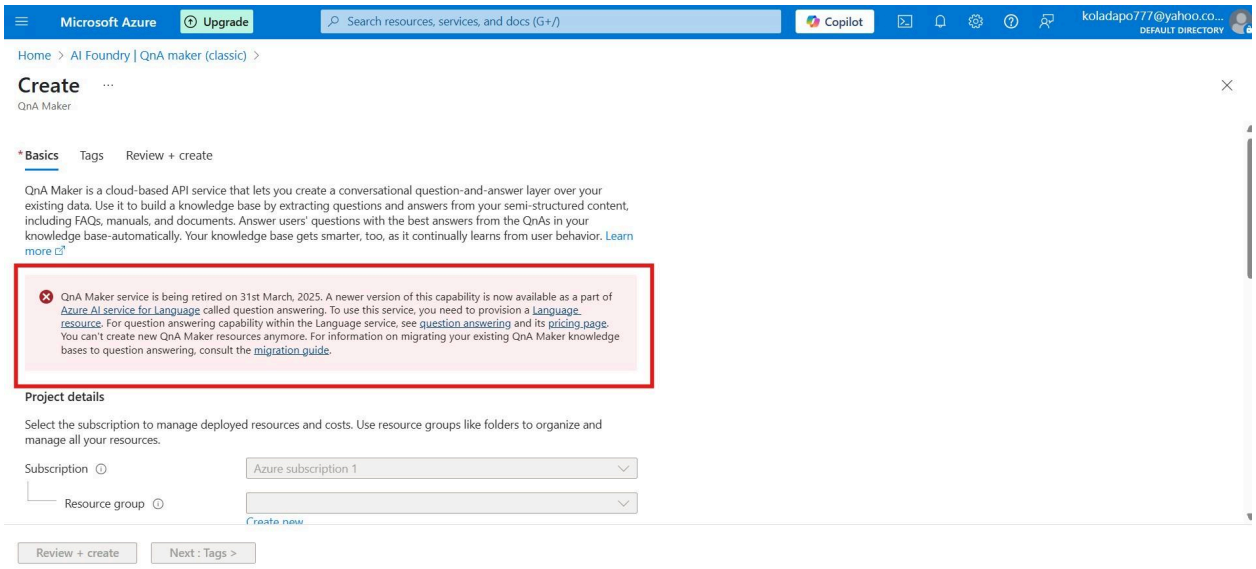
Building an FAQ Chatbot with Azure AI Language Service

Throughout this project, my primary goal was to build a functional FAQ chatbot. My journey began with an interesting challenge right at the outset: the initial project instructions referenced the classic QnA Maker service. However, as I quickly discovered in the Azure Portal (and saw the clear deprecation notice), the classic QnA Maker has been retired, and it is on its way out. This was a crucial learning moment, and I immediately pivoted to embrace the modern, supported solution: the **Azure AI Language service's Custom Question Answering feature**. This adaptation was vital to ensure my project was built on current and future-proof Azure technologies.

