**Step 7: User Permissions**

Vaishnavi Pravin Apsingkar

NN: 142

**Part A: Some additional views**

**View vMaintenance142:**

CREATE VIEW vMaintenance142 AS

SELECT t.DriverID, t.TripID, m.TruckID, m.RepairType, m.RepairDate

FROM Maintenance m

INNER JOIN Trip t ON m.TruckID = t.TruckID;

**Result:**

Commands completed successfully.

**View vLivingExp142:**

CREATE VIEW vLivingExp142 AS

SELECT t.DriverID, le.TripID, e.Date, le.ExpenseNumber, le.Description, le.Amount

FROM LivingExpenses le

INNER JOIN Expense e ON le.TripID = e.TripID AND

le.ExpenseNumber = e.ExpenseNumber

INNER JOIN Trip t ON le.TripID = t.TripID;

**Result:**

Commands completed successfully.

**View vRoadExp142:**

CREATE VIEW vRoadExp142 AS

SELECT t.DriverID, re.TripID, e.Date, re.ExpenseNumber, re.FuelGallons,

re.FuelCost

FROM RoadExpenses re

INNER JOIN Expense e ON re.TripID = e.TripID AND

re.ExpenseNumber = e.ExpenseNumber

INNER JOIN Trip t ON re.TripID = t.TripID;

**Result:**

Commands completed successfully.

**Part B: Roles**

**Creating roles:**

* **Creating role rExpenses142 with select access on the views vLivingExp142 and vRoadExp142:**

CREATE ROLE rExpenses142;

GRANT SELECT ON vLivingExp142 TO rExpenses142;

GRANT SELECT ON vRoadExp142 TO rExpenses142;

**Result:**

Commands completed successfully.

* **Creating role vMaintenance142 with select access on view vMaintenance142:**

CREATE ROLE rMaintenance142;

GRANT SELECT ON vMaintenance142 TO rMaintenance142;

**Result:**

Commands completed successfully.

**Creating user for four logins - KOT\_Jack, KOT\_Joe, KOT\_Alice and KOT\_Jane:**

USE KOT142;

CREATE USER KOT\_Jack FOR LOGIN KOT\_Jack;

CREATE USER KOT\_Joe FOR LOGIN KOT\_Joe;

CREATE USER KOT\_Alice FOR LOGIN KOT\_Alice;

CREATE USER KOT\_Jane FOR LOGIN KOT\_Jane;

**Result:**

Commands completed successfully.

**Assigning users to roles:**

* **rExpenses142: KOT\_Jack, KOT\_Alice**

ALTER ROLE rExpenses142 ADD MEMBER KOT\_Jack;

ALTER ROLE rExpenses142 ADD MEMBER KOT\_Alice;

**Result:**

Commands completed successfully.

* **rMaintenance142: KOT\_Joe**

ALTER ROLE rMaintenance142 ADD MEMBER KOT\_Joe;

**Result:**

Commands completed successfully.

* **For KOT\_Jane assigning rExpenses142 role and rMaintenance142 role, without allowing this user to see vLivingExp142**

ALTER ROLE rExpenses142 ADD MEMBER KOT\_Jane;

ALTER ROLE rMaintenance142 ADD MEMBER KOT\_Jane;

DENY SELECT ON vLivingExp142 TO KOT\_Jane;

**Result:**

Commands completed successfully.

**Part C: Testing**

**For KOT\_Jack:**

* **On view vMaintenance142:**

EXECUTE AS USER = 'KOT\_Jack';

SELECT \* FROM vMaintenance142;

REVERT;

**Result:**

Msg 229, Level 14, State 5, Line 2

The SELECT permission was denied on the object 'vMaintenance142', database 'KOT142', schema 'dbo'.

* **On view vRoadExp142:**

EXECUTE AS USER = 'KOT\_Jack';

SELECT \* FROM vRoadExp142;

REVERT;

**Result:**

DriverID TripID Date ExpenseNumber FuelGallons FuelCost

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

D101 T002 2022-06-02 2 10 38.50

D102 T003 2022-06-02 2 50 53.85

D107 T004 2022-06-03 2 10 37.50

D142 T012 2023-06-04 2 10 38.50

(4 rows affected)

* **On view vLivingExp142:**

EXECUTE AS USER = 'KOT\_Jack';

SELECT \* FROM vLivingExp142;

REVERT;

**Result:**

DriverID TripID Date ExpenseNumber Description Amount

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

D101 T001 2022-06-02 1 Lunch 8.27

D101 T002 2022-06-02 1 Lunch 7.13

D102 T003 2022-06-02 1 Lunch 6.16

D102 T003 2022-06-02 3 Dinner 22.03

D107 T004 2022-06-03 1 Lunch 7.13

D302 T011 2022-06-04 1 Lunch 9.23

D142 T012 2023-06-04 1 Lunch 7.13

D142 T012 2023-06-04 3 Dinner 22.03

(8 rows affected)

The user KOT\_Jack is assigned a role rExpense142. Thus, he can access the views vRoadExp142 and vLivingExp142 but not vMaintenance142. Due to this, we got the above results for KOT\_Jack, where he could only access and view data for vRoadExp142 and vLivingExp142.

