

Smart Ticket-Classifier

Intelligent Customer Support Automation

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Introduction: The Problem & Our Solution

Developed an AI-powered knowledge engine to automate ticket classification, tagging, and resolution in customer support systems.

Our system utilizes NLP and semantic similarity to understand ticket content and match it with relevant knowledge base articles, providing real-time, context-aware solutions to reduce manual intervention.



Project Scope & Key Features



Intelligent Classification

Classifies tickets by priority (High, Medium, Low) using a fine-tuned DistilBERT model.



Real-Time Recommendations

Suggests relevant KB articles using SBERT (MiniLM) embeddings and semantic similarity.



Content Gap Analysis

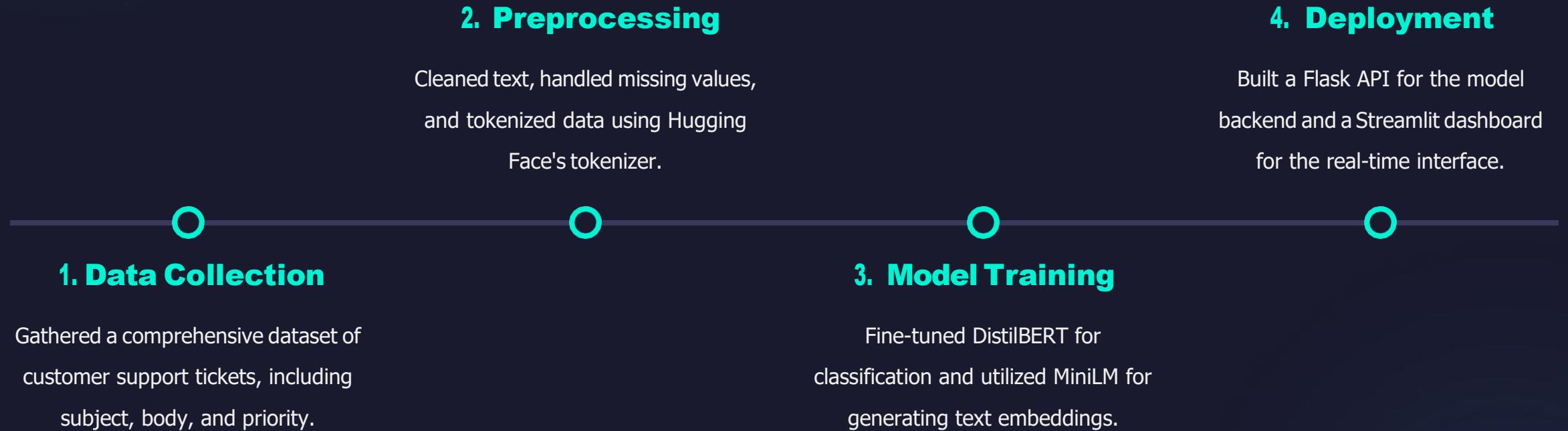
Identifies missing or outdated topics in the knowledge base by analyzing unmatched tickets.



Slack Integration

Pushes real-time alerts for critical ticket updates and system notifications via Webhooks.

Our Methodology



Tools & Technologies



Programming: Python



Core Libraries: Pandas, scikit-learn, NumPy, Sentence Transformers



Models: DistilBERT (for Classification), MiniLM (for Embeddings)

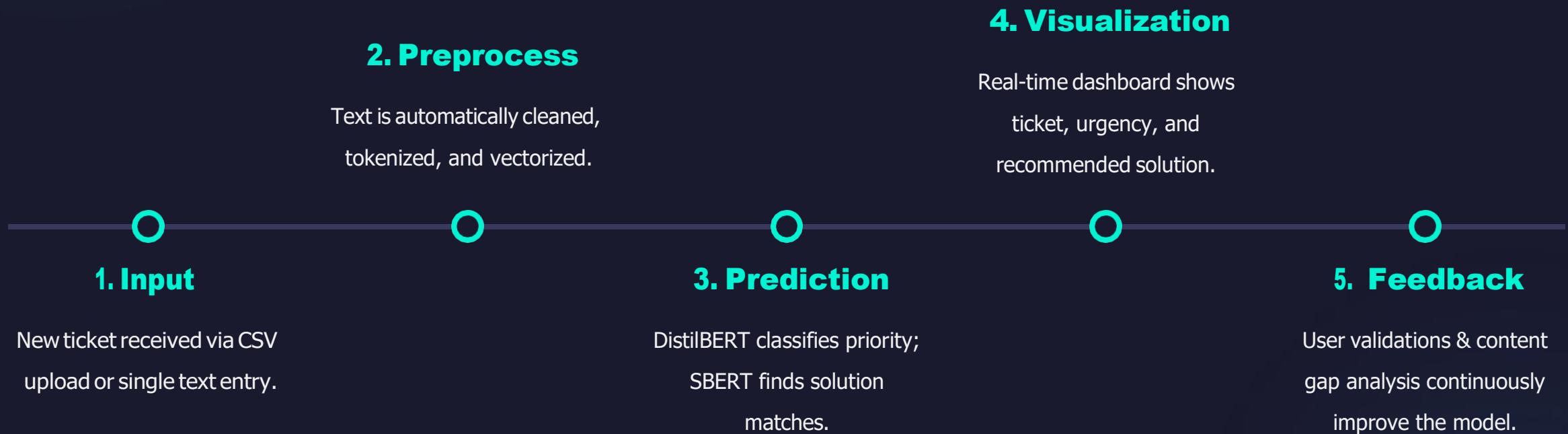


Deployment: Flask (API), Streamlit (Dashboard)



