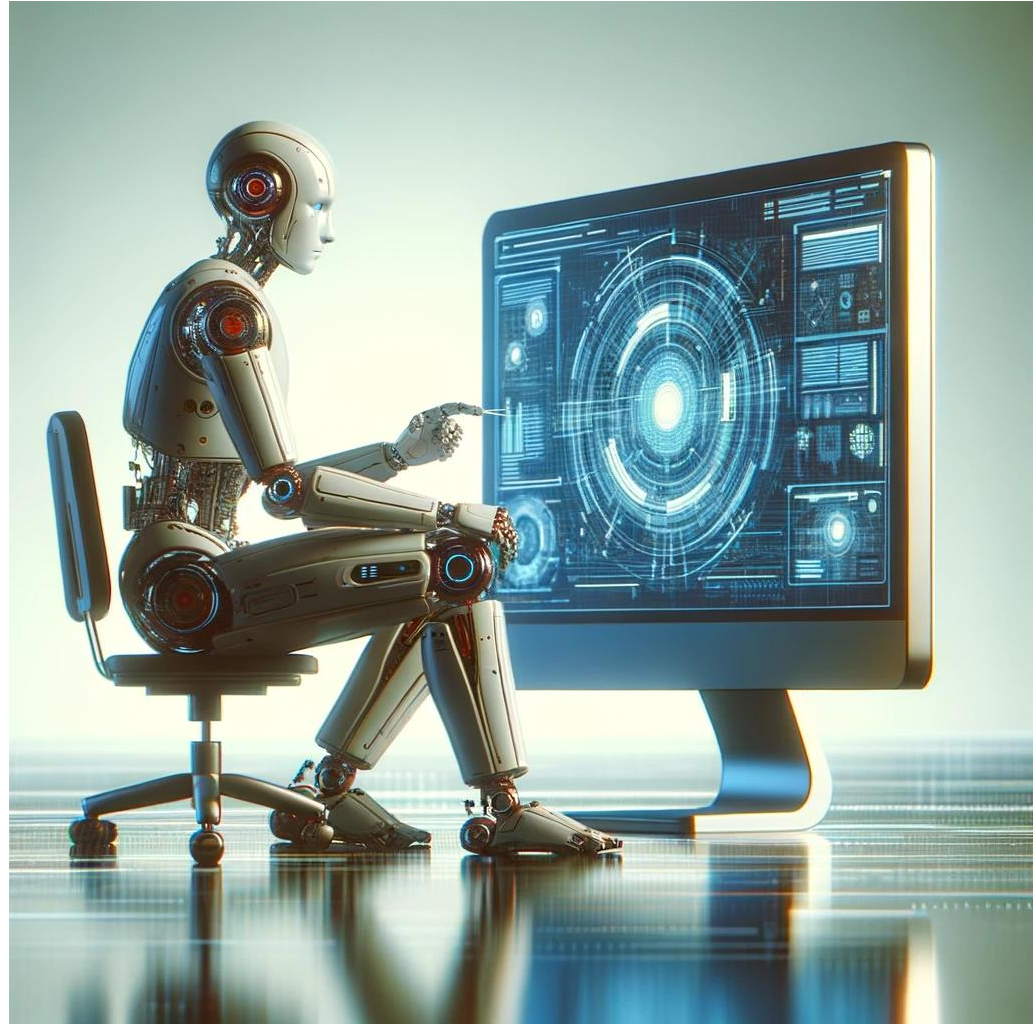


Support Ticket Categorization

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Executive Summary

Why A Support Ticket Categorization System Is Needed:

- A technology provider organization can improve customer satisfaction by reducing the response times for customer support. A first customer response is automatically generated.
- Automating the categorization process eliminates the need for manual sorting. This allows the support staff to focus on resolving issues rather than organizing tickets.
- Consistent accuracy is achieved by minimizing human error in ticket categorization.
- Resource allocation is improved by having clear insights into the types of issues being reported.

Executive Summary

Key Takeaways:

- Using a Llama 2 model with prompting was successful in automating the categorization of a technology service provider's support tickets and generating first responses.
- The model was able to offer recommendations for various technical issues, such as internet connectivity, data recovery, and hardware problems.
- Responses showed empathy for customer problems and comprehension of the issues. The importance of issues and the urgency of resolving them was emphasized.
- The model was able to deal with queries covering a variety of domains and estimate the time required for repairs.
- The responses included providing actionable steps to address customer concerns.