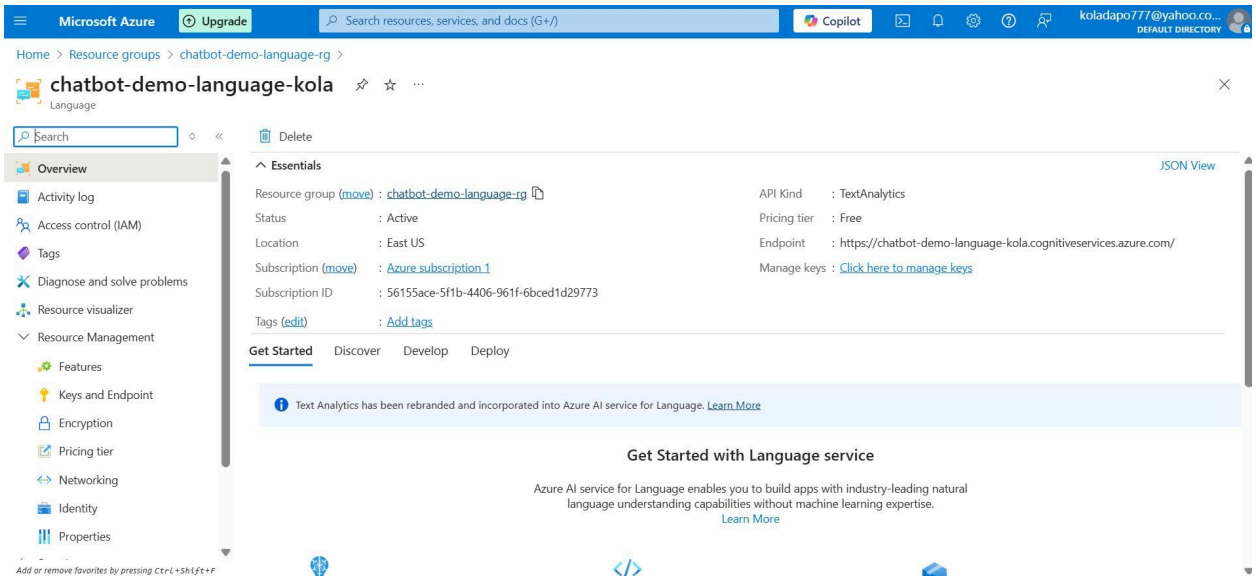


Screenshot of QnA Maker retirement blocked page on Azure Portal

1. Azure Language Service Resource Setup

My first concrete step was to establish the foundational service in Azure. I navigated directly to create an **Azure AI Language service resource**, which I carefully named `chatbot-demo-language-kola`. This was my initial bridge from the old QnA Maker instructions to the new reality.

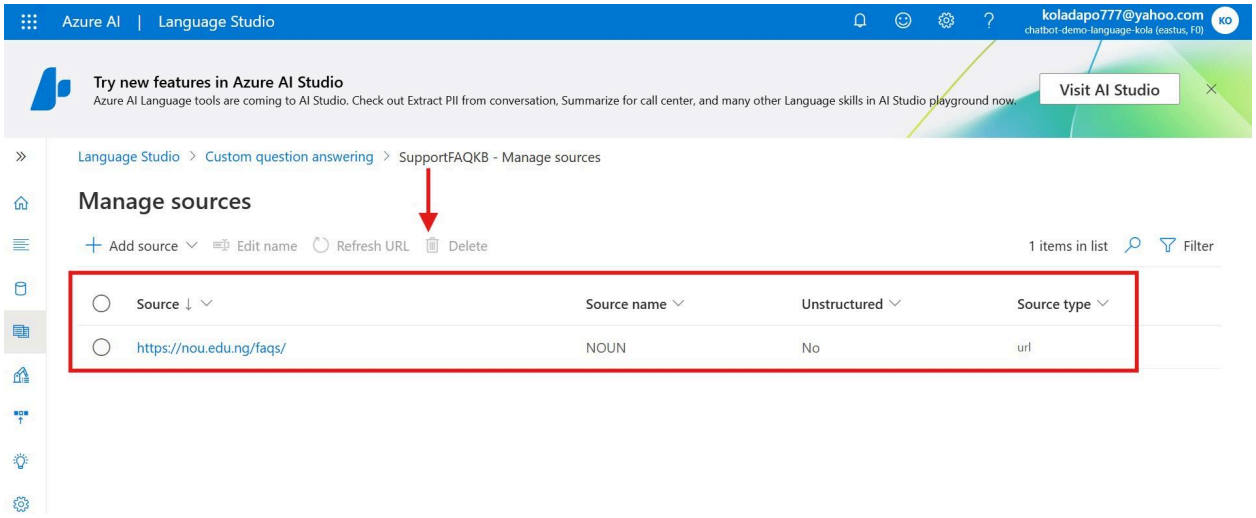
During this setup phase, I encountered a slight misstep. I initially found myself on the "Conversational Language Understanding" section of Language Studio, which wasn't quite right for an FAQ bot. It was a quick detour, but it taught me to be very precise in selecting the correct project type. I swiftly corrected the course, ensuring that I created a dedicated **Custom Question Answering project**, which I thoughtfully named `SupportFAQKB`. This project was then correctly linked to my `chatbot-demo-language-kola` Language Service and, importantly, to an underlying Azure AI Search resource, `chatbot-demo-search-kola`, which is essential for the question answering functionality to work. Getting all these connections right felt like setting the perfect stage for my chatbot.