Visualization: Matplotlib, Seaborn

End-to-End System Workflow



Feature Spotlight: Analytics Dashboard

We built a comprehensive Analytics Dashboard to visualize ticket data and model performance.

This view displays team-wise ticket distribution, priority-level breakdowns, and predicted issue types, helping to track system performance and identify areas for improvement.



Feature Spotlight: Real-Time Solution Recommendation

The system provides instant solution recommendations for incoming tickets.

It displays the top-matching article from the knowledge base, a confidence score for the match, and the associated resolution steps, all directly within the interactive analysis view.

The screenshot shows a user interface for ticket analysis. At the top, there's a search bar with the placeholder "Search ticket or knowledge base". Below it, a ticket summary for "Ticket ID: 12345" is displayed, including the subject "Wi-Fi disconnects once or twice a day", the status "Open", and the priority "Medium". A large "Show Recommended Solution" button is prominently featured. To the right, a detailed panel shows the "Top Match" article: "Wi-Fi disconnects once or twice a day" with a "Confidence: 96.46%". Below this, the "Resolution Steps" are listed:

- 1. Check physical connections (power/video cable)
- 2. Attempt a hard reset (power cycle)
- 3. Log a repair request with the IT inventory team.

Below this panel, another ticket summary is partially visible: "Outlook signature disappeared after update" with a "Show Recommended Solution" button. At the bottom, a snippet of text from the knowledge base article is shown: "Outlook signature disappeared after update" followed by a truncated version of the article content.

Feature Spotlight: Content Gap Analysis

Our 'Real-Time Content Gap Analysis' uses vector analysis to identify knowledge blind spots.

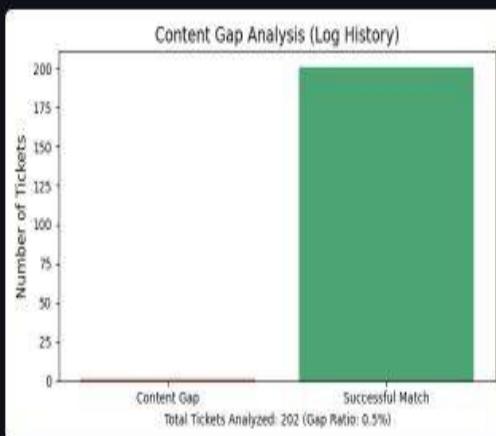
It flags tickets that have no successful match in the knowledge base, allowing the support team to create new articles and keep the KB relevant and up-to-date.

Real-Time Content Gap Analysis

Metrics (Vector Analysis)

Content Gap Ratio	Total Tickets Analyzed	Tickets Flagged as Gap	Successful KB Matches
0.50%	202	1	201

Chart Visualization



Report updated at 22:30 AEST

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Feature Spotlight: Live Alerts & Logging

We integrated Slack Webhooks to send automated, real-time alerts for critical ticket updates and system notifications.

An 'Activity Log' on the dashboard ensures instant communication and collaboration, allowing the entire team to stay in sync.

The screenshot shows a dark-themed dashboard interface. At the top, there are two tabs: 'Notifications (5)' (which is active) and 'Analytics'. Below the tabs, the 'Activity Log' section is displayed. It features a header 'Activity Log' with a speech bubble icon and the sub-header 'New Slack Channel Activity (Real-Time)'. A blue callout box below the sub-header states 'Showing 5 latest messages. Updates every 5 seconds.' The log itself lists five messages from a user named 'U09RFT35611':

- 17:07:52 U09RFT35611: Congratulation...
- 17:07:34 U09RFT35611: Hii we are all done!...
- 17:07:04 U09RFT35611: Hii team we are done with the model !...
- 17:06:48 U09RFT35611: Hii Rohit this is sahil you should check the ticket 303 again...
- 17:01:45 U09RFT35611: Hii aditya we need you in our team!!...

Below the activity log, there is a section titled 'AI Application Events' with a gear icon. A blue callout box below it says 'No recent AI application events.' At the very bottom of the screen, there is a footer bar with the text 'Always on demandable in transit or'.

Conclusion & Impact

90%+
Classification Accuracy

Key Outcomes

Successfully developed a scalable AI system that reduced manual effort by 60%, significantly improving team efficiency and customer satisfaction.

This project demonstrates how AI and NLP can make customer service smarter, faster, and more reliable.

Thank You

Questions?