Network Quality & Revenue Optimization Analytics

Leveraging Machine Learning to Reduce Revenue Leakage & Improve QoS

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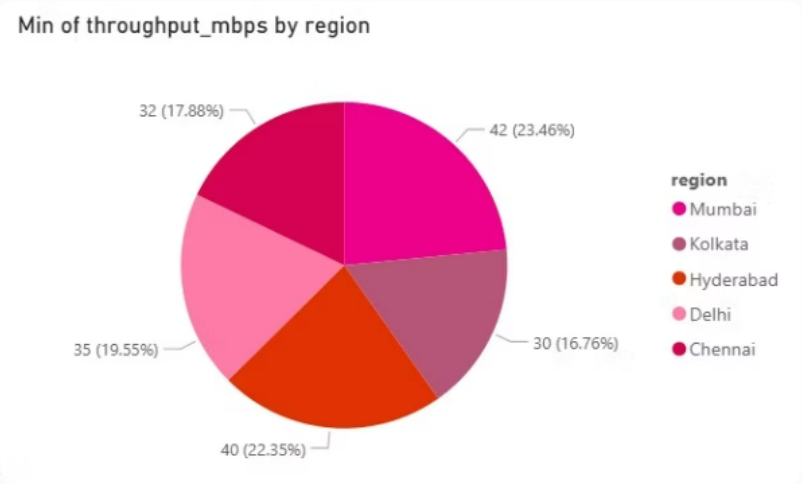
> “Transforming Telecom Data Into Actionable Insights”
> “Optimizing Quality of Service for Revenue Growth”

Network Quality & Revenue Optimization Analytics

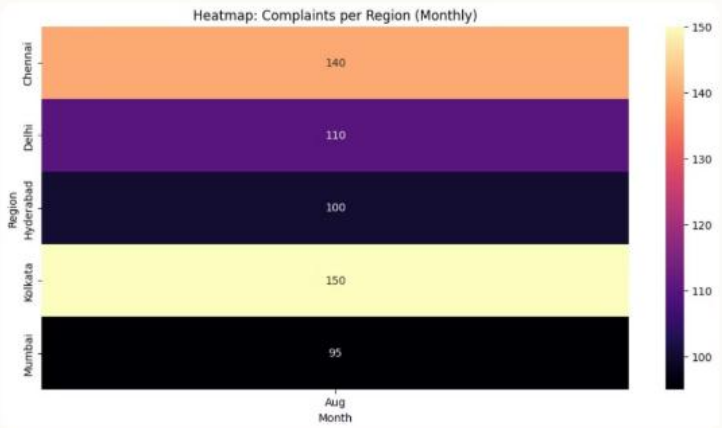


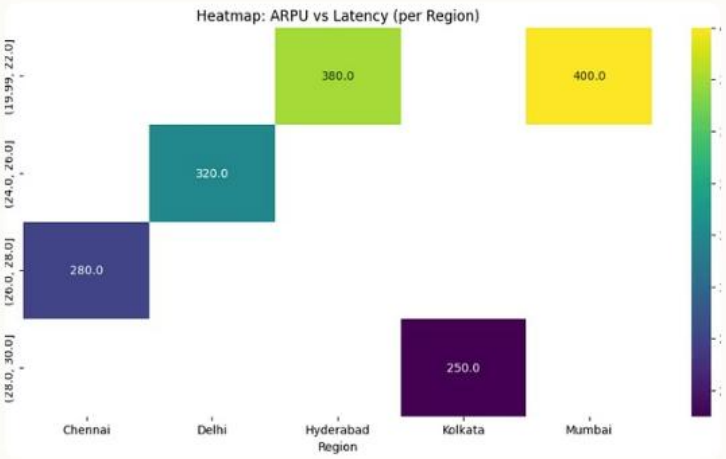
What is This Project?

