

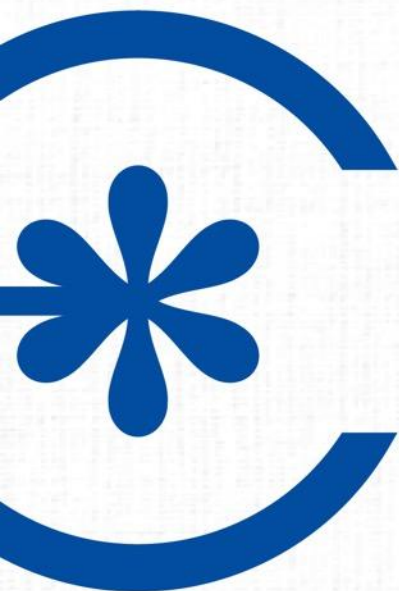


# **Driving Innovation Through GenAI & Data Science**

**Summer Internship  
May' 25 – Aug' 25**

**Kunal Sachdev  
GenAI Engineer Intern**

- GenAI-powered Business Insights with Visualization
- Grievance Prediction Modelling – Enhancement
  - Integrating QRC data
  - TOF Feature Analysis
- Mis-selling Prediction Modelling
- Acknowledgements



# **Data Genie – GenAI Powered Business Insights**

**GenAI POC**



*To empower business leaders with cutting-edge GenAI tools for decision intelligence.*

- **200+ BI Reports** published daily
- C-suite Executives have to view the detailed reports and extract required **insights manually.**



A unified **GenAI-powered** chat interface to provide data insights in **natural language** from enterprise Data Lake (Dataverse).  
**Newly created Dataverse is the single source of truth for this project.**

Converting **Hourly Login** report, as **Proof-of-concept (POC)**, into conversational **GenAI-powered** insights – in collaboration with **AWS** and **LumiQ**.

