**BUSINESS REQUIREMENTS**

1. **Tax per Return**

ALTER TABLE quarterlysalestax ADD COLUMN tax\_per\_return DECIMAL(18,4);

UPDATE quarterlysalestax

SET tax\_per\_return = CASE

WHEN number\_of\_returns > 0 THEN computed\_tax / number\_of\_returns

ELSE 0 END;

1. **Tax per Sale**

ALTER TABLE quarterlysalestax ADD COLUMN tax\_per\_sale\_ratio DECIMAL(18,6);

UPDATE quarterlysalestax

SET tax\_per\_sale\_ratio = CASE

WHEN taxable\_sales > 0 THEN computed\_tax / taxable\_sales

ELSE 0 END;

1. **Top-N Queries for Power BI**
   1. **Top 10 Counties by Computed Tax**

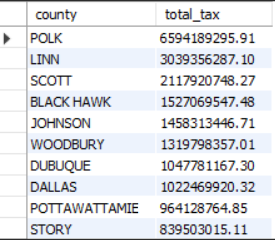
SELECT county, SUM(computed\_tax) AS total\_tax

FROM quarterlysalestax

GROUP BY county

ORDER BY total\_tax DESC

LIMIT 10;



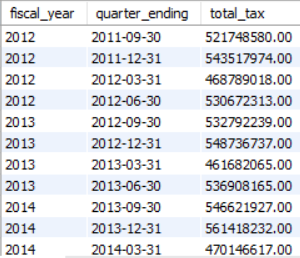
* 1. **Computed Tax by Quarter**

SELECT fiscal\_year, quarter\_ending, SUM(computed\_tax) AS total\_tax

FROM quarterlysalestax

GROUP BY fiscal\_year, quarter\_ending

ORDER BY quarter\_ending;



* 1. **County Contribution Percentage**

SELECT

county,

SUM(computed\_tax) AS total\_tax,

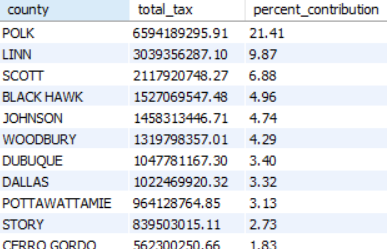
ROUND(SUM(computed\_tax) \* 100 /

(SELECT SUM(computed\_tax) FROM quarterlysalestax), 2) AS percent\_contribution

FROM quarterlysalestax

GROUP BY county

ORDER BY percent\_contribution DESC;



1. **Anomaly Detection (SQL Pre-Flagging)**
   1. **Mark rows with unusually high tax\_per\_sale\_ratio (using standard deviation threshold)**

-- Get avg and stddev

SELECT

AVG(tax\_per\_sale\_ratio) AS mean\_val,

STDDEV(tax\_per\_sale\_ratio) AS std\_val

INTO @mean\_val, @std\_val

FROM quarterlysalestax;

-- Add anomaly flag column

ALTER TABLE quarterlysalestax ADD COLUMN anomaly\_flag VARCHAR(10) DEFAULT 'Normal';

-- Update flag

UPDATE quarterlysalestax

SET anomaly\_flag = 'Anomaly'

WHERE ABS(tax\_per\_sale\_ratio - @mean\_val) > 2 \* @std\_val;