Based on our use case — non-technical staff querying in natural language to discover relevant non-clinical metrics.

· Here are few sample user queries to test your code generation agent.

· Copy Paste the output and fill all the queries.

*QUERY 1*

USER QUERY

I need to understand if our emergency departments with shorter waiting times actually have happier patients. Can you show me the relationship between waiting times, door-to-doctor times, and patient satisfaction scores across all our hospitals? I want to see which hospitals are doing well in both speed and satisfaction.

AGENT RESPONSE

Based on the analysis of the most recent data, here are the key findings about ED performance:

1. Best Overall Performers:

* DEPT013 and DEPT049 (tied for best overall performance score: 3.67)
* Both balance good waiting times with high patient satisfaction

1. Speed vs. Satisfaction Highlights:

* DEPT025 has the highest patient satisfaction (4.30) despite longer door-to-doctor times
* DEPT013 has the fastest door-to-doctor time (21.7 minutes)
* DEPT001 has the shortest average wait time (44.9 minutes)

1. Key Patterns:

* Faster wait times don't always correlate with higher satisfaction scores
* The top performers tend to balance both metrics rather than excel in just one area
* Patient satisfaction scores range from 3.63 to 4.30 across departments

This analysis shows that while speed is important, it's not the only factor in patient satisfaction, suggesting that other aspects of care quality also significantly impact patient experience.

SQL\_QUERY:

WITH ed\_performance AS ( SELECT h.hospital\_name, AVG(em.waiting\_time) as avg\_waiting\_time, AVG(em.door\_to\_doctor\_time) as avg\_door\_to\_doctor, AVG(pem.patient\_satisfaction\_score) as avg\_satisfaction, COUNT(*) as total\_visits, PERCENTILE\_CONT(0.90) WITHIN GROUP (ORDER BY em.waiting\_time) as waiting\_time\_90th, PERCENTILE\_CONT(0.90) WITHIN GROUP (ORDER BY em.door\_to\_doctor\_time) as door\_to\_doctor\_90th FROM ed\_metrics em JOIN hospitals h ON h.hospital\_id = em.hospital\_id JOIN patient\_experience\_metrics pem ON pem.hospital\_id = em.hospital\_id WHERE em.date >= DATEADD(month, -12, CURRENT\_DATE) GROUP BY h.hospital\_name ), rankings AS ( SELECT hospital\_name, ROUND(avg\_waiting\_time, 1) as avg\_wait\_minutes, ROUND(avg\_door\_to\_doctor, 1) as avg\_door\_to\_doc\_minutes, ROUND(avg\_satisfaction, 2) as satisfaction\_score, ROUND(waiting\_time\_90th, 1) as wait\_time\_90th\_percentile, ROUND(door\_to\_doctor\_90th, 1) as door\_to\_doc\_90th\_percentile, total\_visits, RANK() OVER (ORDER BY avg\_waiting\_time) as wait\_time\_rank, RANK() OVER (ORDER BY avg\_door\_to\_doctor) as door\_to\_doc\_rank, RANK() OVER (ORDER BY avg\_satisfaction DESC) as satisfaction\_rank, RANK() OVER (ORDER BY (avg\_satisfaction - (avg\_waiting\_time/100)) DESC) as overall\_efficiency\_rank FROM ed\_performance ) SELECT hospital\_name, avg\_wait\_minutes, avg\_door\_to\_doc\_minutes, satisfaction\_score, wait\_time\_90th\_percentile, door\_to\_doc\_90th\_percentile, total\_visits, CASE WHEN wait\_time\_rank <= 3 AND satisfaction\_rank <= 3 THEN 'Top Performer' WHEN wait\_time\_rank <= 5 AND satisfaction\_rank <= 5 THEN 'Above Average' WHEN wait\_time\_rank >= (SELECT COUNT(*) FROM rankings) - 2 THEN 'Needs Improvement' ELSE 'Average' END as performance\_category, overall\_efficiency\_rank as efficiency\_ranking FROM rankings ORDER BY overall\_efficiency\_rank;

A graph with colored dots

AI-generated content may be incorrect.

*QUERY 2*

USER QUERY

Our quality team is concerned about medication errors and patient falls. Can you show me the trends for medication errors, patient falls, and overall safety incidents by department over the last year? I want to see which departments are improving and which ones need immediate attention.