In the overview screenshot, the status as 'Online' confirms successful deployment

2. Build the Knowledge Base

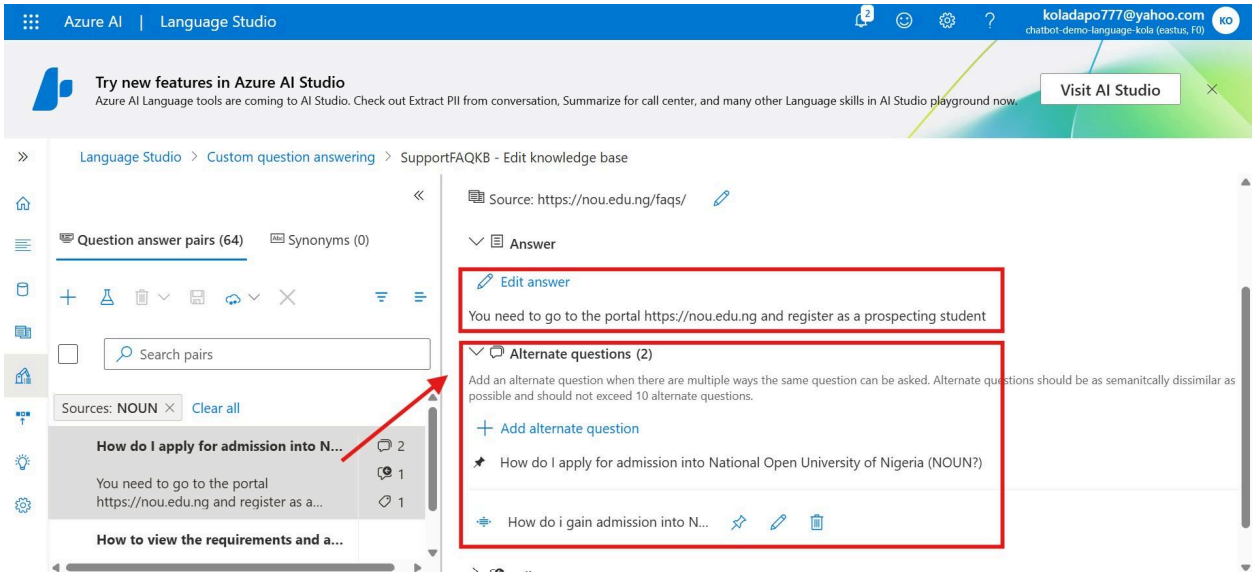
With my `SupportFAQKB` project sitting ready in Language Studio, my next vital task was to infuse it with the core intelligence – the knowledge base. My specific mission was to make this chatbot an expert on the **Frequently Asked Questions (FAQ) of the National Open University of Nigeria (NOUN)**. This felt like giving the bot a brain!



FAQ Bot Knowledge Base with FAQ Source URL (NOUN)

I accomplished this by going into the "Edit knowledge base" section within my `SupportFAQKB` project. From there, I initiated the process to add the NOUN FAQ content as a source. Whether it was from a document or a URL, the system seamlessly ingested the information, transforming raw text into structured question-and-answer pairs. This was the magic moment where the bot started to "learn."

After the initial ingestion, I meticulously reviewed each auto-extracted Q&A pair. This part felt like fine-tuning its understanding. I paid close attention to adding **alternate phrasings** for various questions. For instance, if the original FAQ listed "How do I apply for admission into National Open University of Nigeria (NOUN)?", I would add variations like "How do I gain admission into NOUN?", "What do I need to apply?", or "Entry criteria for NOUN." This process is crucial because real users don't always ask questions in the same way. Each alternative phrasing I added made the bot smarter and more robust in understanding natural human language. After making these important adjustments, I made sure to save my changes and then **train** the knowledge base, which solidified its learning and prepared it for deployment.

