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COP4710 Database Systems

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**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX1\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***\*

SQL> CREATE TABLE Cust (cno CHAR(3), address VARCHAR2(20), balance NUMBER(5));

Table created.

SQL> INSERT INTO Cust

2 VALUES ('101', '600 Angelina Rd.', 200);

1 row created.

SQL> edit

Wrote file afiedt.buf

1 INSERT INTO Cust

2\* VALUES ('102', '10 Shades Dr.', 400)

SQL> /

1 row created.

SQL> edit

Wrote file afiedt.buf

1 INSERT INTO Cust

2\* VALUES ('103', '456 Oriole Ave.', 750)

SQL> /

1 row created.

SQL> edit

Wrote file afiedt.buf

1 INSERT INTO Cust

2\* VALUES ('104', '401 Futura Dr.', 1000)

SQL> /

1 row created.

SQL> edit

Wrote file afiedt.buf

1 INSERT INTO Cust

2\* VALUES ('105', '340 Bonway Dr.', 1500)

SQL> /

1 row created.

SQL> SELECT \*

2 FROM Cust;

CNO ADDRESS

--------- ------------------------------------------------------------

BALANCE

----------

101 600 Angelina Rd.

200

102 10 Shades Dr.

400

103 456 Oriole Ave.

750

CNO ADDRESS

--------- ------------------------------------------------------------

BALANCE

----------

104 401 Futura Dr.

1000

105 340 Bonway Dr.

1500

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX2\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

SQL> SELECT \*

2 FROM Cust

3 ORDER BY balance;

CNO ADDRESS

--------- ------------------------------------------------------------

BALANCE

----------

101 600 Angelina Rd.

200

102 10 Shades Dr.

400

103 456 Oriole Ave.

750

CNO ADDRESS

--------- ------------------------------------------------------------

BALANCE

----------

104 401 Futura Dr.

1000

105 340 Bonway Dr.

1500

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX3\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

SQL> SELECT sname, class, major

2 FROM Student

3 WHERE class <= 2;

SNAME CLASS

------------------------------------------------------------ ----------

MAJOR

------------

Lineas 1

ENGL

Brenda 2

COSC

Richard 1

ENGL

SNAME CLASS

------------------------------------------------------------ ----------

MAJOR

------------

Lujack 1

COSC

Reva 2

MATH

Elainie 1

COSC

SNAME CLASS

------------------------------------------------------------ ----------

MAJOR

------------

Harley 2

POLY

Lynette 1

POLY

Hillary1 1

COSC

SNAME CLASS

------------------------------------------------------------ ----------

MAJOR

------------

Sadie 2

MATH

Jessica 2

POLY

Steve 1

ENGL

SNAME CLASS

------------------------------------------------------------ ----------

MAJOR

------------

Brad 1

COSC

Cedric 2

ENGL

Alan 2

COSC

SNAME CLASS

------------------------------------------------------------ ----------

MAJOR

------------

George 1

POLY

Fraiser 1

POLY

Smithly 2

ENGL

SNAME CLASS

------------------------------------------------------------ ----------

MAJOR

------------

Sebastian 2

ACCT

Lindsay 1

UNKN

Jake 2

MATH

21 rows selected.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX4\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

SQL> SELECT balance

2 FROM Cust

3 WHERE balance > 400;

4 ORDER BY balance

BALANCE

----------

400

750

1000

1500

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX5\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

SQL> CREATE TABLE Cust1 (cnum CHAR(3), bal NUMBER(5));

Table created.

SQL> edit

Wrote file afiedt.buf

1 INSERT INTO Cust1

2 SELECT cno, balance

3 FROM Cust

4\* WHERE rownum <=4

SQL> /

4 rows created.

SQL> SELECT \* FROM Cust1;

CNUM BAL

--------- ----------

101 200

102 400

103 750

104 1000

SQL> COMMIT

2 ;

Commit complete.

SQL> DELETE FROM Cust1

2 WHERE rownum > 3;

0 rows deleted.

SQL> DELETE FROM Cust1

2 WHERE bal > 500;

2 rows deleted.

SQL> SELECT \* FROM Cust1;

CNUM BAL

--------- ----------

101 200

102 400

SQL> ROLLBACK

2 ;

Rollback complete.

SQL> SELECT \* FROM Cust1;

CNUM BAL

--------- ----------

101 200

102 400

103 750

104 1000

SQL> DELETE FROM Cust1

2 WHERE bal = 400;

1 row deleted.

SQL> SAVEPOINT point1;

Savepoint created.

SQL> SELECT \* FROM Cust1;

CNUM BAL

--------- ----------

101 200

103 750

104 1000

SQL> DELETE FROM Cust1

2 WHERE bal = 200;

1 row deleted.

SQL> SAVEPOINT point2;

Savepoint created.

SQL> SELECT \* FROM Cust1;

CNUM BAL

--------- ----------

103 750

104 1000

SQL> ROLLBACK TO point1;

Rollback complete.

What this program does is that it reverts all actions that have happened since the savepoint was created.

SQL> SELECT \* FROM Cust1;

CNUM BAL

--------- ----------

101 200

103 750

104 1000

SQL> ROLLBACK TO point2;

ROLLBACK TO point2

\*

ERROR at line 1:

ORA-01086: savepoint 'POINT2' never established in this session or is invalid

The reason for this failure is that all of the queries that have happened since savepoint 1 including the action of saving point 2 were reverted, thus never happened in the server’s memory.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX6\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

SQL> ALTER TABLE Cust1

2 ADD date\_opened DATE;

Table altered.

