

## Step 6: Dynamic Data Masking

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NN: 142

### Part A: Implementing Dynamic Data Masking

To mask the “Name” and “Salary”:

```
use KOT142;
ALTER TABLE Driver
ALTER COLUMN Name ADD MASKED WITH (FUNCTION = 'default()');

ALTER TABLE Driver
ALTER COLUMN Salary ADD MASKED WITH (FUNCTION = 'default()');
```

**Result:**

Commands completed successfully.

### Part B: Creating user and granting permission

To create new user:

```
use KOT142;

CREATE USER user142 WITHOUT LOGIN;
```

**Result:**

Commands completed successfully.

To grant permissions to the user:

```
use KOT142;
GRANT SELECT ON Driver TO user142;
```

**Result:**

Commands completed successfully.

## For Testing:

As admin:

```
SELECT Name, Salary FROM Driver WHERE DriverID = 'D107';
```

Result:

Name	Salary
Dave White	59100.00

(1 row affected)

This shows original data to the admin.

As user142 (for whom data is masked) to test the mask:

```
EXECUTE AS USER = 'user142';  
SELECT Name, Salary FROM Driver WHERE DriverID = 'D107';  
REVERT;
```

Result:

Name	Salary
xxxx	0.00

(1 row affected)

This shows masked data for user142.

As user142 trying to access another table (who has no access to it):

```
EXECUTE AS USER = 'user142';  
SELECT * FROM Truck;  
REVERT;
```

Result:

Msg 229, Level 14, State 5, Line 2  
The SELECT permission was denied on the object 'Truck', database 'KOT142', schema 'dbo'.

This shows that it denies access to the data for user142 for 'Truck' table as no access has been given to it.

As an admin to see actual data in within ranges(data without mask):

```
SELECT Name, Salary FROM Driver WHERE Salary BETWEEN 50000 AND 60000;
```

Result:

Name	Salary
Dave White	59100.00
Vaishnavi Apsingkar	60000.00
John Dough	58000.00
Gail Brown	58000.00
Mark White	59200.00
Bob Jones	59000.00

(6 rows affected)

This shows the original data in range 50000 and 60000.

As user142, checking the data driver with ID 'D107', is in which range:

- Checking in range from 0 to 100000:

```
EXECUTE AS USER = 'user142';  
SELECT * FROM Driver WHERE Salary>0  
AND Salary<100000;
```

Result:

DriverID	Name	Salary	StartDate	Status
D101	xxxx	0.00	2021-11-12	Full
D102	xxxx	0.00	2021-10-30	Full
D107	xxxx	0.00	2022-01-12	Full
D110	xxxx	0.00	2021-06-22	Part
D142	xxxx	0.00	2023-01-06	Part
D225	xxxx	0.00	2021-05-15	Full
D280	xxxx	0.00	2022-01-12	Full
D301	xxxx	0.00	2022-03-05	Part
D302	xxxx	0.00	2022-03-06	Part

(9 rows affected)

The data with D107 is available in result, means this driver has salary is range from 0 to 100000.

- Checking in range from 0 to 50000:

```
EXECUTE AS USER = 'user142';  
SELECT * FROM Driver WHERE Salary>0  
AND Salary<50000;
```

**Result:**

DriverID	Name	Salary	StartDate	Status
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(0 rows affected)

Here, the data for driver ID 'D107' is not available in result. Thus, salary of this driver is in range from 50000 to 100000.