AGENT RESPONSE

Based on the analysis of safety metrics over the past year, here are the key findings:

1. Departments Needing Immediate Attention:

* DEPT001: Shows concerning trends with medication errors increasing from 2 to 3 incidents per month in recent months, and falls rate consistently above 3.0 per 1000 patient days
* DEPT002: While medication errors are low, they show significant volatility in falls rate (ranging from 1.66 to 3.21 in recent months)

1. Departments Showing Improvement:

* DEPT003: Demonstrates consistent improvement with:
  + Lower medication error rates (mostly 0-1 per month)
  + Stable safety incidents (0-1 per month)
  + Generally lower falls rate compared to other departments

Recommendation: Focus immediate quality improvement efforts on DEPT001 and DEPT002, particularly their falls prevention programs and medication safety protocols.

**SQL\_QUERY:**

WITH monthly\_metrics AS ( SELECT d.department\_name, DATE\_TRUNC('month', si.incident\_date) as month, COUNT(CASE WHEN si.incident\_type = 'Medication Error' THEN 1 END) as medication\_errors, COUNT(CASE WHEN si.incident\_type = 'Patient Fall' THEN 1 END) as patient\_falls, COUNT(*) as total\_incidents, COUNT(*) \* 1.0 / NULLIF(d.patient\_count, 0) \* 1000 as incident\_rate\_per\_1000 FROM safety\_incidents si JOIN departments d ON si.department\_id = d.department\_id WHERE si.incident\_date >= DATEADD(year, -1, CURRENT\_DATE) GROUP BY d.department\_name, DATE\_TRUNC('month', si.incident\_date), d.patient\_count ), trend\_analysis AS ( SELECT department\_name, month, medication\_errors, patient\_falls, total\_incidents, incident\_rate\_per\_1000, LAG(medication\_errors) OVER (PARTITION BY department\_name ORDER BY month) as prev\_month\_med\_errors, LAG(patient\_falls) OVER (PARTITION BY department\_name ORDER BY month) as prev\_month\_falls, LAG(total\_incidents) OVER (PARTITION BY department\_name ORDER BY month) as prev\_month\_total FROM monthly\_metrics ) SELECT department\_name, month, medication\_errors, patient\_falls, total\_incidents, ROUND(incident\_rate\_per\_1000, 2) as incidents\_per\_1000\_patients, ROUND(((medication\_errors - prev\_month\_med\_errors)::float / NULLIF(prev\_month\_med\_errors, 0) \* 100), 1) as med\_error\_change\_pct, ROUND(((patient\_falls - prev\_month\_falls)::float / NULLIF(prev\_month\_falls, 0) \* 100), 1) as falls\_change\_pct, ROUND(((total\_incidents - prev\_month\_total)::float / NULLIF(prev\_month\_total, 0) \* 100), 1) as total\_incident\_change\_pct, CASE WHEN ((total\_incidents - prev\_month\_total)::float / NULLIF(prev\_month\_total, 0)) > 0.1 THEN 'Needs Immediate Attention' WHEN ((total\_incidents - prev\_month\_total)::float / NULLIF(prev\_month\_total, 0)) > 0 THEN 'Monitor Closely' ELSE 'Improving' END as status FROM trend\_analysis ORDER BY month DESC, total\_incidents DESC;

*QUERY 3*

USER QUERY

The board wants to know if hospitals that spend more money actually provide better patient care. Show me how our revenue per patient, costs per case, and patient satisfaction scores relate to each other. Which hospitals are giving us the best return on investment in terms of patient experience?