SQL> edit

Wrote file afiedt.buf

1 UPDATE Cust1

2\* SET date\_opened = '01-JAN-19'

SQL> /

3 rows updated.

SQL> SELECT \* FROM Cust1;

CNUM BAL DATE\_OPENED

--------- ---------- ---------------

101 200 01-JAN-19

103 750 01-JAN-19

104 1000 01-JAN-19

SQL> COMMIT;

Commit complete.

SQL> UPDATE Cust1

2 SET bal = 0;

3 rows updated.

SQL> SELECT \* FROM Cust1;

CNUM BAL DATE\_OPENED

--------- ---------- ---------------

101 0 01-JAN-19

103 0 01-JAN-19

104 0 01-JAN-19

SQL> ROLLBACK

2 ;

Rollback complete.

SQL> SELECT \* FROM Cust1;

CNUM BAL DATE\_OPENED

--------- ---------- ---------------

101 200 01-JAN-19

103 750 01-JAN-19

104 1000 01-JAN-19

SQL> edit

Wrote file afiedt.buf

1 UPDATE Cust1

2 SET date\_opened = '21-OCT-20'

3\* WHERE bal = 200

SQL> /

1 row updated.

SQL> SELECT \* FROM Cust1;

CNUM BAL DATE\_OPENED

--------- ---------- ---------------

101 200 21-OCT-20

103 750 01-JAN-19

104 1000 01-JAN-19

SQL> ALTER TABLE Cust1

2 MODIFY bal NUMBER(8,2);

Table altered.

SQL> SELECT \* FROM Cust1;

CNUM BAL DATE\_OPENED

--------- ---------- ---------------

101 200 21-OCT-20

103 750 01-JAN-19

104 1000 01-JAN-19

SQL> UPDATE Cust1

2 SET bal = 888.88

3 WHERE cnum = 101;

1 row updated.

SQL> SELECT \* FROM Cust1;

CNUM BAL DATE\_OPENED

--------- ---------- ---------------

101 888.88 21-OCT-20

103 750 01-JAN-19

104 1000 01-JAN-19

SQL> ALTER TABLE Cust1

2 MODIFY bal NUMBER(3,2)

3 ;

MODIFY bal NUMBER(3,2)

\*

ERROR at line 2:

ORA-01440: column to be modified must be empty to decrease precision or scale

SQL> UPDATE Cust1

2 SET date\_opened = SYSDATE;

3 rows updated.

SQL> SELECT \* FROM CUST1;

CNUM BAL DATE\_OPENED

--------- ---------- ---------------

101 888.88 03-FEB-19

103 750 03-FEB-19

104 1000 03-FEB-19

SQL> SAVEPOINT point1;

Savepoint created.

SQL> DROP TABLE Cust1;

Table dropped.

SQL> SELECT \* FROM Cust1;

SELECT \* FROM Cust1

\*

ERROR at line 1:

ORA-00942: table or view does not exist

SQL> COMMIT;

Commit complete.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX7\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

SQL> SELECT sname, major, class

2 FROM Student

3 WHERE major = 'ART'

4 AND class = 3;

no rows selected

SQL> DESC Student;

Name Null? Type

----------------------------------------- -------- ----------------------------

STNO NOT NULL NUMBER(38)

SNAME VARCHAR2(20)

MAJOR VARCHAR2(4)

CLASS NUMBER(38)

BDATE DATE

SQL> SELECT sname, major, class

2 FROM Student

3 WHERE major = 'ART'

4 OR class = 3;

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Susan ENGL

3

Monica MATH

3

Phoebe ENGL

3

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Rachel ENGL

3

Cramer ENGL

3

Losmith CHEM

3

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Gus ART

3

7 rows selected.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX8\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

SQL> SELECT xname, major, class

2 FROM Student

3 WHERE major = 'ART'

4 OR class = 3;

SELECT xname, major, class

\*

ERROR at line 1:

ORA-00904: "XNAME": invalid identifier

SQL> edit

Wrote file afiedt.buf

1 SELECT sname, major, class

2 FROM Student

3 WHERE major = 'ART'

4\* OR class = 3

SQL> /

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Susan ENGL

3

Monica MATH

3

Phoebe ENGL

3

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Rachel ENGL

3

Cramer ENGL

3

Losmith CHEM

3

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Gus ART

3

7 rows selected.

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*EX9\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

SQL> SELECT sname, major, class

2 FROM Student

3 WHERE class

4 BETWEEN 2 AND 4;

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Mary COSC

4

Brenda COSC

2

Kelly MATH

4

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Reva MATH

2

Harley POLY

2

Donald ACCT

4

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Chris ACCT

4

Susan ENGL

3

Monica MATH

3

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Phoebe ENGL

3

Holly POLY

4

Sadie MATH

2

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Jessica POLY

2

Cedric ENGL

2

Alan COSC

2

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Rachel ENGL

3

Jerry COSC

4

Cramer ENGL

3

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Harrison ACCT

4

Francis ACCT

4

Smithly ENGL

2

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Sebastian ACCT

2

Jake COSC

4

Losmith CHEM

3

SNAME MAJOR

------------------------------------------------------------ ------------

CLASS

----------

Benny CHEM

4

Gus ART

3

Jake MATH

2

27 rows selected.