

SSN COLLEGE OF ENGINEERING, KALAVAKKAM
(An Autonomous Institution, Affiliated to Anna University, Chennai)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

UCS1412 – DBMS Lab
Assignment – 4

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Title: Views

Blue_Flavor		
Operation	Operation on View	Reflection in Base Table
Insert	✗	✓
Update	PID, FOOD, PRICE	PID, FOOD, PRICE
Modify	✓	✓

Cheap_Food		
Operation	Operation on View	Reflection in Base Table
Insert	✓	✓
Update	PID, FLAVOR, FOOD, PRICE	PID, FLAVOR, FOOD, PRICE
Modify	✓	✓

Hot_Food		
Operation	Operation on View	Reflection in Base Table
Insert	✗	✗
Update	✗	✗
Modify	✗	✗

Pie_Food		
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Operation	Operation on View	Reflection in Base Table
Insert	✗ (non-key preserved table)	✗
Update	✓	✓ (On ITEM_LIST)
Modify	✓	✓

Cheap_View		
Operation	Operation on View	Reflection in Base Table
Insert	✗ (cannot insert without price)	✗
Update	PID, FLAVOR, FOOD	PID, FLAVOR, FOOD
Modify	✓	✓

Spool File:

```
SQL> @Z:assn4_views.sql
SQL> -- Consider the schema used in the Assignment3.
SQL>
SQL> -- Create the following views and perform DML operations on it. Classify whether the
view is updatable or not.
SQL>
SQL> -- 1. Create a view named Blue_Flavor, which display the product details (product id,
SQL> -- food, price) of Blueberry flavor.
SQL>
SQL> DROP VIEW Blue_Flavor;

View dropped.

SQL> -- Creating view
SQL> CREATE VIEW Blue_Flavor
2 AS
3 SELECT PID, FOOD, PRICE
4 FROM PRODUCTS
5 WHERE FLAVOR='Blueberry';

View created.

SQL>
SQL> -- DESC Blue_Flavor;
SQL>
SQL> --displaying items in Blue_Flavor
SQL> SELECT *
```

```
2 FROM Blue_Flavor;
```

PID	FOOD	PRICE
90-BLU-11	Tart	3.25
51-BLU	Danish	1.15

```
SQL>
```

```
SQL> --viewing the updatable columns in Blue_Flavor
```

```
SQL> SELECT COLUMN_NAME, UPDATABLE
2 FROM USER_UPDATABLE_COLUMNS
3 WHERE
4 TABLE_NAME='BLUE_FLAVOR';
```

COLUMN_NAME	UPD
PID	YES
FOOD	YES
PRICE	YES

```
SQL>
```

```
SQL> -- CREATING A SAVEPOINT
```

```
SQL> SAVEPOINT VIEW1;
```

Savepoint created.

```
SQL>
```

```
SQL> --inserting a tuple in products with flavour="Blueberry"
```

```
SQL> INSERT INTO PRODUCTS
2 VALUES
3 ('20-Ch', 'Blueberry', 'Chocolate', 15);
```

1 row created.

```
SQL>
```

```
SQL>
```

```
SQL> --displaying items in Blue_Flavor after adding tuple in products
```

```
SQL> SELECT *
2 FROM Blue_Flavor;
```

PID	FOOD	PRICE
90-BLU-11	Tart	3.25
51-BLU	Danish	1.15
20-Ch	Chocolate	15

```
SQL>
```

```
SQL> --updating a tuple in Blue_Flavor
```

```
SQL> UPDATE Blue_Flavor
2 SET PRICE=PRICE*1.15
3 WHERE PID='20-Ch';
```

1 row updated.

```
SQL>
SQL> --displaying items in Blue_Flavor after updating
SQL> SELECT *
  2 FROM Blue_Flavor
  3 WHERE PID ='20-Ch';
```

PID	FOOD	PRICE
20-Ch	Chocolate	17.25

```
SQL>
SQL> --displaying items in base table after updating
SQL> SELECT *
  2 FROM PRODUCTS
  3 WHERE PID ='20-Ch';
```