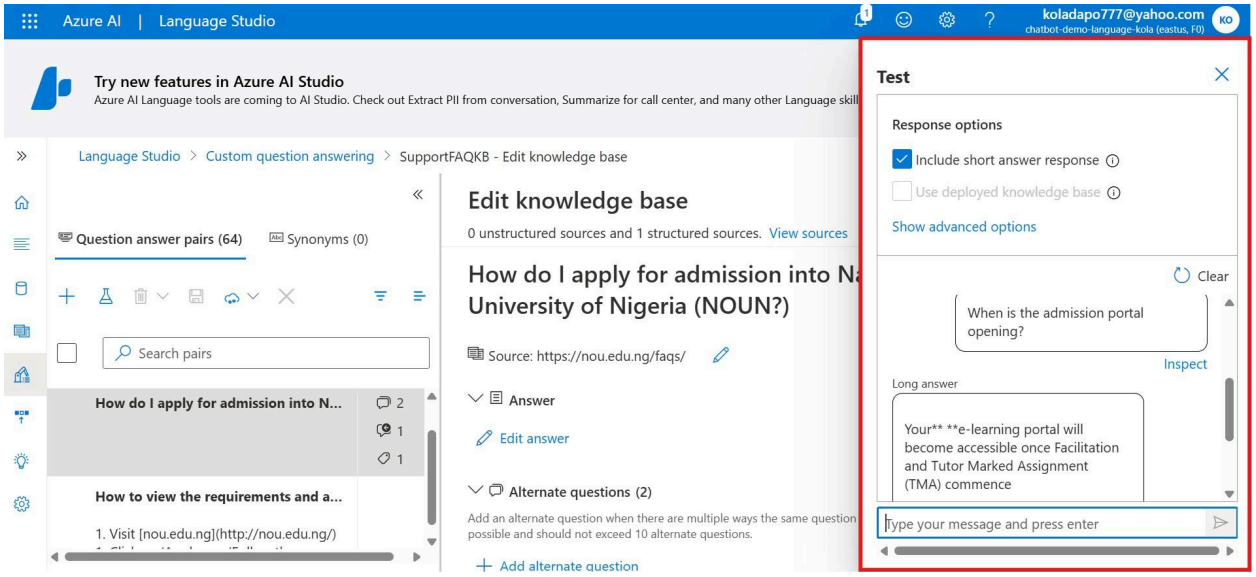


Editing Answers and adding Alternate Phrasing in the Knowledge Base

3. Test and Deploy the Chatbot

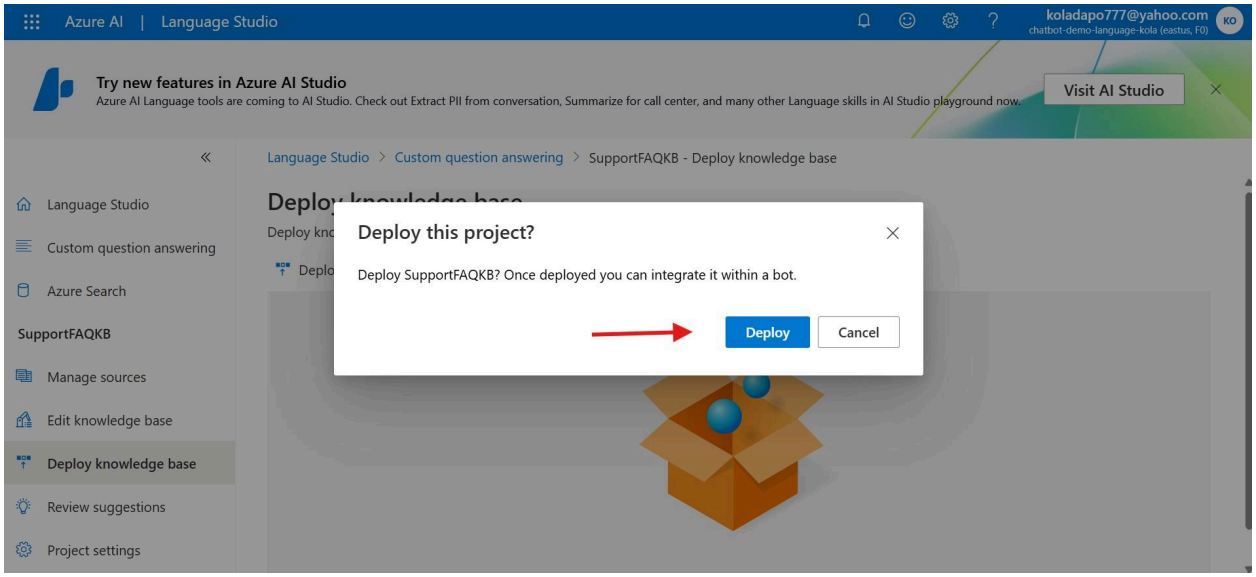
The moment of truth arrived with the testing phase. In Language Studio, I eagerly moved to the "Test" pane of my `SupportFAQKB` project. This is where I really got to interact with my creation. I played the role of a curious NOUN student, typing in various questions related to the university's FAQs, such as "When is the admission portal opening?" or "Where can I find information about course registration?".

