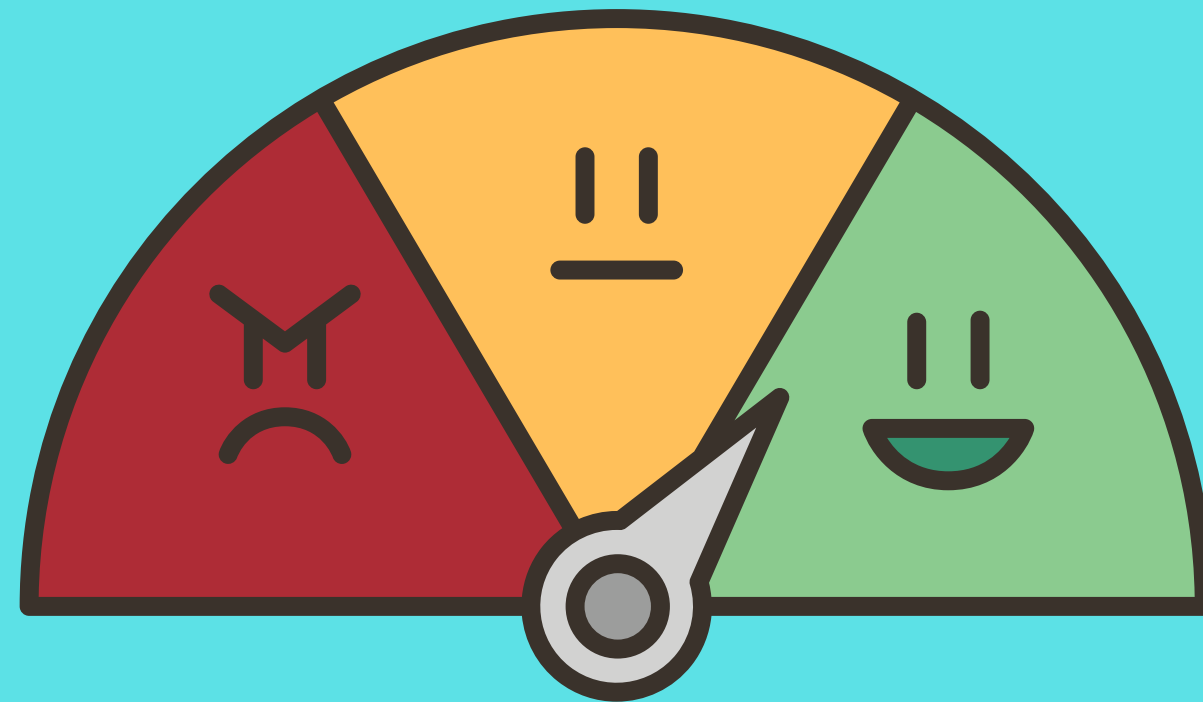
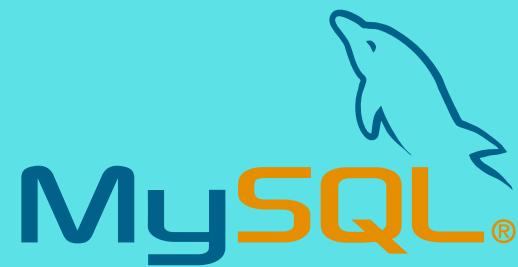


# Customer Support Ticket Analysis

Insights-Driven Recommendations using SQL & Power BI

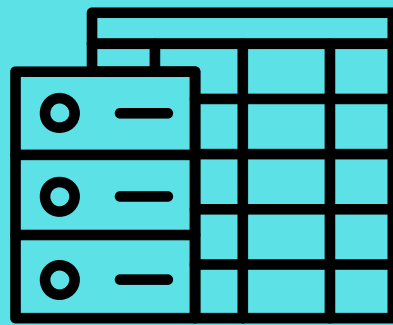


**Prashant Bhardwaj | Data Analyst | June 2025**



# Executive Summary

- **Analysed 1000 customer support tickets**
- **Focused on satisfaction score, resolution time, and escalation rate**
- **Tools used: MySQL (data queries) & Power BI (visual dashboard)**
- **Identified weak channel (Email) with 2.96 score**
- **Suggested operational and training improvements**