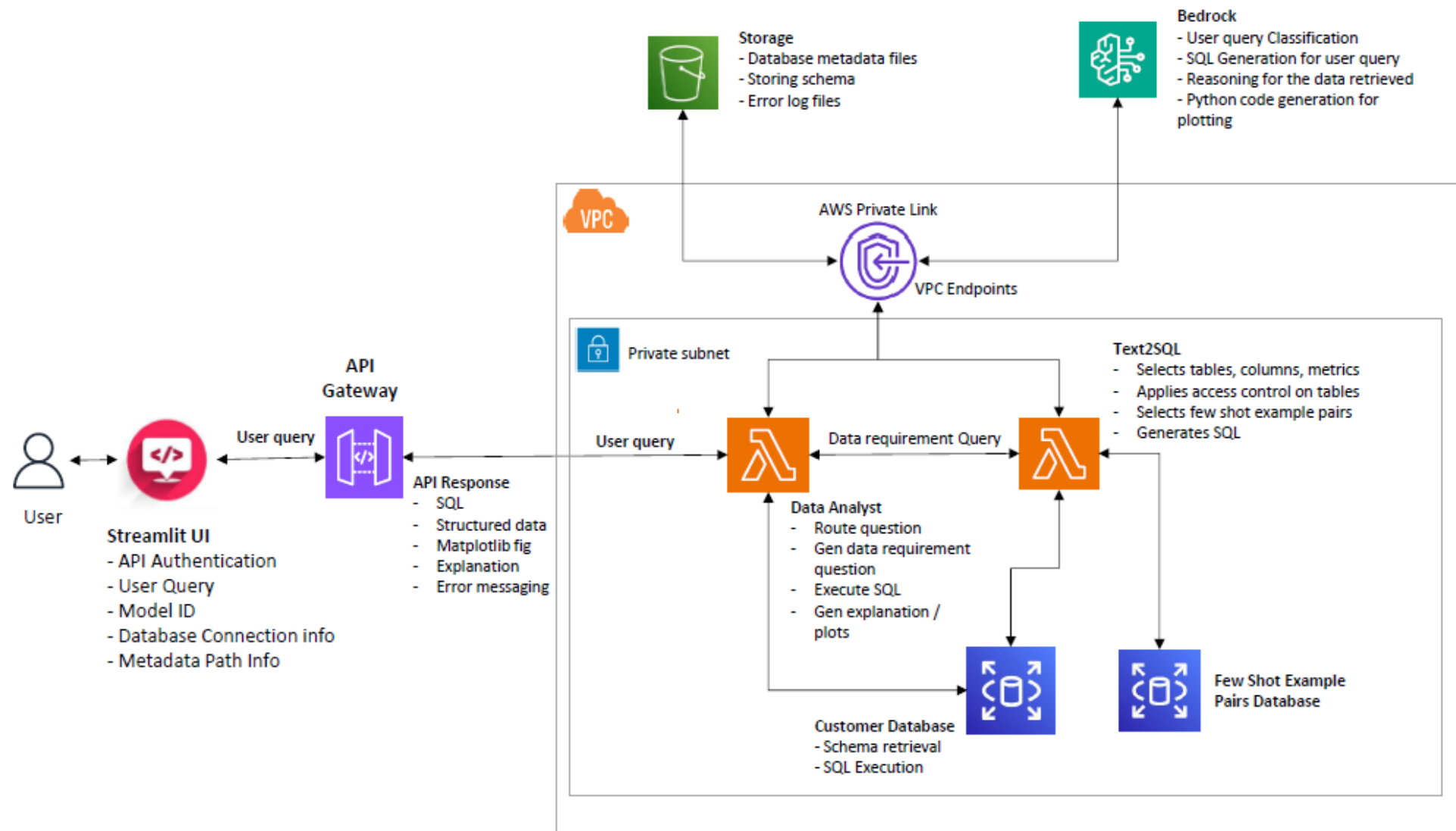
User Inputs  
Query

Question Intent  
Decoding

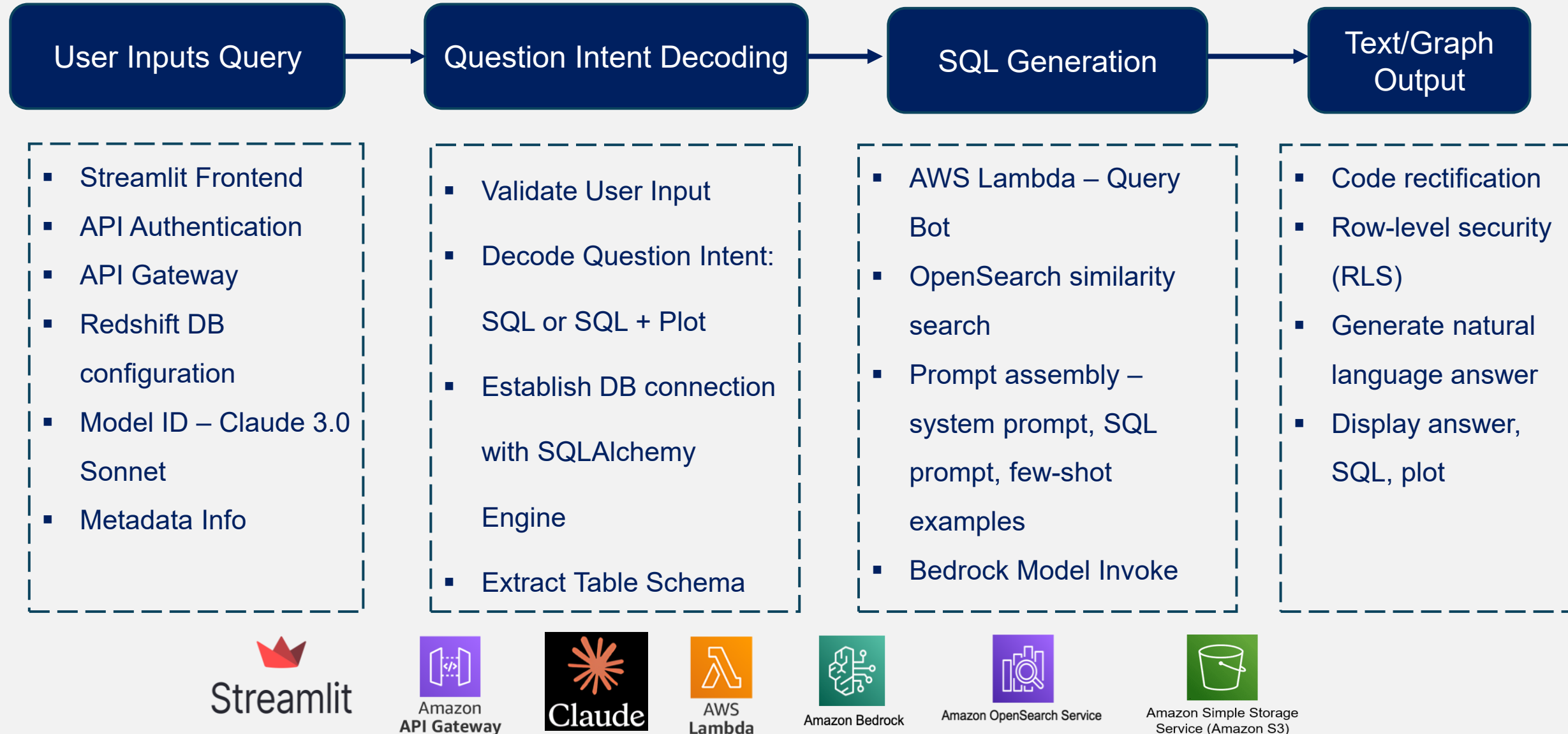
SQL Generation

Text/Graph  
Output

# Conversational Analytics with GenAI – Technical Architecture





# Conversational Analytics with GenAI – Technical Flow



1. Interface and Login:
  - ✓ Chat-bot interface
  - ⚠ API-based interface
  - ⚠ Mobile App/POS/Website – In-app authentication and authorization
2. Data privacy and security
  - ✓ Row-level security (Eg: A zonal head can access data only for that zone)
  - ⚠ Masking/Removing access to PII
3. Simple, Intuitive UI
  - ✓ SSO enabled
  - ✓ User-friendly
  - ✓ Error handling for invalid prompts
4. Model Training and Accuracy
  - ✓ Regulatory Compliance – PII cannot travel outside India during cross-region inference (CRIS)
  - ⚠ Feedback loop implementation – auto and manual
  - ⚠ Model Drift Detection over time

# GenAI – Accomplishment & Way Forward

 What is the channel-wise sales for the product Edelweiss Life - Wealth Ultima V0.2 yesterday?

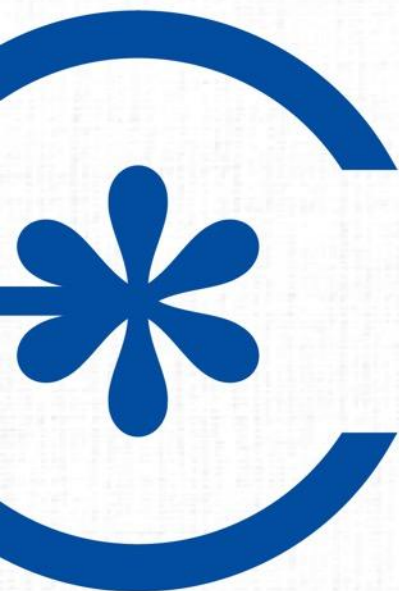
 According to the SQL query and the result table provided, the channel-wise sales for the 'Edelweiss Life - Wealth Ultima V0.2' product yesterday is as follows:

## Data View

	main_channel	subchannel	policy_count	premium_amount
0	Agency	Organic Agency	2	160000
1	Bancassurance	CSB	3	200000
2	Bancassurance	Csb	1	300000
3	Bancassurance	ESFB	1	50000
4	Bancassurance	Esfb	1	100000
5	Direct Sales	Direct Sales (PAN India)	1	100000

