdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'D01') WHERE empno = '000060';

UPDATE oremp SET workdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'D01') WHERE empno = '000070';

UPDATE oremp SET workdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'C01') WHERE empno = '000050';

UPDATE oremp SET workdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'B01') WHERE empno = '000090';

UPDATE oremp SET workdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'B01') WHERE empno = '000100';

/

UPDATE ordept SET mgrno = (SELECT REF(e) FROM oremp e WHERE e.empno = '000010') WHERE deptno = 'A00';

UPDATE ordept SET mgrno = (SELECT REF(e) FROM oremp e WHERE e.empno = '000020') WHERE deptno = 'B01';

UPDATE ordept SET mgrno = (SELECT REF(e) FROM oremp e WHERE e.empno = '000030') WHERE deptno = 'C01';

UPDATE ordept SET mgrno = (SELECT REF(e) FROM oremp e WHERE e.empno = '000060') WHERE deptno = 'D01';

/

UPDATE ordept SET admrdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'A00') WHERE deptno IN ('A00', 'B01', 'C01');

UPDATE ordept SET admrdept = (SELECT REF(d) FROM ordept d WHERE d.deptno = 'C01') WHERE deptno = 'D01';

/

**-- 2A.**

SELECT d.deptname, e.lastname

FROM ordept d, oremp e

WHERE d.mgrno = REF(e)

/

**-- 2B.**

SELECT e.empno, e.lastname, d.deptname

FROM oremp e, ordept d

WHERE e.workdept = REF(d)

/

**-- 2C.**

SELECT d.deptno, d.deptname, ad.deptname AS admrdept

FROM ordept d, ordept ad

WHERE d.admrdept = REF(ad)

/

**-- 2D.**

SELECT d.deptno, d.deptname, ad.deptname AS admrdept, e.lastname

FROM ordept d, ordept ad, oremp e

WHERE d.admrdept = REF(ad)

AND ad.mgrno = REF(e)

/

**-- 2E.**

SELECT e.empno, e.firstname, e.lastname, e.salary, m.lastname AS mgr\_lastname, m.salary AS mgr\_salary

FROM oremp e, oremp m, ordept d

WHERE e.workdept = REF(d)

AND d.mgrno = REF(m)

/

**-- 2F.**

SELECT d.deptno, d.deptname,

       AVG(CASE WHEN e.sex = 'M' THEN e.salary END) AS avg\_men\_salary,

       AVG(CASE WHEN e.sex = 'F' THEN e.salary END) AS avg\_women\_salary

FROM oremp e, ordept d

WHERE e.workdept = REF(d)

GROUP BY d.deptno, d.deptname

/