# Dataset Overview

column	Description
<b>Ticket_ID</b>	<b>Unique ticket reference</b>
<b>Agent_ID</b>	<b>Agent handling the ticket</b>
<b>Customer_ID</b>	<b>ID of the customer</b>
<b>Issue_Type</b>	<b>Category of the issue</b>
<b>Channel</b>	<b>Contact mode (Email, Chat, Phone)</b>
<b>Created_Date</b>	<b>When the ticket was created</b>
<b>First_Response_Date</b>	<b>When the agent first responded</b>
<b>Resolved_Date</b>	<b>When the ticket was resolved</b>
<b>Escalated</b>	<b>Whether it was escalated (Y/N)</b>
<b>Satisfaction_Score</b>	<b>Customer rating (1 to 5)</b>



# Key SQL Queries

- **Average Resolution and Response time per agent**

```
24 • select Agent_id,  
25      Round(avg(timestampdiff(hour, Created_date, Resolved_date)), 2) as Avg_Resolution_hours,  
26      Round(avg(timestampdiff(minute, Created_date, First_Response_date)), 2) as Avg_response_minutes  
27      From support_tickets  
28      Group by Agent_id;  
29  
30  
31  
32
```

Result Grid | | Filter Rows:  | Export: | Wrap Cell Content:

	Agent_id	Avg_Resolution_hours	Avg_response_minutes
▶	Agent_1	39.56	118.62
	Agent_2	38.73	119.25
	Agent_10	35.89	125.26
	Agent_5	39.91	128.13
	Agent_3	40.46	133.28
	Agent_9	36.87	126.53
	Agent_4	37.22	118.55

Result 2 x

Output

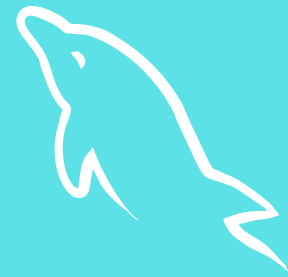
Action Output

Time Action

This SQL query calculates the average resolution and response times for each support agent:

- Avg\_Resolution\_hours: Average time (in hours) taken to resolve tickets.
- Avg\_response\_minutes: Average time (in minutes) taken to give the first response.

It groups the data by each Agent\_id.



# Key SQL Queries

- Ticket Volume by Issue Type (Monthly)

```
Select
Issue_type,
date_format(Created_date, '%Y-%m') as month ,
count(*) as Ticket_Count
from support_tickets
group by Issue_type,month
order by month ;
```

Issue_type	month	Ticket_Count
Account Suspension	2024-12	20
Feature Request	2024-12	18
Login Issue	2024-12	11
Bug Report	2024-12	25
Payment Failure	2024-12	20
Feature Request	2025-01	29

Result 4 x

Output

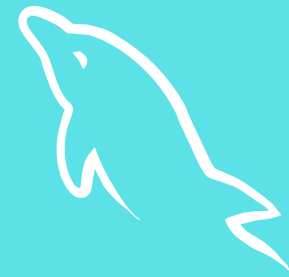
Action Output

Time	Action
09:59:08	DEALLOCATE PREPARE stmt
09:59:42	Select * from support_tickets LIMIT 0, 1000

This SQL query shows the monthly count of support tickets by issue type:

- Issue\_type: Type of issue raised.
- month: Month in 'YYYY-MM' format.
- Ticket\_Count: Number of tickets for that issue type in that month.

It groups by Issue\_type and month, and sorts the result by month.