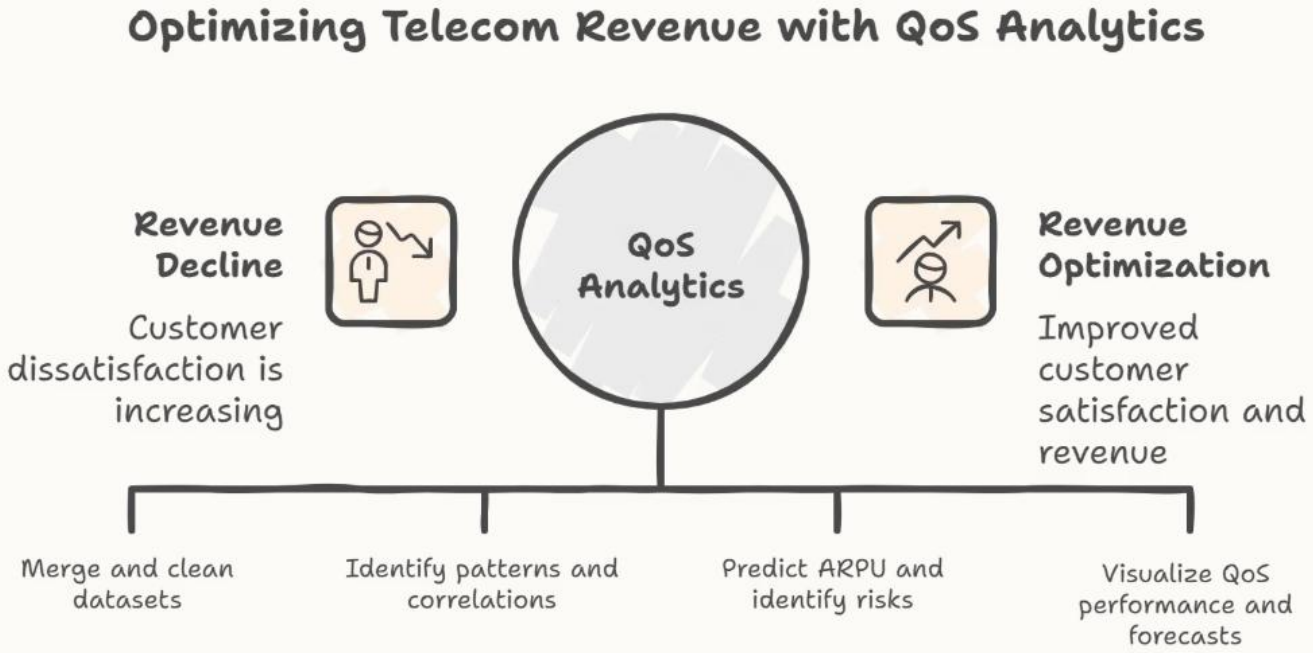
Analyze telecom network performance and usage data to identify revenue leakage and network congestion zones, then recommend optimization strategies using analytics and ML.

The Goal (Why it Matters)

* **Objective:** To find the direct connection between **poor network quality** (high latency/outages) and **revenue loss (low ARPU).* Business Value:** Help the telecom company stop revenue leakage and target network upgrades efficiently.* **Key Finding:** Identify **"High-Risk Regions"** where customer satisfaction and revenue are both falling.