PID	FLAVOR	FOOD	PRICE
20-Ch	Blueberry	Chocolate	17.25

```
SQL>
SQL>
SQL> --deleting a tuple in Blue_Flavor
SQL> DELETE FROM Blue_Flavor WHERE PID='20-Ch';
```

1 row deleted.

```
SQL>
SQL> --displaying items in Blue_Flavor after deleting
SQL> SELECT *
  2 FROM Blue_Flavor
  3 WHERE PID ='20-Ch';
```

no rows selected

```
SQL>
SQL> --displaying items in base table after deleting
SQL> SELECT *
  2 FROM PRODUCTS
  3 WHERE PID ='20-Ch';
```

no rows selected

```
SQL>
SQL> --ROLLINGBACK TO SAVEPOINT
SQL> ROLLBACK
  2 TO VIEW1;
```

Rollback complete.

```
SQL>
SQL> --SAVING PROGRESS
SQL> COMMIT;
```

Commit complete.

SQL>

SQL> -- 2. Create a view named Cheap_Food, which display the details (product id, flavor,
SQL> -- food, price) of products with price lesser than \$1. Ensure that, the price of
these

SQL> -- food(s) should never rise above \$1 through view.

SQL>

SQL> DROP VIEW Cheap_Food;

View dropped.

SQL> -- Creating view

SQL> CREATE VIEW Cheap_Food

2 AS

3 SELECT PID, FLAVOR, FOOD, PRICE

4 FROM PRODUCTS

5 WHERE PRICE < 1

6 WITH CHECK OPTION;

View created.

SQL>

SQL> -- DESC Cheap_Food;

SQL>

SQL> -- Displaying the contents of the Cheap_Food

SQL> SELECT *

2 FROM Cheap_Food;

PID	FLAVOR	FOOD	PRICE
70-LEM	Lemon	Cookie	.79
70-W	Walnut	Cookie	.79

SQL>

SQL> --viewing the updatable columns in Cheap_Food

SQL> SELECT COLUMN_NAME, UPDATABLE

2 FROM USER_UPDATABLE_COLUMNS

3 WHERE

4 TABLE_NAME='CHEAP_FOOD';

COLUMN_NAME	UPD
PID	YES
FLAVOR	YES
FOOD	YES
PRICE	YES

SQL>

SQL> -- CREATING A SAVEPOINT

SQL> SAVEPOINT VIEW2;

Savepoint created.

```

SQL>
SQL>
SQL> --inserting a tuple in Cheap_Food
SQL>
SQL> insert INTO Cheap_Food
  2  values
  3  ('20-Ch1', 'Mango', 'Chocolate', 0.75);

1 row created.

SQL>
SQL>
SQL> --inserting a tuple in Cheap_Food with price>1
SQL>
SQL> insert INTO Cheap_Food
  2  values
  3  ('20-Ch2', 'Man', 'Choco', 1.75);
insert INTO Cheap_Food
      *

ERROR at line 1:
ORA-01402: view WITH CHECK OPTION where-clause violation

SQL>
SQL>
SQL> --displaying items in Cheap_Food after insertion
SQL> SELECT *
  2  FROM Cheap_Food
  3  WHERE PID='20-Ch1';

PID                FLAVOR                FOOD                PRICE
-----
20-Ch1             Mango                Chocolate             .75

SQL>
SQL> --displaying items in base table after insertion
SQL> SELECT *
  2  FROM PRODUCTS
  3  WHERE PID='20-Ch1';

PID                FLAVOR                FOOD                PRICE
-----
20-Ch1             Mango                Chocolate             .75

SQL>
SQL> --updating a tuple in Cheap_Food
SQL> UPDATE Cheap_Food
  2  SET PRICE=PRICE+0.1
  3  WHERE PID='20-Ch1';

1 row updated.

SQL>
SQL> --displaying items in Cheap_Food after updating

```

```
SQL> SELECT *
  2  FROM Cheap_Food
  3  WHERE PID ='20-Ch1';
```

PID	FLAVOR	FOOD	PRICE
20-Ch1	Mango	Chocolate	.85

```
SQL>
SQL> --displaying items in base table after updating
SQL> SELECT *
  2  FROM PRODUCTS
  3  WHERE PID='20-Ch1';
```