# Key SQL Queries

- Escalation Rate by Issue Type

```
42 • Select
43 Issue_type,
44 Count(*) as total_Tickets,
45 Sum(Case when Escalated = 'Y' then 1 else 0 end ) as Escalated_Tickets,
46 Round((sum(case when Escalated = 'Y' then 1 else 0 END) / Count(*)) * 100,2) as Escalation_Rate
47 From support_tickets
48 Group by Issue_Type ;
49
50
51
52
```

Result Grid | Filter Rows:  | Export: | Wrap Cell Content:

	Issue_type	total_Tickets	Escalated_Tickets	Escalation_Rate
▶	Payment Failure	202	106	52.48
	Login Issue	189	89	47.09
	Account Suspension	205	87	42.44
	Feature Request	198	91	45.96
	Bug Report	206	100	48.54

Result 5 x

Output

Action Output

• This query shows, by issue type:  
• Total tickets  
• Escalated tickets  
• Escalation rate (%)  
• Helps identify which issues escalate most.



# Power BI Setup

## Calculated Columns:

- Resolution Hours (in HOUR)
- First Response Time (in MINUTES)

## DAX Measures:

- Avg Resolution Time
- Escalation Rate (%)
- Total Ticket Count



# Dashboard Visuals

- **Included Visuals:**

**1. Cards: Avg Resolution | Escalation % | Avg Satisfaction**

**2. Donut Chart: Tickets by Channel**

**3. Bar Chart: Avg Resolution per Agent**

**4. Stacked Column: Issue Types**

**5. Line Chart: Resolution & Escalation Over Time**

**6. Heatmap: Monthly Trend by Issue**

**7. Scatter: Satisfaction vs Resolution**





# Main Page



# Scatter Plot

Satisfaction score  
Vs Resolution  
hours

Escalation Rate

47.30

Avg Resolution

39.32

Avg satisfaction

3.05

Month

☐ April

☐ December

☐ February

☐ January

☐ June

☐ March

☐ May

Issue Type

☐ Account Suspension

☐ Bug Report

☐ Feature Request

☐ Login Issue

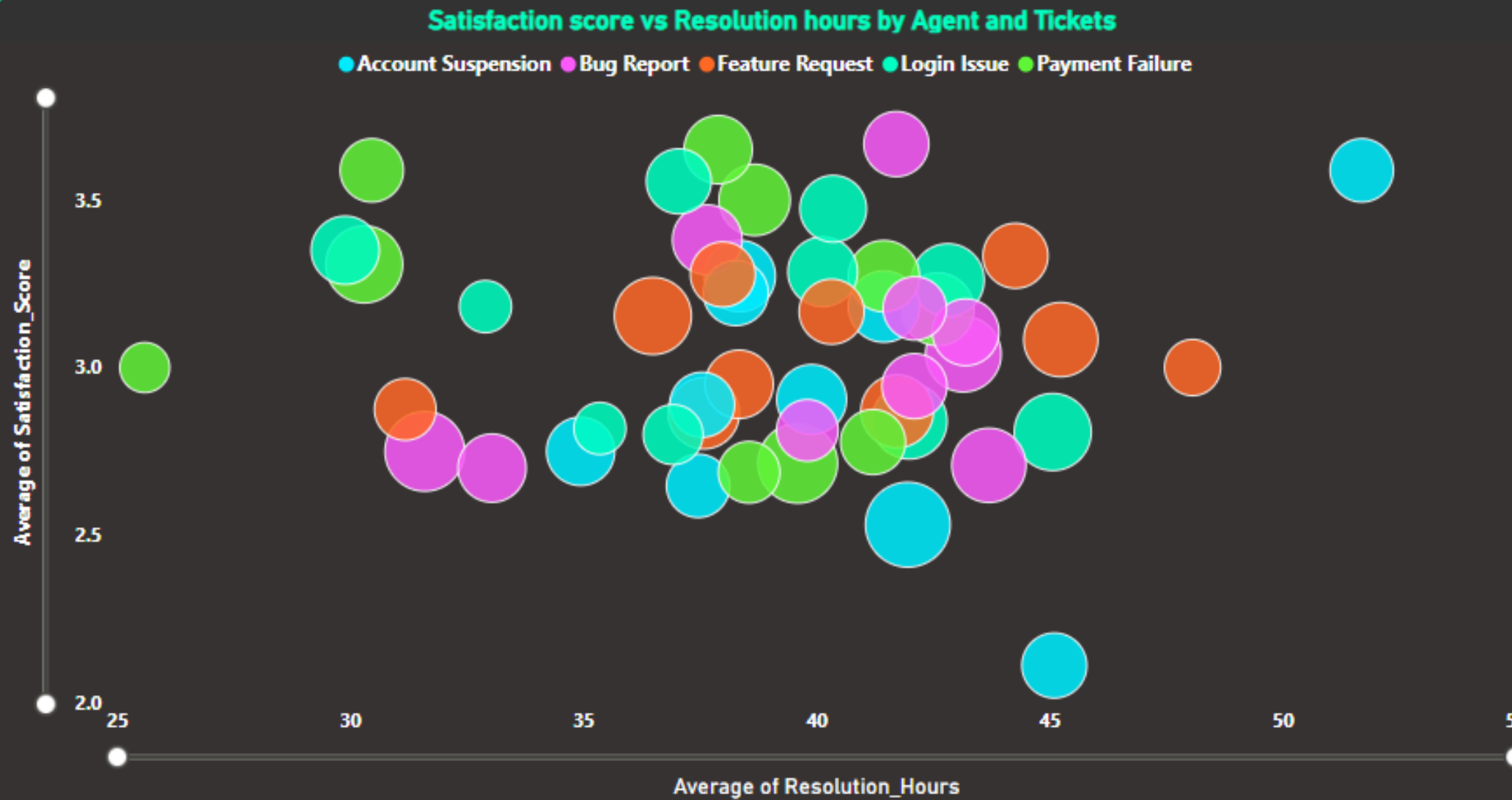
☐ Payment Failure

Channel

☐ Chat

☐ Email

☐ Phone



# Insights

- **Escalation Rate - Needs Improvement**