AGENT RESPONSE

# Add the output

{ "single\_table": false, "tables": [ { "name": "hospital\_administration\_metrics", "description": "Metrics related to hospital administration operations and performance", "relevant\_columns": [ { "name": "hospital\_id", "description": "Unique identifier for the hospital or department" }, { "name": "revenue\_per\_patient\_day", "description": "Revenue generated per patient per day", "calculation": "Total Revenue / Patient Days" }, { "name": "cost\_per\_case", "description": "Average cost incurred per case handled", "calculation": "Total Operational Cost / Number of Cases" } ] }, { "name": "patient\_experience\_metrics", "description": "Metrics related to patient experience and satisfaction", "relevant\_columns": [ { "name": "hospital\_id", "description": "Unique identifier for the hospital" }, { "name": "patient\_satisfaction\_score", "description": "Overall patient satisfaction score (typically on a scale of 1 to 5)", "calculation": "Aggregated average score from surveys" }, { "name": "net\_promoter\_score", "description": "Net Promoter Score indicating likelihood of patient recommendation (0-100)", "calculation": "Derived from patient survey responses" } ] }, { "name": "hospitals", "description": "Information about different hospitals and their facilities", "relevant\_columns": [ { "name": "hospital\_id", "description": "Unique identifier for the hospital" } ] } ], "join\_relationships": [ "hospitals.hospital\_id → hospital\_administration\_metrics.hospital\_id", "hospitals.hospital\_id → patient\_experience\_metrics.hospital\_id" ], "calculation": [ "Average revenue per patient day", "Average cost per case", "Average patient satisfaction scores", "Correlation between financial metrics and satisfaction scores" ], "granularity": "Hospital-level monthly" }

**SQL\_QUERY:**

WITH metrics AS ( SELECT h.hospital\_id, h.hospital\_name, AVG(ham.revenue\_per\_patient\_day) as avg\_revenue\_per\_day, AVG(ham.cost\_per\_case) as avg\_cost\_per\_case, AVG(pem.patient\_satisfaction\_score) as avg\_satisfaction\_score, AVG(ham.revenue\_per\_patient\_day) / NULLIF(AVG(ham.cost\_per\_case), 0) as roi\_ratio FROM hospitals h JOIN hospital\_administration\_metrics ham ON h.hospital\_id = ham.hospital\_id JOIN patient\_experience\_metrics pem ON h.hospital\_id = pem.hospital\_id GROUP BY h.hospital\_id, h.hospital\_name ) SELECT hospital\_name, ROUND(avg\_revenue\_per\_day, 2) as avg\_daily\_revenue, ROUND(avg\_cost\_per\_case, 2) as avg\_case\_cost, ROUND(avg\_satisfaction\_score, 2) as satisfaction\_score, ROUND(roi\_ratio, 3) as revenue\_to\_cost\_ratio, RANK() OVER (ORDER BY (avg\_satisfaction\_score \* roi\_ratio) DESC) as overall\_rank FROM metrics ORDER BY overall\_rank;

*QUERY 4*

USER QUERY

I need a comprehensive report on our surgery departments. Which types of surgeries have the highest infection rates, longest recovery times, and most cancellations? Also show me which hospitals are performing best for each surgery type. The chief medical officer wants to see where we need to improve.

AGENT RESPONSE

Based on the analysis of surgical departments, here are the key findings:

Highest Risk Areas:

1. Infection Rates:

* Gynecology (GYN): 2.15%
* Cardiology (CARD): 2.12%
* ENT: 2.09%

1. Longest Recovery Times:

* Cardiology: 6.5 days
* Neurosurgery (NEU): 5.4 days
* Vascular/Orthopedic: 4.0 days

1. Highest Cancellation Rates:

* Orthopedics (ORTH): 10.30%
* Cardiology: 10.18%
* ENT: 10.01%

Best Performing Areas:

* Lowest infection rates: Urology (1.85%), Plastic Surgery (1.87%), General Surgery (1.89%)
* Shortest recovery times: ENT (1.4 days), Plastic Surgery (1.5 days), Gynecology (2.1 days)
* Lowest cancellation rates: Plastic Surgery (9.51%), Vascular (9.63%), Urology (9.71%)

Areas Needing Improvement:

1. Cardiology department shows concerning metrics across all categories (high infection rates, longest recovery times, and high cancellation rates)
2. Gynecology has the highest infection rate and needs infection control measures
3. Orthopedics has the highest cancellation rate and needs operational efficiency improvements

Volume Context:

* General Surgery handles the highest volume (96 monthly surgeries)
* Plastic Surgery has the lowest volume (29 monthly surgeries)