PID	FLAVOR	FOOD	PRICE
20-Ch1	Mango	Chocolate	.85

```
SQL>
SQL>
SQL> --deleting a tuple in Cheap_Food
SQL> DELETE FROM Cheap_Food WHERE PID='20-Ch1';
```

1 row deleted.

```
SQL>
SQL> --displaying items in Cheap_Food after deleting
SQL> SELECT *
  2  FROM Cheap_Food
  3  WHERE PID ='20-Ch1';
```

no rows selected

```
SQL>
SQL>
SQL> --displaying items in base table after deleting
SQL> SELECT *
  2  FROM PRODUCTS
  3  WHERE PID='20-Ch1';
```

no rows selected

```
SQL>
SQL>
SQL>
SQL>
SQL> --ROLLINGBACK TO SAVEPOINT
SQL> ROLLBACK
  2  TO VIEW2;
```

Rollback complete.

```
SQL>
SQL> --SAVING PROGRESS
```

```
SQL> COMMIT;
```

Commit complete.

```
SQL>
```

```
SQL> -- 3. Create a view called Hot_Food that show the product id and its quantity WHERE  
the
```

```
SQL> -- same product is ordered more than once in the same receipt.
```

```
SQL>
```

```
SQL> DROP VIEW Hot_Food;
```

View dropped.

```
SQL>
```

```
SQL> -- Creating view
```

```
SQL> CREATE VIEW Hot_Food
```

```
2  (  
3    pid,  
4    count  
5  )  
6  AS  
7    SELECT ITEM, COUNT(ITEM)  
8    FROM ITEM_LIST  
9    GROUP BY RNO,ITEM  
10   HAVING COUNT(*)>1;
```

View created.

```
SQL>
```

```
SQL>
```

```
SQL> -- DESC Hot_Food;
```

```
SQL>
```

```
SQL> --displaying items in Hot_Food
```

```
SQL> SELECT *  
2  FROM Hot_Food;
```

PID	COUNT
-----	-------

70-R	2
90-APR-PF	2
50-APP	2
51-ATW	2
90-ALM-I	2
90-BER-11	2
90-PEC-11	2
70-M-CH-DZ	2
46-11	2
70-M-CH-DZ	2
90-CHR-11	2

PID	COUNT
-----	-------

90-BLU-11	2
50-CHS	2


```

70-M-CH-DZ          2
70-R                2
90-APP-11           2
70-MAR             2
50-APR             2
51-BC              2
50-ALM             2

```

20 rows selected.

SQL>

SQL> --viewing the updatable columns in Hot_Food

```

SQL> SELECT COLUMN_NAME, UPDATABLE
  2 FROM USER_UPDATABLE_COLUMNS
  3 WHERE
  4 TABLE_NAME='HOT_FOOD';

```

COLUMN_NAME	UPD
PID	NO
COUNT	NO

SQL> -- This table isnt updatable because we have used aggregate functions (group by class)

SQL>

SQL>

SQL> -- CREATING A SAVEPOINT

SQL> SAVEPOINT VIEW3;

Savepoint created.

SQL>

SQL> --inserting a tuple in Cheap_Food

```

SQL> INSERT INTO Hot_Food
  2 VALUES('50-AB', 3);

```

INSERT INTO Hot_Food

*

ERROR at line 1:

ORA-01733: virtual column not allowed here

SQL>

SQL>

SQL> -- updating item in Hot_Food

```

SQL> UPDATE Hot_Food
  2 SET ITEM='54-SD9-34JS'
  3 WHERE ITEM='46-11';

```

WHERE ITEM='46-11'

*

ERROR at line 3:

ORA-00904: "ITEM": invalid identifier

SQL>

```
SQL> --updating quantity in Hot_Food
```

```
SQL> UPDATE Hot_Food
```

```
2 SET QUANTITY=4
```

```
3 WHERE ITEM='46-11';
```

```
WHERE ITEM='46-11'
```

```
*
```

```
ERROR at line 3:
```

```
ORA-00904: "ITEM": invalid identifier
```

```
SQL>
```

```
SQL> --deleting a row in Hot_Food
```

```
SQL> DELETE FROM Hot_Food WHERE ITEM='46-11';
```

```
DELETE FROM Hot_Food WHERE ITEM='46-11'
```

```
*
```

```
ERROR at line 1:
```

```
ORA-00904: "ITEM": invalid identifier
```

```
SQL>
```

```
SQL>
```

```
SQL> -- making changes in base table to see reflection
```

```
SQL> INSERT INTO PRODUCTS
```

```
2 VALUES('9-B', 'ORANGE', 'JUICE', 9);
```

```
1 row created.
```

```
SQL> INSERT INTO RECEIPTS
```

```
2 VALUES(12345, '9-JUN-22', 21);
```

```
1 row created.
```

```
SQL> INSERT INTO ITEM_LIST
```

```
2 VALUES(12345, 98, '9-B');
```

```
1 row created.
```

```
SQL> INSERT INTO ITEM_LIST
```

```
2 VALUES(12345, 99, '9-B');
```

```
1 row created.
```

```
SQL>
```

```
SQL> SELECT *
```

```
2 from Hot_food;
```

```
PID COUNT
```

```
-----
```

```
70-R 2
```

```
90-APR-PF 2
```

```
50-APP 2
```

```
51-ATW 2
```

```
90-ALM-I 2
```

```
90-BER-11 2
```

90-PEC-11	2
70-M-CH-DZ	2
46-11	2
70-M-CH-DZ	2
90-CHR-11	2

PID	COUNT
-----	-----

90-BLU-11	2
9-B	2
50-CHS	2
70-M-CH-DZ	2
70-R	2
90-APP-11	2
70-MAR	2
50-APR	2
51-BC	2
50-ALM	2

21 rows selected.

SQL> -- note the changes in counts

SQL> -- making changes in the base table reflects in the view but not vice versa

SQL>

SQL> --ROLLINGBACK TO SAVEPOINT

SQL> ROLLBACK

2 TO VIEW3;

Rollback complete.

SQL>

SQL> --SAVING PROGRESS

SQL> COMMIT;

Commit complete.

SQL>

SQL>

SQL> -- 4. Create a view named Pie_Food that will display the details (customer lname, flavor,

SQL> -- receipt number and date, ordinal) who had ordered the Pie food with receipt details.

SQL>

SQL> DROP VIEW Pie_Food;

View dropped.

SQL>

SQL> -- Creating view

SQL> CREATE VIEW Pie_Food

2 AS

3 SELECT LNAME, FLAVOR, I.RNO, RDATE, ORDINAL

4 FROM CUSTOMERS C, RECEIPTS R, ITEM_LIST I, PRODUCTS P

5 WHERE C.CID=R.CID AND R.RNO=I.RNO AND I.ITEM=P.PID AND FOOD='Pie';

View created.

SQL>

SQL> --displaying items in Pie_Food

SQL> SELECT *

2 FROM Pie_Food;

LNAME	FLAVOR	RNO	RDATE

ORDINAL			

JULIET	Apple	39685	28-OCT-07
4			

JULIET	Apple	66227	10-OCT-07
2			
TRAVIS	Apple	48647	09-OCT-07
2			

LNAME	FLAVOR	RNO	RDATE

ORDINAL			

JOSETTE	Apple	87454	21-OCT-07
1			

JOSETTE	Apple	47353	12-OCT-07
2			
RUPERT	Apple	53376	30-OCT-07
3			

LNAME	FLAVOR	RNO	RDATE

ORDINAL			

CUC	Apple	50660	18-OCT-07
2			

KIP	Apple	11548	21-OCT-07
2			
RAYFORD	Apple	29226	26-OCT-07
2			

LNAME	FLAVOR	RNO	RDATE

ORDINAL			

RAYFORD	Apple	51991	17-OCT-07
1			
ARIANE	Apple	39109	02-OCT-07
1			
ARIANE	Apple	44798	04-OCT-07
3			

LNAME	FLAVOR	RNO	RDATE
-----	-----	-----	-----
ORDINAL			

CHARLENE	Apple	98806	15-OCT-07
3			

13 rows selected.

```
SQL>
SQL> --viewing the updatable columns in Pie_Food
SQL> SELECT COLUMN_NAME, UPDATABLE
  2 FROM USER_UPDATABLE_COLUMNS
  3 WHERE
  4 TABLE_NAME='PIE_FOOD';
```

