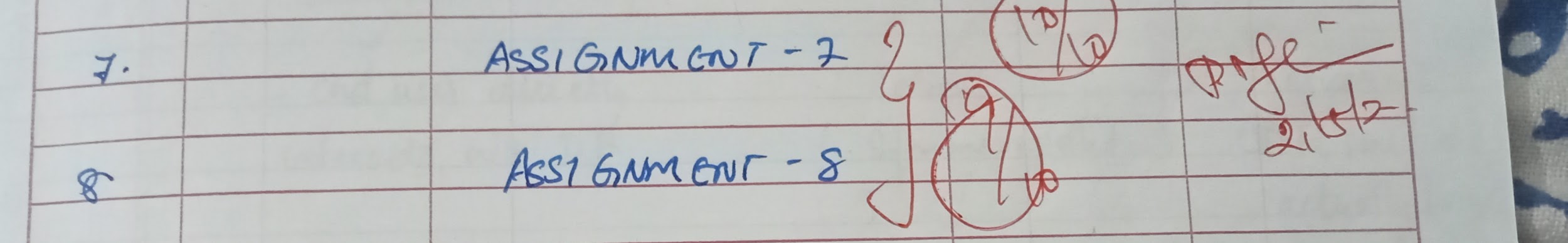
**UCS 1412 - DATABASE LAB**

**Assignment 7 -Triggers**

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**SPOOL FILE:**

SQL> @ C:\sql\_sums\ex7\ex7.sql

SQL> set echo on;

SQL> set serveroutput on;

SQL>

SQL> REM CUSTOMERS (cid, fname, lname)

SQL> REM PRODUCTS (pid, flavor, food, price)

SQL> REM RECEIPTS (rno, rdate, cid)

SQL> REM ITEM\_LIST (rno, ordiNAl, item)

SQL>

SQL> REM \* Write a PL/SQL Trigger for the following: \*

SQL> REM \*\*\* 1. The combination of Flavor and Food determines the product id. Hence, while

SQL> REM inserting a new instance into the Products relation, ensure that the same combination

SQL> REM of Flavor and Food is not already available.\*\*\*

SQL>

SQL> REM \*Check whether Tart food in Vanilla or Almond flavor is available or not\*

SQL> select \* from products where food='Tart' and flavor='Almond';

PID FLAVOR FOOD PRICE

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

90-ALM-I Almond Tart 3.75

SQL>

SQL> REM \*TRIGGER TO RESTRICT ADDING PRODUCTS WITH FOOD AND FLAVOR COMBINATION ALREADY AVAILABLE\*

SQL> create or replace trigger check\_combo

2 BEFORE

3 INSERT

4 ON Products

5 FOR EACH ROW

6 declare

7 flag number:=0;

8 cursor c1 is select \* from products where food=:NEW.food and flavor=:NEW.flavor;

9 record c1%rowtype;

10 begin

11 open c1;

12 fetch c1 into record;

13 if c1%NOTFOUND then

14 flag:=1;

15 end if;

16 close c1;

17 if (flag=0) then

18 raise\_application\_error(-20000,'Combination already available');

19 end if;

20 END;

21 /

Trigger created.

SQL>

SQL> REM \* SAVEPOINT \*

SQL> SAVEPOINT P1;

Savepoint created.

SQL>

SQL>

SQL>

SQL> REM \* TRYING TO INSERT FOOD AND FLAVOR COMBINATION ALREADY AVAILABLE \*

SQL> insert into products values (0,'Almond','Tart',1);

insert into products values (0,'Almond','Tart',1)

\*

ERROR at line 1:

ORA-20000: Combination already available

ORA-06512: at "SYSTEM.CHECK\_COMBO", line 13

ORA-04088: error during execution of trigger 'SYSTEM.CHECK\_COMBO'

SQL> REM \* TRYING TO INSERT FOOD AND FLAVOR COMBINATION THAT IS NOT AVAILABLE \*

SQL> insert into products values (0,'Vanilla','Tart',1);

1 row created.

SQL>

SQL> REM \* ROLLBACK \*

SQL> ROLLBACK TO P1;

Rollback complete.

SQL>

SQL> REM \*2. ADDING AMT COLUMN TO RECEIPTS RELATION\*

SQL> alter table receipts add amt number(5,2);

Table altered.

SQL>

SQL>

SQL>

SQL> REM \*\*\* 2. While entering an item into the item\_list relation, update the amount in Receipts with

SQL> REM the total amount for that receipt number.\*\*\*

SQL>

SQL> REM \*TRIGGER TO UPDATE AMOUNT IN THE RECEIPT DURING PURCHASE\*

SQL> create or replace trigger update\_amt

2 BEFORE

3 INSERT

4 ON item\_list

5 FOR EACH ROW

6 declare

7 total number;

8 price\_ products.price%type;

9 begin

10 select price into price\_ from products where pid=:NEW.item;

11 select sum(price) into total from item\_list,products where item=pid and rno=:NEW.rno;

12 total:=total+price\_;

13 update receipts

14 set amt=total

15 where rno=:NEW.rno;

16 end;

17 /

Trigger created.

SQL>

SQL>

SQL>

SQL> REM \*CHECKING DETAILS OF ALREADY EXISTING ITEMS FOR RNO 11548\*

SQL> select rno,ordinal,pid,price from item\_list,products where item=pid and rno=11548;

RNO ORDINAL PID PRICE

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

11548 1 45-CO 3.5

11548 2 90-APIE-10 5.25

SQL>

SQL>

SQL> REM \*CHECKING CURRENT AMT VALUE IN RECEIPTS FOR RNO 11548\*

SQL> select \* from receipts where rno=11548;

RNO RDATE CID AMT

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

11548 21-OCT-07 13

SQL>

SQL>

SQL> REM \*INSERT AN ITEM TO ITEM\_LIST\*

SQL> insert into item\_list values(11548,3,'51-BLU');

1 row created.