**SQL\_QUERY:**

WITH surgery\_metrics AS ( SELECT h.hospital\_name, sp.surgery\_type, AVG(sp.infection\_rate) as avg\_infection\_rate, AVG(sp.recovery\_time) as avg\_recovery\_days, COUNT(CASE WHEN sp.status = 'Cancelled' THEN 1 END) \* 100.0 / COUNT(*) as cancellation\_rate, COUNT(*) as total\_procedures FROM surgical\_procedures sp JOIN hospitals h ON h.hospital\_id = sp.hospital\_id GROUP BY h.hospital\_name, sp.surgery\_type ), rankings AS ( SELECT surgery\_type, hospital\_name, avg\_infection\_rate, avg\_recovery\_days, cancellation\_rate, total\_procedures, RANK() OVER (PARTITION BY surgery\_type ORDER BY avg\_infection\_rate) as infection\_rank, RANK() OVER (PARTITION BY surgery\_type ORDER BY avg\_recovery\_days) as recovery\_rank, RANK() OVER (PARTITION BY surgery\_type ORDER BY cancellation\_rate) as cancellation\_rank FROM surgery\_metrics ) SELECT surgery\_type, ROUND(AVG(avg\_infection\_rate), 2) as avg\_infection\_rate\_pct, ROUND(AVG(avg\_recovery\_days), 1) as avg\_recovery\_days, ROUND(AVG(cancellation\_rate), 2) as cancellation\_rate\_pct, MAX(CASE WHEN infection\_rank = 1 THEN hospital\_name END) as best\_infection\_rate\_hospital, MAX(CASE WHEN recovery\_rank = 1 THEN hospital\_name END) as best\_recovery\_time\_hospital, MAX(CASE WHEN cancellation\_rank = 1 THEN hospital\_name END) as lowest\_cancellation\_hospital, SUM(total\_procedures) as total\_procedures FROM rankings GROUP BY surgery\_type ORDER BY avg\_infection\_rate\_pct DESC;

*QUERY 5*

USER QUERY

Our ICUs are always busy and expensive to run. Show me how bed occupancy rates relate to patient outcomes like mortality rates and readmissions. Are we overcrowding our ICUs and hurting patient care? Which hospitals manage their ICU capacity best?

AGENT RESPONSE

Based on the analysis of ICU performance data, here are the key findings:

1. Occupancy Patterns:

* ICU occupancy rates vary significantly across units, ranging from 64% to 85%
* The busiest ICUs (DEPT032 and DEPT092) consistently operate at ~85% capacity

1. Patient Outcomes:

* Higher occupancy ICUs (>80%) tend to have higher mortality rates (16-20%)
* Lower occupancy ICUs (<70%) generally show lower mortality rates (11-12%)
* Readmission rates vary from 3.3% to 6.5%

1. Capacity Management:

* Best performing ICUs (DEPT116 and DEPT056) maintain moderate occupancy (~75%) with lower mortality rates (13-14%)
* Some units (DEPT007 and DEPT068) show concerning patterns with both high mortality (23%) and high readmission rates (6.4%)

1. Correlation Analysis:

* The correlations between occupancy and outcomes are generally weak but vary by unit
* Some units show positive correlation between occupancy and mortality (0.208 in DEPT104)
* Others show negative correlation (-0.222 in DEPT056)

Recommendation: Focus on the practices of DEPT116 and DEPT056, which maintain balanced occupancy rates while achieving better patient outcomes.

**SQL\_QUERY:**

WITH monthly\_metrics AS ( SELECT h.hospital\_name, h.hospital\_type, DATE\_TRUNC('month', im.date) AS month, AVG(im.bed\_occupancy\_rate\_monthly) as avg\_occupancy, AVG(im.icu\_mortality\_rate) as avg\_mortality, AVG(im.icu\_readmission\_rate\_48h) as avg\_readmission FROM icu\_metrics im JOIN departments d ON d.department\_id = im.icu\_id JOIN hospitals h ON h.hospital\_id = d.hospital\_id GROUP BY h.hospital\_name, h.hospital\_type, DATE\_TRUNC('month', im.date) ), hospital\_performance AS ( SELECT hospital\_name, hospital\_type, AVG(avg\_occupancy) as yearly\_avg\_occupancy, AVG(avg\_mortality) as yearly\_avg\_mortality, AVG(avg\_readmission) as yearly\_avg\_readmission, CORR(avg\_occupancy, avg\_mortality) as occupancy\_mortality\_correlation, CORR(avg\_occupancy, avg\_readmission) as occupancy\_readmission\_correlation FROM monthly\_metrics GROUP BY hospital\_name, hospital\_type ) SELECT hospital\_name, hospital\_type, ROUND(yearly\_avg\_occupancy, 2) as avg\_occupancy\_rate, ROUND(yearly\_avg\_mortality, 2) as avg\_mortality\_rate, ROUND(yearly\_avg\_readmission, 2) as avg\_readmission\_rate, ROUND(occupancy\_mortality\_correlation, 3) as mortality\_correlation, ROUND(occupancy\_readmission\_correlation, 3) as readmission\_correlation FROM hospital\_performance ORDER BY yearly\_avg\_occupancy DESC;

*QUERY 5*

USER QUERY

The finance director is asking about our revenue collection. How long does it take us to collect payments? What percentage of insurance claims get denied? Show me which hospitals are best at billing accuracy and getting paid quickly. Are there patterns we can learn from?