**For KOT\_Joe:**

* **On view vMaintenance142:**

EXECUTE AS USER = 'KOT\_Joe';

SELECT \* FROM vMaintenance142;

REVERT;

**Result:**

DriverID TripID TruckID RepairType RepairDate

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

D101 T001 B-017 Muffler 2022-08-02

D101 T002 B-017 Muffler 2022-08-02

D102 T003 S-001 New tires 2021-02-02

D102 T003 S-001 Oil change 2021-02-02

D280 T007 B-001 Oil change 2022-03-22

D301 T008 B-001 Oil change 2022-03-22

D301 T009 B-001 Oil change 2022-03-22

D301 T010 B-017 Muffler 2022-08-02

(8 rows affected)

* **On view vRoadExp142:**

EXECUTE AS USER = 'KOT\_Joe';

SELECT \* FROM vRoadExp142;

REVERT;

**Result:**

Msg 229, Level 14, State 5, Line 2

The SELECT permission was denied on the object 'vRoadExp142', database 'KOT142', schema 'dbo'.

* **On view vLivingExp142:**

EXECUTE AS USER = 'KOT\_Joe';

SELECT \* FROM vLivingExp142;

REVERT;

**Result:**

Msg 229, Level 14, State 5, Line 2

The SELECT permission was denied on the object 'vLivingExp142', database 'KOT142', schema 'dbo'.

For user KOT\_Joe, the role rMaintenance142 is assigned. Thus, he can access the view vMaintenance142 but not vRoadExp142 and vLivingExp142. Due to this, we got above results for KOT\_Joe, where he could only access and see data from view vMaintenance142.

**For KOT\_Alice:**

* **On view vMaintenance142:**

EXECUTE AS USER = 'KOT\_Alice';

SELECT \* FROM vMaintenance142;

REVERT;

**Result:**

Msg 229, Level 14, State 5, Line 2

The SELECT permission was denied on the object 'vMaintenance142', database 'KOT142', schema 'dbo'.

* **On view vRoadExp142:**

EXECUTE AS USER = 'KOT\_Alice';

SELECT \* FROM vRoadExp142;

REVERT;

**Result:**

DriverID TripID Date ExpenseNumber FuelGallons FuelCost

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

D101 T002 2022-06-02 2 10 38.50

D102 T003 2022-06-02 2 50 53.85

D107 T004 2022-06-03 2 10 37.50

D142 T012 2023-06-04 2 10 38.50

(4 rows affected)

* **On view vLivingExp142:**

EXECUTE AS USER = 'KOT\_Alice';

SELECT \* FROM vLivingExp142;

REVERT;

**Result:**

DriverID TripID Date ExpenseNumber Description Amount

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

D101 T001 2022-06-02 1 Lunch 8.27

D101 T002 2022-06-02 1 Lunch 7.13

D102 T003 2022-06-02 1 Lunch 6.16

D102 T003 2022-06-02 3 Dinner 22.03

D107 T004 2022-06-03 1 Lunch 7.13

D302 T011 2022-06-04 1 Lunch 9.23

D142 T012 2023-06-04 1 Lunch 7.13

D142 T012 2023-06-04 3 Dinner 22.03

(8 rows affected)

The user KOT\_Alice is assigned a role rExpenses142. Thus, he can access the views vRoadExp142 and vLivingExp142 but not vMaintenance142. Due to this, we got the above results for KOT\_Alice, where he could only access and view data for vRoadExp142 and vLivingExp142.

**For KOT\_Jane:**

* **On view vMaintenance142:**

EXECUTE AS USER = 'KOT\_Jane';

SELECT \* FROM vMaintenance142;

REVERT;

**Result:**

DriverID TripID TruckID RepairType RepairDate

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

D101 T001 B-017 Muffler 2022-08-02

D101 T002 B-017 Muffler 2022-08-02

D102 T003 S-001 New tires 2021-02-02

D102 T003 S-001 Oil change 2021-02-02

D280 T007 B-001 Oil change 2022-03-22

D301 T008 B-001 Oil change 2022-03-22

D301 T009 B-001 Oil change 2022-03-22

D301 T010 B-017 Muffler 2022-08-02

(8 rows affected)

* **On view vRoadExp142:**

EXECUTE AS USER = 'KOT\_Jane';

SELECT \* FROM vRoadExp142;

REVERT;

**Result:**

DriverID TripID Date ExpenseNumber FuelGallons FuelCost

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

D101 T002 2022-06-02 2 10 38.50

D102 T003 2022-06-02 2 50 53.85

D107 T004 2022-06-03 2 10 37.50

D142 T012 2023-06-04 2 10 38.50

(4 rows affected)

* **On view vLivingExp142:**

EXECUTE AS USER = 'KOT\_Jane';

SELECT \* FROM vLivingExp142;

REVERT;

**Result:**

Msg 229, Level 14, State 5, Line 2

The SELECT permission was denied on the object 'vLivingExp142', database 'KOT142', schema 'dbo'.

For user KOT\_Jane, the role rExpenses142 and rMaintenance142 is assigned, but explicitly the permission is denied to access vLivingExp142. Thus, KOT\_Jane could access data only from views vMaintenance142 and vRoadExp142, but not from vLivingExp142. Due to this we got above results for KOT\_Jane where he could access and view data from views vMaintenance142 and vRoadExp142.