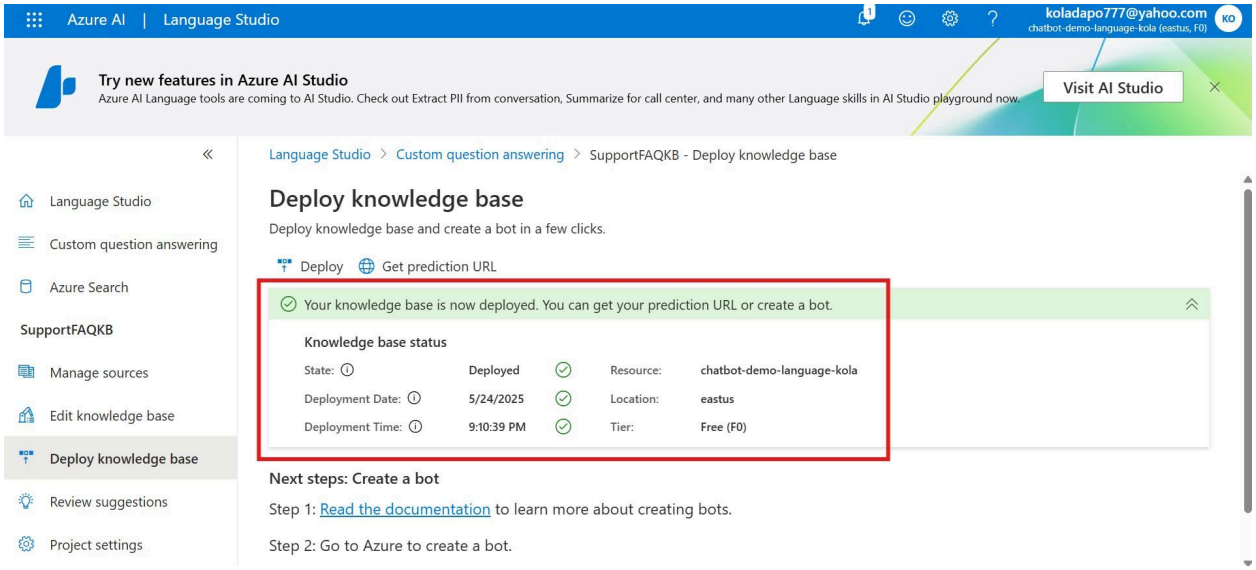
I carefully observed the bot's responses and the confidence scores it provided. If it returned an incorrect answer or seemed unsure (indicated by a low confidence score), I didn't hesitate. I'd cycle right back to the "Edit knowledge base" tab, refine the existing Q&A pair, add more alternate phrasings, or even introduce a brand new Q&A if the information was missing. This iterative process of testing, refining, and re-training was vital; it's how I moulded the bot into a truly reliable source of information.