- Demonstrated a GenAI-based chat interface to provide business insights for Hourly Logins with RLS.
- **Way Forward:**
  - Integration of Speech-to-Text for user input.
  - User feedback loop for generated responses.
  - Display frequently-used queries for bookmarking/favorites.
  - Follow-up question suggestions.
  - Next report for implementation – Operational Reporting (Underwriting, Pending Inventory, etc.)





## **Grievance & Mis-selling Prediction Models**

**QRC Integration, TOF Feature Analysis, Mis-selling Prediction**

## *Integrating 49L+ customer queries, requests, and complaints (QRC) with existing Grievance model*

- **New Data Integrated:**
  - A policy's holder's number of queries, and number of requests **before their first complaint date.**
  - **QRC Data Sourced from D365 mid-2022 onwards.**
- **Machine Learning Model:**
  - **Training Data Period:** Apr 2017 – March 2024
  - **Validation Data period:** April 2024 – July 2025
  - **Model Trained:**
    - **5 LightGBM Ensemble** with different random samples
    - Average of top-3 predictions of the 5 models.
  - Model Predictions shared every week with Grievance Team



***Top Decile  
Coverage  
increase from  
76% to 97%***

## ***New Grievance Model - Top Decile Coverage increase from 76% to 97%***

### ***Current Grievance Model: (Till 20-July-2025)***

Decile	GRV #	Non GRV #	Total Policies	Population	GRV Cum
1	1691	82732	84423	10%	76.34%
2	168	84255	84423	10%	83.83%
3	126	84296	84422	10%	89.62%