SQL>

SQL>

SQL> REM \*CHECKING IF DETAILS FOR RNO 11548 ARE UPDATED\*

SQL> select rno,ordinal,pid,price from item\_list,products where item=pid and rno=11548;

RNO ORDINAL PID PRICE

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

11548 1 45-CO 3.5

11548 2 90-APIE-10 5.25

11548 3 51-BLU 1.15

SQL>

SQL> select \* from receipts where rno=11548;

RNO RDATE CID AMT

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

11548 21-OCT-07 13 9.9

SQL>

SQL> REM \*\*\* 3. Implement the following constraints for Item\_list relation:

SQL> REM a. A receipt can contain a maximum of five items only.

SQL> REM b. A receipt should not allow an item to be purchased more than thrice.\*\*\*

SQL>

SQL> REM \*TRIGGER TO CHECK CONSTRAINTS BEFORE PURCHASING ANOTHER ITEM\*

SQL> create or replace trigger check\_receipts

2 BEFORE

3 INSERT

4 ON item\_list

5 FOR EACH ROW

6 declare

7 cursor c1 is select count(\*) as cnt1 from item\_list where rno=:NEW.rno;

8 cursor c2 is select count(\*) as cnt2 from item\_list where rno=:NEW.rno and item=:NEW.item;

9 record1 c1%rowtype;

10 record2 c2%rowtype;

11 begin

12 open c1;

13 open c2;

14 fetch c1 into record1;

15 fetch c2 into record2;

16 if record1.cnt1>=5 and record2.cnt2>=3 then

17 raise\_application\_error(-20000,'The receipt already has five items, also the item to be purchased is already purchased thrice.');

18 elsif record1.cnt1>=5 then

19 raise\_application\_error(-20001,'The receipt already has five items.');

20 elsif record2.cnt2>=3 then

21 raise\_application\_error(-20002,'The item to be purchased is already purchased thrice.');

22 end if;

23 close c2;

24 close c1;

25 END;

26 /

Trigger created.

SQL>

SQL> REM \*SAVEPOINT\*

SQL> savepoint p2;

Savepoint created.

SQL>

SQL>

SQL> REM \* CHECK IF RNO = 86162 ALREADY HAS 5 items \*

SQL> select count(\*) from item\_list where rno=86162;

COUNT(\*)

----------

5

SQL>

SQL>

SQL>

SQL> REM \* INSERTING IN ITEM\_LIST FOR RNO=86162 - CONSTRAINT A\*

SQL> insert into item\_list values (86162,6,'50-ALM');

insert into item\_list values (86162,6,'50-ALM')

\*

ERROR at line 1:

ORA-20001: The receipt already has five items.

ORA-06512: at "SYSTEM.CHECK\_RECEIPTS", line 14

ORA-04088: error during execution of trigger 'SYSTEM.CHECK\_RECEIPTS'

SQL>

SQL> REM \* CHECK IF RNO = 31874 ALREADY HAS 5 items \*

SQL> select \* from item\_list where rno=31874;

RNO ORDINAL ITEM

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

31874 1 70-MAR

31874 2 70-MAR

31874 3 90-LEM-11

SQL>

SQL> REM \* INSERTING IN ITEM\_LIST FOR RNO=31874 - CONSTRAINT B\*

SQL> insert into item\_list values (31874,4,'70-MAR');

1 row created.

SQL>

SQL> REM \*CHECK INSERTION\*

SQL> select \* from item\_list where rno=31874;

RNO ORDINAL ITEM

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

31874 1 70-MAR

31874 2 70-MAR

31874 3 90-LEM-11

31874 4 70-MAR

SQL>

SQL>

SQL> REM \*ADD ANOTHER 70-MAR ITEM TO THE RNO=31874\*

SQL> insert into item\_list values (31874,5,'70-MAR');

insert into item\_list values (31874,5,'70-MAR')

\*

ERROR at line 1:

ORA-20002: The item to be purchased is already purchased thrice.

ORA-06512: at "SYSTEM.CHECK\_RECEIPTS", line 16

ORA-04088: error during execution of trigger 'SYSTEM.CHECK\_RECEIPTS'

SQL>

SQL>

SQL>

SQL> REM \*ADD AN ITEM TO THE RNO=31874\*

SQL> insert into item\_list values (31874,5,'50-ALM');

1 row created.

SQL>

SQL>

SQL> REM \* ITEMS IN RNO=31874\*

SQL> select \* from item\_list where rno=31874;

RNO ORDINAL ITEM

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

31874 1 70-MAR

31874 2 70-MAR

31874 3 90-LEM-11

31874 4 70-MAR

31874 5 50-ALM

SQL>

SQL>

SQL>

SQL> REM \* INSERTING IN ITEM\_LIST FOR RNO=31874 - CONSTRAINT A AND B\*

SQL> insert into item\_list values (31874,6,'70-MAR');

insert into item\_list values (31874,6,'70-MAR')

\*

ERROR at line 1:

ORA-20000: The receipt already has five items, also the item to be purchased is

already purchased thrice.

ORA-06512: at "SYSTEM.CHECK\_RECEIPTS", line 12

ORA-04088: error during execution of trigger 'SYSTEM.CHECK\_RECEIPTS'

SQL> REM \*ROLLBACK\*

SQL> rollback to p2;

Rollback complete.

SQL>

SQL> spool off;