

Handling Null Values in Rollup and Cubes

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📌 Handling NULL Values in ROLLUP and CUBE

♦ Quick Recap

- **ROLLUP** → creates subtotals moving from detail → higher level → grand total.
- **CUBE** → creates subtotals for **all combinations** of dimensions.

Both generate **NULLs** in output when showing **totals**.

🔧 Example Table

```
CREATE TABLE sales (  
  region VARCHAR2(20),  
  product VARCHAR2(20),  
  amount NUMBER  
);  
INSERT INTO sales VALUES ('North', 'Laptop', 50000);  
INSERT INTO sales VALUES ('North', 'Mobile', 30000);  
INSERT INTO sales VALUES ('South', 'Laptop', 20000);  
INSERT INTO sales VALUES ('South', 'Mobile', 10000);
```

♦ Using ROLLUP

```
SELECT region, product, SUM(amount) AS total_sales  
FROM sales  
GROUP BY ROLLUP (region, product);
```

✅ Output

REGION	PRODUCT	TOTAL_SALES
North	Laptop	50000
North	Mobile	30000

North	NULL	80000 ← subtotal for North
South	Laptop	20000
South	Mobile	10000
South	NULL	30000 ← subtotal for South
NULL	NULL	110000 ← grand total

🔍 Here, NULL does **not mean missing data**.
It means → **subtotal or total** level.

♦ Using CUBE

```
SELECT region, product, SUM(amount) AS total_sales
FROM sales
GROUP BY CUBE (region, product);
```

✅ Output

REGION	PRODUCT	TOTAL_SALES
North	Laptop	50000
North	Mobile	30000
North	NULL	80000 ← subtotal by region
South	Laptop	20000
South	Mobile	10000
South	NULL	30000 ← subtotal by region
NULL	Laptop	70000 ← subtotal by product
NULL	Mobile	40000 ← subtotal by product
NULL	NULL	110000 ← grand total

🎯 How to Handle NULLs in ROLLUP and CUBE

Since these NULLs are **not real missing values** but **subtotal markers**, we should **replace them with meaningful labels**.

✅ Use COALESCE() or NVL()

```
SELECT
    COALESCE(region, 'ALL REGIONS') AS region,
    COALESCE(product, 'ALL PRODUCTS') AS product,
    SUM(amount) AS total_sales
FROM sales
GROUP BY CUBE (region, product);
```

📌 Clean Output

REGION	PRODUCT	TOTAL_SALES
North	Laptop	50000
North	Mobile	30000
North	ALL PRODUCTS	80000
South	Laptop	20000
South	Mobile	10000

South	ALL PRODUCTS	30000
ALL REGIONS	Laptop	70000
ALL REGIONS	Mobile	40000
ALL REGIONS	ALL PRODUCTS	110000

✓ Key Takeaways

1. **NULL in ROLLUP/CUBE = subtotal/total**, not missing data.
2. Use **COALESCE()** or **NVL()** to replace NULL with meaningful text ('ALL', 'TOTAL').
3. Always explain this to beginners, so they don't misinterpret NULLs as "no data".