*Performance shown on all active policies (NCD/NBMIS records as of Jan' 25)*

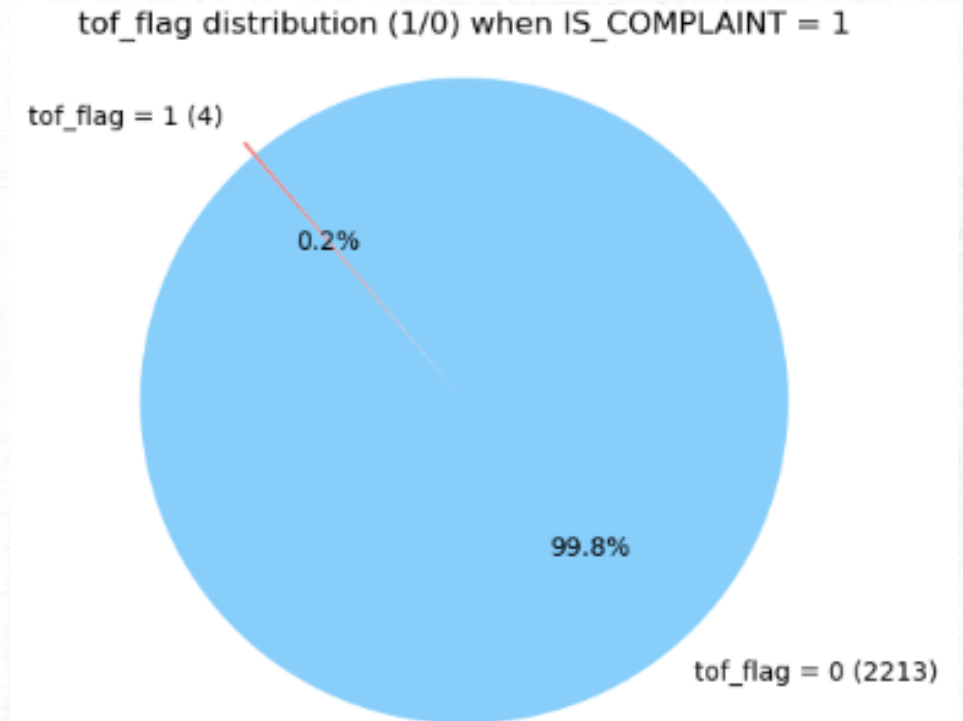
### ***New Grievance Model: (Live from 21-July-2025 Onwards)***

Decile	GRV #	Non GRV #	Total Policies	Population	GRV Cum
1	2759	80318	83077	10%	96.94%
2	35	83042	83077	10%	98.17%
3	19	83058	83077	10%	98.84%

*Performance shown on all active policies (NCD/NBMIS records as of July' 25)*

***Hypothesis: Transfer-of-funds (TOF) is an important predictor for grievance prediction***

- Analysis done on Pure TOF cases.
- **Chi-Square Test:**
  - There is a **statistically significant association** between TOF and Grievance.
- **Cramer's V Test:**
  - The **strength** of said association is negligible – it's too weak to be meaningful

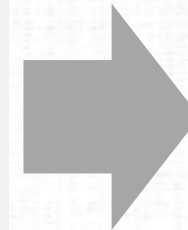


***Conclusion: TOF is not an important predictor for Grievance (at least for now)***



## *Training a new model to predict policy Mis-selling*

- **Target variable:**
  - Whether a policy was mis-sold to a particular customer
  - Includes QRC data in training.
- **Machine Learning Model:**
  - **Training Data Period:** Apr 2017 – March 2024
  - **Validation Data period:** Apr 2024 – July 2025
  - **Model Trained:**
    - 5 **LightGBM Ensemble** with different random samples
    - Average of top-3 predictions of the 5 models.
  - Model Predictions shared every week with Grievance Team



***Model output:***  
***Top Decile***  
***Coverage of***  
***90.56%***

## Mis-selling Model – Top Decile Coverage of 90.56%

### New Mis-selling Model: (Live from 21-July-2025 Onwards)

Decile	GRV #	Non GRV #	Total Policies	Population	GRV Cum
1	163	6781	6944	10%	90.56%
2	11	6933	6944	10%	96.67%
3	4	6940	6944	10%	98.89%