AGENT RESPONSE

# Add the output

{ "single\_table": false, "tables": [ { "name": "financial\_metrics", "description": "Metrics related to financial operations", "relevant\_columns": [ { "name": "accounts\_receivable\_days", "description": "Average number of days to collect payment", "granularity": "Monthly" }, { "name": "denial\_rate", "description": "Percentage of claims denied by insurers", "granularity": "Monthly" }, { "name": "insurance\_claim\_approval\_rate", "description": "Percentage of insurance claims approved", "granularity": "Monthly" }, { "name": "collection\_rate", "description": "Collection rate for payments", "granularity": "Monthly" } ] }, { "name": "hospital\_administration\_metrics", "description": "Metrics related to hospital administration operations and performance", "relevant\_columns": [ { "name": "claims\_processing\_time\_days", "description": "Average number of days to process insurance claims", "granularity": "Monthly" } ] }, { "name": "hospitals", "description": "Information about different hospitals and their facilities", "relevant\_columns": [ { "name": "hospital\_id", "description": "Unique identifier for hospitals" } ] } ], "join\_relationships": [ "hospitals.hospital\_id → financial\_metrics.hospital\_id", "hospitals.hospital\_id → hospital\_administration\_metrics.hospital\_id" ], "calculations": [ "Average days to collect payment (accounts\_receivable\_days)", "Claim denial rate percentage (denial\_rate)", "Insurance claim approval rate percentage (insurance\_claim\_approval\_rate)", "Collection rate (collection\_rate)", "Claims processing time in days (claims\_processing\_time\_days)" ], "granularity": [ "Monthly", "Per hospital" ] }

**SQL\_QUERY:**

WITH monthly\_metrics AS ( SELECT h.hospital\_name, DATE\_TRUNC('month', fm.date) AS month, AVG(fm.accounts\_receivable\_days) AS avg\_days\_to\_collect, AVG(fm.denial\_rate) AS avg\_denial\_rate, AVG(fm.collection\_rate) AS avg\_collection\_rate, AVG(ham.claims\_processing\_time\_days) AS avg\_processing\_time FROM financial\_metrics fm JOIN hospitals h ON h.hospital\_id = fm.hospital\_id JOIN hospital\_administration\_metrics ham ON h.hospital\_id = ham.hospital\_id GROUP BY h.hospital\_name, DATE\_TRUNC('month', fm.date) ), hospital\_rankings AS ( SELECT hospital\_name, AVG(avg\_days\_to\_collect) AS overall\_days\_to\_collect, AVG(avg\_denial\_rate) AS overall\_denial\_rate, AVG(avg\_collection\_rate) AS overall\_collection\_rate, AVG(avg\_processing\_time) AS overall\_processing\_time, RANK() OVER (ORDER BY AVG(avg\_days\_to\_collect)) AS collection\_speed\_rank, RANK() OVER (ORDER BY AVG(avg\_denial\_rate)) AS denial\_rate\_rank, RANK() OVER (ORDER BY AVG(avg\_collection\_rate) DESC) AS collection\_rate\_rank FROM monthly\_metrics GROUP BY hospital\_name ) SELECT hospital\_name, ROUND(overall\_days\_to\_collect, 1) AS avg\_days\_to\_collect, ROUND(overall\_denial\_rate \* 100, 2) AS denial\_rate\_percentage, ROUND(overall\_collection\_rate \* 100, 2) AS collection\_rate\_percentage, ROUND(overall\_processing\_time, 1) AS avg\_processing\_days, collection\_speed\_rank, denial\_rate\_rank, collection\_rate\_rank, CASE WHEN collection\_speed\_rank <= 3 AND denial\_rate\_rank <= 3 THEN 'Top Performer' WHEN collection\_speed\_rank >= (SELECT COUNT(*) FROM hospital\_rankings) - 2 AND denial\_rate\_rank >= (SELECT COUNT(*) FROM hospital\_rankings) - 2 THEN 'Needs Improvement' ELSE 'Average Performer' END AS performance\_category FROM hospital\_rankings ORDER BY collection\_rate\_rank;

*QUERY 6*

USER QUERY

Patients are complaining about long waits for imaging and slow report turnaround times. Can you analyze our radiology departments? Show me wait times, report turnaround times, and accuracy rates for different types of scans (MRI, CT, X-ray, etc.). Which imaging types are causing bottlenecks?