COLUMN_NAME	UPD
-----	---
LNAME	NO
FLAVOR	NO
RNO	YES
RDATE	NO
ORDINAL	YES

```
SQL>
SQL> -- THIS VIEW ISNT UPDATABLE BECAUSE WE HAVE JOINED MULTIPLE TABLE AND THE NOT NULL
COLUMNS FROM PRODUCTS , CUSTOMERS (PK) ARENT A PART OF THE VIEW
SQL>
SQL> -- CREATING A SAVEPOINT
SQL> SAVEPOINT VIEW4;
```

Savepoint created.

```
SQL>
SQL>
SQL> --inserting a tuple in Pie_Food
SQL> INSERT INTO Pie_Food
  2 VALUES('Tony', 'Blueberry', 51991, '9-Jun-21', 98);
INSERT INTO Pie_Food
*
ERROR at line 1:
ORA-01779: cannot modify a column which maps to a non key-preserved table
```

```

SQL>
SQL>
SQL> --displaying items in Pie_Food after inserting
SQL> SELECT *
      2 FROM Pie_Food
      3 WHERE LNAME='Steve';

no rows selected

SQL>
SQL>
SQL> --displaying items in base table after inserting
SQL> SELECT LNAME, FLAVOR, R.RNO, RDATE, ORDINAL
      2 FROM CUSTOMERS C, RECEIPTS R, ITEM_LIST I, PRODUCTS P
      3 WHERE C.CID=R.CID AND R.RNO=I.RNO AND I.ITEM=P.PID AND FOOD='Pie' AND LNAME='Tony';

no rows selected

SQL>
SQL>
SQL> --updating a tuple in Pie_Food
SQL> UPDATE Pie_Food SET LNAME='Steve' WHERE RNO=51991;
UPDATE Pie_Food SET LNAME='Steve' WHERE RNO=51991
      *

ERROR at line 1:
ORA-01779: cannot modify a column which maps to a non key-preserved table

SQL>
SQL> -- updating RNO
SQL> UPDATE Pie_Food SET RNO=51991 WHERE LNAME='Steve';
UPDATE Pie_Food SET RNO=51991 WHERE LNAME='Steve'
      *

ERROR at line 1:
ORA-01779: cannot modify a column which maps to a non key-preserved table

SQL>
SQL> -- updating ORDINAL
SQL> UPDATE Pie_Food SET ORDINAL=99 WHERE LNAME='Steve';

0 rows updated.

SQL>
SQL> -- updating FLAVOUR
SQL> UPDATE Pie_Food SET FLAVOR='NEW_FLAVOUR' WHERE LNAME='Steve';
UPDATE Pie_Food SET FLAVOR='NEW_FLAVOUR' WHERE LNAME='Steve'
      *

ERROR at line 1:
ORA-01779: cannot modify a column which maps to a non key-preserved table

SQL>
SQL>

```

```
SQL> --displaying items in Pie_Food after updating
SQL>
SQL> SELECT *
  2  from Pie_Food
  3  WHERE LNAME='Steve';

no rows selected

SQL>
SQL> --displaying items in base table after updating
SQL> SELECT LNAME, FLAVOR, R.RNO, RDATE, ORDINAL
  2  FROM CUSTOMERS C, RECEIPTS R, ITEM_LIST I, PRODUCTS P
  3  WHERE C.CID=R.CID AND R.RNO=I.RNO AND I.ITEM=P.PID AND FOOD='Pie' AND LNAME='Steve';

no rows selected

SQL>
SQL> -- deleting a tuple in view
SQL> SELECT *
  2  FROM Pie_Food
  3  WHERE LNAME='Steve';

no rows selected

SQL>
SQL> --displaying items in Pie_Food after deleting
SQL>
SQL> SELECT *
  2  from Pie_Food
  3  WHERE LNAME='Steve';

no rows selected

SQL>
SQL> --displaying items in base table after deleting
SQL> SELECT LNAME, FLAVOR, R.RNO, RDATE, ORDINAL
  2  FROM CUSTOMERS C, RECEIPTS R, ITEM_LIST I, PRODUCTS P
  3  WHERE C.CID=R.CID AND R.RNO=I.RNO AND I.ITEM=P.PID AND FOOD='Pie' AND LNAME='Steve';

no rows selected

SQL>
SQL>
SQL> --ROLLINGBACK TO SAVEPOINT
SQL> ROLLBACK
  2  TO VIEW4;

Rollback complete.

SQL>
SQL> --SAVING PROGRESS
SQL> COMMIT;

Commit complete.
```

```

SQL>
SQL> -- 5. Create a view Cheap_View from Cheap_Food that shows only the product id, flavor
SQL> -- and food.
SQL>
SQL> -- Creating view
SQL> CREATE VIEW Cheap_View
2 AS
3 SELECT PID, FLAVOR, FOOD
4 FROM CHEAP_FOOD;