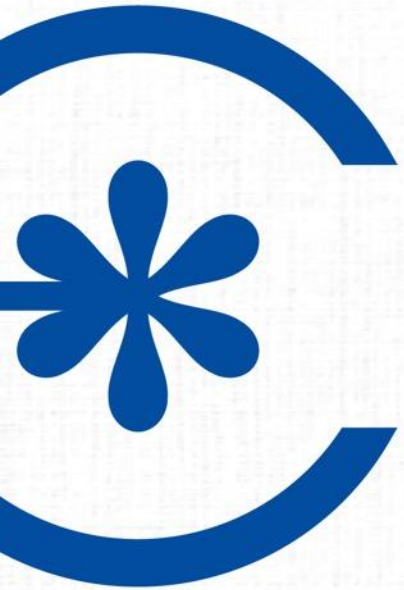
Performance shown on validation data (NCD/NBMIS records April' 24 – July' 25)

#### Significant Variables

*Base Sum Assured*  
*Premium (wo Tax)*  
*Proposer Age, Policy Term*  
*Query Count, Request Count*

#### Significant Derived Variables

*Historic Mean Age of Life Insured for LA Occupation Type for Grievance policies*  
*Historic Mean Annual Premium for an Occupation Type*  
*Historic Product Policy Count for Grievance Policies*  
*Historic Region Grievance Rate*



## Acknowledgements

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*I would like to express my sincere gratitude to:*

## Senior Leadership

- Mr. Kayzad Hiranmanek (COO)
- Mrs. Saba Adil (CHRO)
- Mr. Clint Misquitta (Head HR)

## Core Data Team

- Mrs. Deepa Duraisamy (Head – Data & Analytics)
- Mr. Suraj Sahoo (Data Scientist III)
- Mr. Nilanjan Chowdhury (Data Scientist II)
- Mr. Karan Sharma (Project Manager – AI/Data Science)

## HR

- Rohini Shetty
- Charu Kaushik

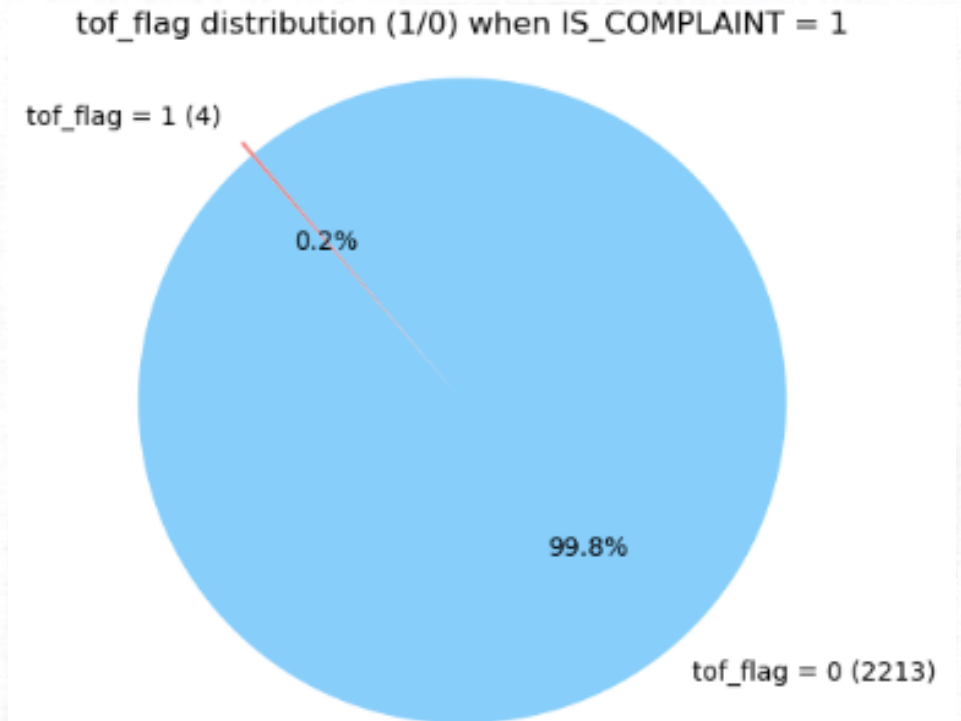


thank you!

wish you a **zindagi** unlimited!

***Hypothesis: Pure Transfer-of-funds (TOF) is an important predictor for grievance prediction***

- **Chi-Square Test:** To test the association b/w two variables
  - P-value: 0.016 ( $< 0.05$ )
  - There is a **statistically significant association** between tof\_flag and IS\_COMPLAINT
- **Cramer's V Test:** Measures the strength of said association
  - Value: 0.0087 (very close to 0)
  - **Extremely weak association** between tof\_flag and IS\_COMPLAINT.



***Conclusion: Pure TOF is not an important predictor for Grievance (at least for now)***