AGENT RESPONSE

# Add the output

{ "single\_table": true, "table": { "name": "radiology\_metrics", "description": "Table containing performance metrics for radiology department" }, "columns": [ { "name": "modality\_type", "description": "Type of imaging (MRI, CT, X-ray, etc.)" }, { "name": "avg\_patient\_wait\_time\_min", "description": "Average time patients wait before imaging (in minutes)" }, { "name": "avg\_report\_turnaround\_time\_hr", "description": "Average turnaround time to generate radiology reports (in hours)" }, { "name": "report\_accuracy\_rate", "description": "Accuracy rate of radiology reports (percentage)" }, { "name": "equipment\_utilization\_rate", "description": "Utilization rate of radiology equipment (percentage)" }, { "name": "repeat\_study\_rate", "description": "Percentage of studies repeated due to quality or technical issues" } ], "calculation": "Multiple metrics: average wait times, turnaround times, accuracy rates, and utilization rates", "granularity": "Modality-level (broken down by imaging type)" }

**SQL\_QUERY:**

SELECT modality\_type, ROUND(AVG(avg\_patient\_wait\_time\_min), 2) as avg\_wait\_time\_minutes, ROUND(AVG(avg\_report\_turnaround\_time\_hr), 2) as avg\_turnaround\_hours, ROUND(AVG(report\_accuracy\_rate), 2) as accuracy\_rate\_pct, ROUND(AVG(equipment\_utilization\_rate), 2) as utilization\_rate\_pct, ROUND(AVG(repeat\_study\_rate), 2) as repeat\_rate\_pct FROM radiology\_metrics GROUP BY modality\_type ORDER BY avg\_patient\_wait\_time\_min DESC;

*QUERY 7*

USER QUERY

Doctors are complaining that lab results take too long. Can you show me turnaround times for different types of lab tests? Also, what's our error rate and how often do we reject samples? I need to know which lab categories need improvement and if we're testing enough patients.

{ "single\_table": true, "table": { "name": "lab\_metrics", "description": "Metrics related to laboratory department operations and performance" }, "columns": [ { "name": "test\_category", "description": "Category or department of lab tests (e.g., HEMA, BIOC)", "data\_type": "object" }, { "name": "avg\_test\_turnaround\_time\_hr", "description": "Average turnaround time in hours for lab test results", "data\_type": "float" }, { "name": "test\_error\_rate", "description": "Percentage of tests with errors", "data\_type": "float" }, { "name": "sample\_rejection\_rate", "description": "Percentage of samples rejected due to quality or procedural issues", "data\_type": "float" }, { "name": "tests\_performed\_count\_monthly", "description": "Total number of lab tests performed in the month", "data\_type": "int" } ], "calculation": "Multiple metrics including averages (turnaround time) and percentages (error rates, rejection rates) along with count aggregations (test volumes)", "granularity": "Monthly by lab category", "primary\_key": ["lab\_id", "date"] }

**SQL\_QUERY:**

SELECT test\_category, ROUND(AVG(avg\_test\_turnaround\_time\_hr), 2) as avg\_turnaround\_hours, ROUND(AVG(test\_error\_rate), 2) as avg\_error\_rate\_pct, ROUND(AVG(sample\_rejection\_rate), 2) as avg\_rejection\_rate\_pct, SUM(tests\_performed\_count\_monthly) as total\_tests\_performed FROM lab\_metrics GROUP BY test\_category ORDER BY avg\_turnaround\_hours DESC;

AGENT RESPONSE

# Add the output

*QUERY 8*

USER QUERY

Wants a complete picture of how all our hospitals are performing. Create a comprehensive scorecard that shows emergency wait times, patient satisfaction, bed occupancy, surgery performance, financial health, and patient safety - all in one view. Rank our hospitals from best to worst and tell me what's driving the differences.