Executive Summary (continued)

Key Next Steps For Application:

- Conduct thorough testing with additional real-world data to validate the categorization accuracy and identify any areas for improvement.
- Gather feedback from potential users, such as Customer Support Agents, to understand how the system can be optimized for their workflow.
- Develop a plan for integrating the categorization system into the existing support ticket infrastructure, ensuring compatibility and seamless operation.
- Assess the scalability of the system to handle increased ticket volumes and evaluate its performance under different scenarios to ensure reliability and efficiency.
- Consider integrating the system with repair team dispatching.

Executive Summary (continued)

Other Industry Applications:

- Healthcare – For handling patient inquiries, appointment scheduling, billing questions, and technical support for medical devices or software.
- Finance and Banking – To address account inquiries, transaction disputes, loan application queries, and technical issues for online banking platforms.
- E-Commerce and Retail – Managing customer inquiries regarding product information, order status, returns, and payment issues.
- Software – To provide technical support for software products, manage bug reports, and assist with user account issues.

Problem and Solution Summary

This Project Uses A Large Language Model And Prompting To:

- Assign service request tags such as : Technical Issues, Hardware Issues, Data Recovery
- Assign a priority to service requests: High or Normal
- Provide a suggested ETA for resolution of the customer concern.
- Generate an automated and appropriate first response (sentiment based) based on the text of the customer service request.

Technical Background

What Is A Large Language Model (LLM)?

- Definition - In the context of this project an LLM is an artificial intelligence system trained on vast amounts of text data to understand and generate human-like language.
- Functionality - LLMs can perform a wide range of natural language processing tasks, including text generation, translation, summarization, question answering and more.
- Training - LLMs are trained using deep learning techniques, particularly neural networks, on diverse text corpora to capture language patterns and context.
- Applications – LLMs are used in various applications such as chatbots, content creation, language translation and information retrieval systems.

Technical Background (Continued)

What Is Prompting?

- Definition - A text input provided to an LLM to elicit a specific response. It can range from a simple question to a more complex instruction depending on the desired output.
- Response Generation - The LLM uses its understanding of language and knowledge from its training data to generate a response that is relevant to the prompt.
- Zero Shot Prompt - A task submitted without additional examples or context.
- Few Shot Prompt - A task submitted with a few examples of the task to be performed.
- Chain of Thought Prompt – Involves breaking a complex task into simpler intermediate steps. The prompt encourages articulating the reasoning steps for transparency.

Appendix

Examples Of Model Output

| | support_tick_id | support_ticket_text | category | tags | priority | suggested_eta | generated_1st_reply |
|---|-----------------|---|-----------------|----------------------------|----------|---------------|---|
| 0 | ST2023-006 | My internet connection has significantly slowed down over the past two days, making it challenging to work efficiently from home. Frequent disconnections are causing major disruptions. Please assist in resolving this connectivity issue promptly. | Technical Issue | [Internet Connectivity] | High | 4 hours | Thank you for contacting us. Our technical team is working to resolve this issue as soon as possible. |
| 1 | ST2023-007 | Urgent help required! My laptop refuses to start, and I have a crucial presentation scheduled for tomorrow. I've attempted a restart, but it hasn't worked. Please provide immediate assistance to resolve this hardware issue | Hardware Issue | [Laptop, Startup] | High | 2 hours | We understand your urgency. Please try holding down the power button for 10 seconds to force a restart. Let us know if that helps. |
| 2 | ST2023-008 | I've accidentally deleted essential work documents, causing substantial data loss. I understand the need to avoid further actions on my device. Can you please prioritize the data recovery process and guide me through it? | Data Recovery | [File Deletion, Data Loss] | High | 4 hours | We understand the urgency of accessing your data and will guide you through the data recovery process as soon as possible. |
| 3 | ST2023-009 | Despite being in close proximity to my Wi-Fi router, the signal remains persistently weak in my home. This issue has been ongoing, and I need assistance troubleshooting it. Please help me resolve the weak Wi-Fi signal problem. | Technical Issue | [Wi-Fi, Signal, Weakness] | Normal | 4 hours | Thank you for reaching out. We'll work together to troubleshoot the weak Wi-Fi signal issue. Please check for any physical obstructions near your router and devices. |
| 4 | ST2023-010 | My smartphone battery is draining rapidly, even with minimal use. Can you help me identify and rectify this battery issue? | Hardware Issue | [Battery Drain] | Normal | 4 hours | Thank you for reaching out. We'll be happy to help you identify and resolve the battery issue on your device. |