```

View created.

```

SQL>
SQL> --displaying items in Cheap_View
SQL> SELECT *
2 FROM Cheap_View;

```

PID	FLAVOR	FOOD
70-LEM	Lemon	Cookie
70-W	Walnut	Cookie

```

SQL>
SQL> --viewing the updatable columns in Cheap_View
SQL> SELECT COLUMN_NAME, UPDATABLE
2 FROM USER_UPDATABLE_COLUMNS
3 WHERE
4 TABLE_NAME='CHEAP_VIEW';

```

COLUMN_NAME	UPD
PID	YES
FLAVOR	YES
FOOD	YES

```

SQL>
SQL>
SQL> -- CREATING A SAVEPOINT
SQL> SAVEPOINT NEW_VIEW;

```

Savepoint created.

```

SQL>
SQL> --inserting a tuple in Cheap_View
SQL> insert INTO Cheap_food
2 VALUES('20-Ch', 'Mango', 'Chocolate');
insert INTO Cheap_food
*
```

```

ERROR at line 1:
ORA-00947: not enough values

```

```

SQL>

```



```
SQL> --displaying items in Cheap_View after inserting
SQL> SELECT *
      2  from Cheap_View
      3  WHERE PID='20-Ch';

no rows selected

SQL>
SQL> --displaying items in Cheap_Food after inserting
SQL> SELECT *
      2  from Cheap_Food
      3  WHERE PID='20-Ch';

no rows selected

SQL>
SQL> --updating a tuple in Pie_Food
SQL>
SQL> UPDATE Cheap_View SET PID='20-Ch1' WHERE PID='20-Ch';

0 rows updated.

SQL> UPDATE Cheap_View SET FLAVOR='NEW_FLAVOUR' WHERE PID='20-Ch1';

0 rows updated.

SQL> UPDATE Cheap_View SET FOOD='New_Food' WHERE PID='20-Ch1';

0 rows updated.

SQL>
SQL> --displaying items in Cheap_View after updating
SQL> SELECT *
      2  from Cheap_View
      3  WHERE PID='20-Ch1';

no rows selected

SQL>
SQL> --displaying items in Cheap_Food after updating
SQL> SELECT *
      2  from Cheap_Food
      3  WHERE PID='20-Ch1';

no rows selected

SQL>
SQL>
SQL> DELETE FROM Cheap_View WHERE PID='20-Ch1';

0 rows deleted.

SQL> DELETE FROM Cheap_View WHERE FOOD='New_Food';
```

0 rows deleted.

SQL>

SQL>

SQL> *--displaying items in Cheap_View after deleting*

SQL> SELECT *

2 from Cheap_View

3 WHERE PID='20-Ch1';

no rows selected

SQL>

SQL> *--displaying items in Cheap_Food after deleting*

SQL> SELECT *

2 from Cheap_Food

3 WHERE PID='20-Ch1';

no rows selected

SQL>

SQL>

SQL> *--ROLLINGBACK TO SAVEPOINT*

SQL> ROLLBACK

2 TO NEW_VIEW;

Rollback complete.

SQL>

SQL> *--SAVING PROGRESS*

SQL> COMMIT;

Commit complete.

SQL>

SQL>

SQL>

SQL> *-- 6. Drop the view Cheap_View*

SQL>

SQL> DROP VIEW Cheap_View;

View dropped.

SQL>

SQL> spool off;