AGENT RESPONSE

# Add the output

{ "single\_table": false, "tables": [ { "name": "patient\_experience\_metrics", "description": "Metrics related to patient experience and satisfaction", "relevant\_columns": ["hospital\_id", "date"] }, { "name": "patient\_safety\_metrics", "description": "Metrics related to patient safety and quality of care", "relevant\_columns": ["department\_id", "date"] }, { "name": "surgery\_metrics", "description": "Metrics related to surgery department operations and performance", "relevant\_columns": ["surgery\_type\_id", "date"] }, { "name": "financial\_metrics", "description": "Metrics related to financial operations and billing processes", "relevant\_columns": ["hospital\_id", "date"] }, { "name": "hospital\_administration\_metrics", "description": "Metrics related to hospital administration operations and performance", "relevant\_columns": ["hospital\_id", "date"] }, { "name": "hospitals", "description": "Information about different hospitals and their facilities", "relevant\_columns": ["hospital\_id"] } ], "join\_relationships": [ "hospitals.hospital\_id → financial\_metrics.hospital\_id", "hospitals.hospital\_id → patient\_experience\_metrics.hospital\_id", "hospitals.hospital\_id → departments.hospital\_id", "departments.department\_id → patient\_safety\_metrics.department\_id" ], "calculation": "Multiple metrics including patient satisfaction scores, safety indicators, financial performance measures, and operational efficiency metrics", "granularity": "Per hospital with temporal analysis (date-based)" }

**SQL\_QUERY:**

WITH latest\_month AS ( SELECT DATE\_TRUNC('month', MAX(date)) as max\_month FROM emergency\_metrics ), metrics\_combined AS ( SELECT h.hospital\_id, h.hospital\_name, -- Emergency Metrics AVG(em.patient\_satisfaction\_score) as emergency\_satisfaction, AVG(em.bed\_utilization\_rate) as bed\_utilization, -- Surgery Metrics AVG(sm.on\_time\_start\_rate) as surgery\_on\_time\_rate, AVG(sm.post\_op\_complication\_rate) as complication\_rate, AVG(sm.length\_of\_stay\_post\_surgery) as post\_surgery\_los, -- Inpatient Metrics AVG(im.patient\_turnover\_rate) as inpatient\_turnover, AVG(im.patient\_satisfaction\_score) as inpatient\_satisfaction FROM hospitals h LEFT JOIN emergency\_metrics em ON h.hospital\_id = em.hospital\_id LEFT JOIN surgery\_metrics sm ON h.hospital\_id = sm.hospital\_id LEFT JOIN inpatient\_metrics im ON h.hospital\_id = im.hospital\_id WHERE DATE\_TRUNC('month', em.date) = (SELECT max\_month FROM latest\_month) GROUP BY h.hospital\_id, h.hospital\_name ), rankings AS ( SELECT \*, -- Normalize metrics to create overall score (higher is better) ( emergency\_satisfaction / 5.0 + -- Assuming 5-point scale bed\_utilization / 100.0 + -- Assuming percentage surgery\_on\_time\_rate / 100.0 + -- Assuming percentage (1 - complication\_rate / 100.0) + -- Inverse as lower is better (1 - post\_surgery\_los / (SELECT MAX(post\_surgery\_los) FROM metrics\_combined)) + -- Normalized LOS inpatient\_turnover / 100.0 + -- Assuming percentage inpatient\_satisfaction / 5.0 -- Assuming 5-point scale ) / 7 as overall\_score FROM metrics\_combined ) SELECT hospital\_name, ROUND(emergency\_satisfaction, 2) as emergency\_satisfaction, ROUND(bed\_utilization, 2) as bed\_utilization\_pct, ROUND(surgery\_on\_time\_rate, 2) as surgery\_on\_time\_pct, ROUND(complication\_rate, 2) as complication\_rate\_pct, ROUND(post\_surgery\_los, 1) as avg\_post\_surgery\_los\_days, ROUND(inpatient\_turnover, 2) as inpatient\_turnover\_pct, ROUND(inpatient\_satisfaction, 2) as inpatient\_satisfaction, ROUND(overall\_score \* 100, 1) as overall\_score, RANK() OVER (ORDER BY overall\_score DESC) as hospital\_rank FROM rankings ORDER BY hospital\_rank;