**A high escalation rate (47.3%) suggests dissatisfaction or poor first-level resolution. Key issues like 'Payment Failure' or 'Login Issue' may contribute.**

**Recommendation: Analyse root causes, train agents on frequent escalations, and deploy bots for common FAQs**

- **Average Resolution Time - Moderate, Room to Improve**

**The average resolution time is around 39.3 hours. Some agents frequently exceed 40 hours, which affects overall SLA compliance and customer satisfaction.**

**Recommendation: Coach slow performers and implement real-time SLA tracking dashboards.**

# Insights

- **Customer Satisfaction Score - Below Ideal (3.05/5)**

**Satisfaction scores are low, often tied to high resolution times or recurring escalations.**

**Recommendation: Send follow-up surveys, improve agent empathy, and analyse feedback regularly**

- **Heatmap Trends - Monthly Ticket Spikes**

**High volumes of tickets in March, April and May**

**Recommendation: Anticipate spikes, staff up accordingly, and send proactive customer communications.**

# Insights

- **Channel Distribution - Email May Be Weak**

**Channel Distribution - Email May Be Weak**

Email, Chat, and Phone are balanced, but Email could be dragging down satisfaction. Email has an average satisfaction of 2.96

**Recommendation:** Improve response quality and speed through training and templates.

- **Top Issue Types - Bug Report, Account Suspension**

These are the most frequent issues. High volume can lead to agent overload and missed SLAs.

**Recommendation:** Set automated categorisation, fast-routing workflows, and flag for product investigation.

# Conclusion

- In-depth ticket analysis enabled data-backed decisions
- Identified key friction areas
- Practical solutions implemented for faster resolution & happier customers



**THANK YOU!**