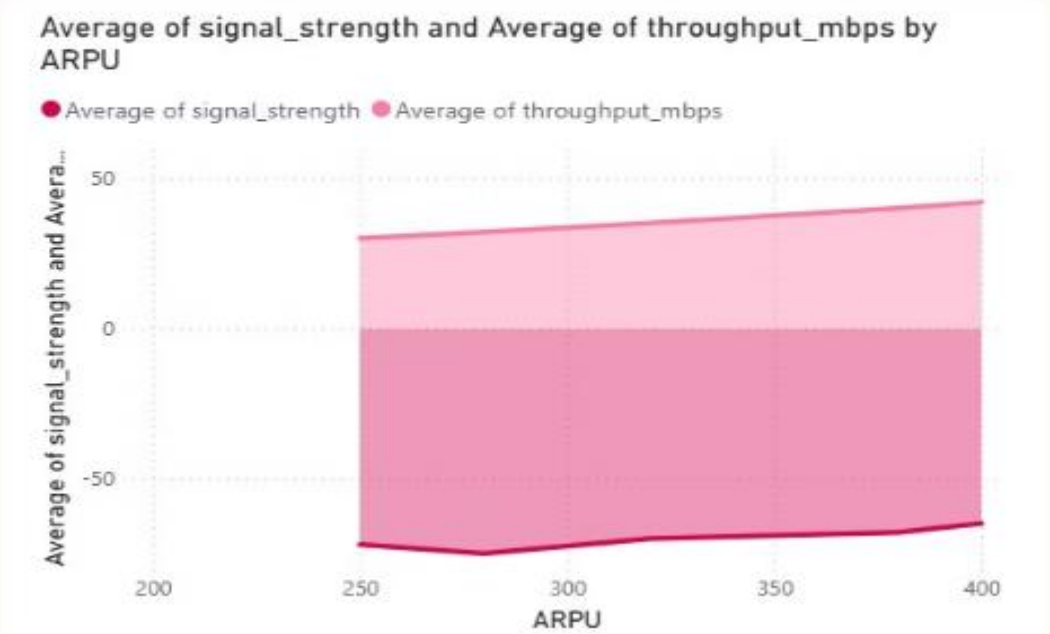


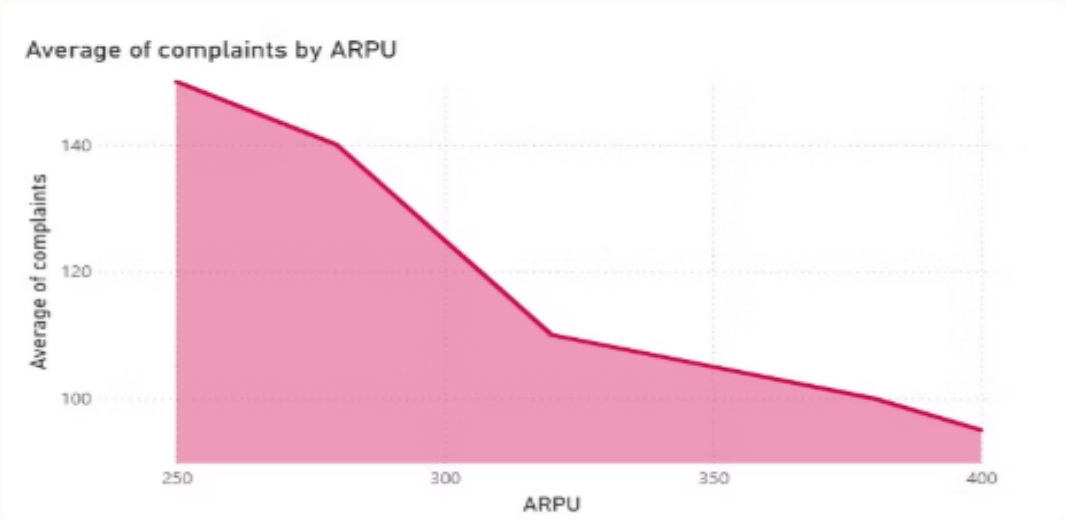




	Model	R2_Score	MAE	Accuracy
0	Linear Regression	-25.699354	51.410696	0.868178
1	Decision Tree	-49.000000	70.000000	0.820513

Major Key Insights (From Correlation and Visualization)



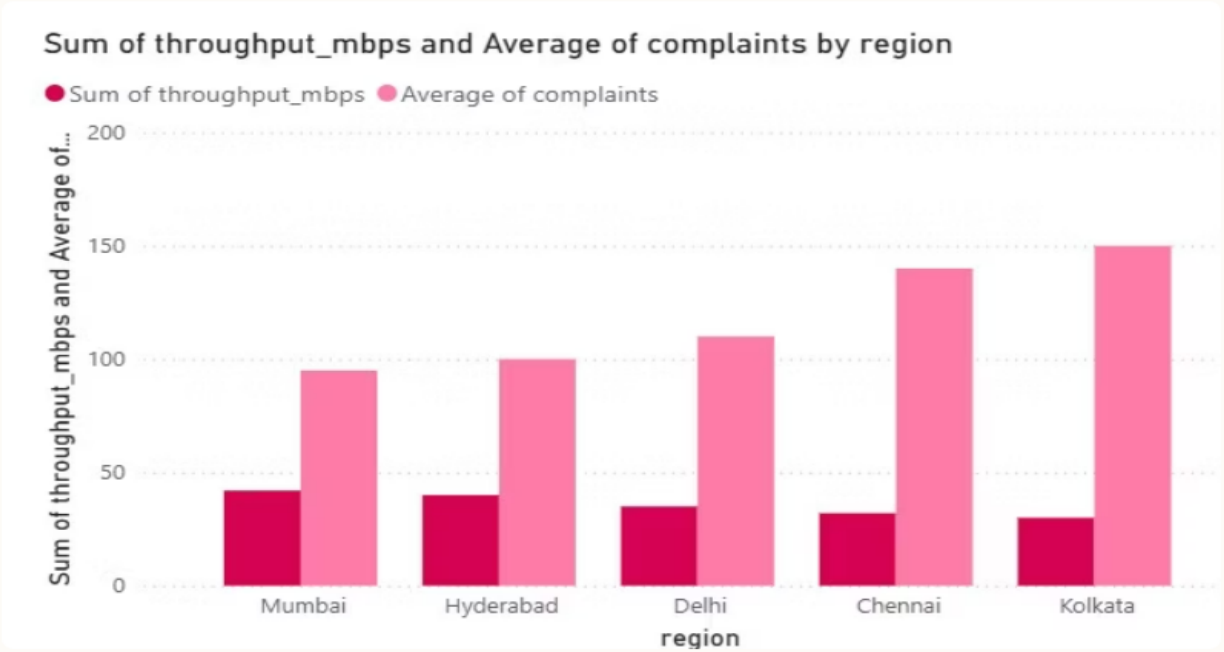


- *QoS Impact on Revenue:* A crucial insight is the direct analysis of the correlation between Network KPIs and ARPU. The interpretation suggests that if *latency or outages are negatively correlated with ARPU*, then poor network quality significantly impacts revenue.

- *Latency vs. ARPU:* The scatter plot visualization confirms that *lower latency generally correlates with higher revenue* (ARPU).

- *High-Risk Zones Defined:* Regions identified with *high latency (>28ms) and low throughput (<35Mbps)* show a substantial ARPU drop, exceeding 20%.

- *Complaints as a Revenue Indicator:* The analysis showed that *complaints correlate strongly with revenue decline*. The complaints trend by region is a key visualization in the EDA phase.



Future Recommendation

Improve Network Quality

Deploy Real-Time Monitoring Dashboards

Use More Advanced Machine Learning Models

Strengthen Complaint Management System

Targeted Customer Retention Strategies