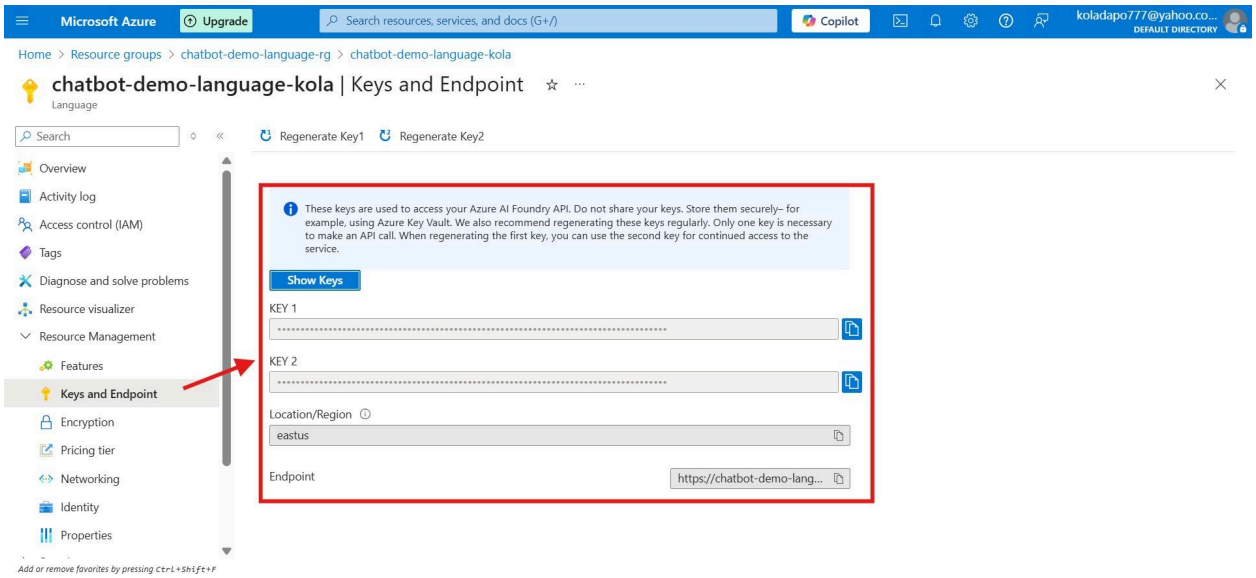
Test Screenshot: Question by me and Answer by Chatbot

Finally, with confidence in its performance, I proceeded to deploy the knowledge base. I navigated to the "Deploy" tab within Language Studio and clicked the "Deploy" button. While the immediate UI didn't flash the endpoint details right there (a minor quirk I noted!), I knew exactly where to find them. I retrieved the **Endpoint URL** and **Endpoint Key** from the "Keys and Endpoint" section of my `chatbot-demo-language-kola` Language Service resource in the Azure Portal. This final step made my `SupportFAQKB` chatbot available via an API, ready to be integrated into any application that needed quick, accurate answers about NOUN.





Successful Deployment of Knowledge Base



Keys and Endpoint URL for website integration

Deeper Insight and Analysis: Real-World Applications and Ethical Considerations of Azure AI Language Service

This project, centred on the NOUN FAQ chatbot, offers a tangible glimpse into the immense power and versatility of Azure AI Language Service, particularly its Custom Question Answering capability. This isn't just about answering simple questions; it's about transforming how organizations deliver information and support, and it opens up a world of possibilities.

Real-World Applications and Potential Use Cases:

1. **Customer Support Automation (Beyond FAQs):** While my project focused on FAQs, the same underlying technology can be extended to much more dynamic customer support. Imagine a bot that not only answers "How do I reset my password?" but also guides users through troubleshooting steps for common software issues, or even helps process basic requests by integrating with backend systems. This could significantly reduce call centre volumes and improve customer satisfaction by providing instant, 24/7 assistance.

2. **Internal Employee Knowledge Bases:** Large organizations struggle with employees constantly asking repetitive questions about HR policies, IT procedures, or company benefits. An internal chatbot powered by Azure Language Service could be an invaluable tool, allowing employees to quickly find answers without sifting through documents or interrupting colleagues. This boosts productivity and ensures consistent information dissemination.

3. **Educational Institutions (Beyond Admissions):** My NOUN FAQ bot is a perfect example. Beyond just admissions, such bots could answer questions about course content, library resources, academic calendars, financial aid, or even provide basic tutoring support by directing students to relevant learning materials. It becomes a personalized learning assistant.

4. **Healthcare Information Systems:** In healthcare, providing accurate and accessible information is critical. Bots could answer common patient questions about symptoms (directing them to seek medical advice), appointment scheduling, insurance coverage, or medication details, reducing administrative burden and empowering patients.

5. **E-commerce and Retail:** Imagine a chatbot on an online store that answers questions about product specifications, shipping policies, return procedures, or even suggests products based on user queries, leading to better customer

engagement and reduced cart abandonment.

Ethical Concerns and Biases in AI Chatbot Adoption:

While the benefits are clear, adopting AI chatbots, especially those based on language models, comes with significant ethical responsibilities.

1. **Data Bias:** The most prominent concern is **bias in the training data**. My NOUN FAQ bot is only as good as the NOUN FAQs it was trained on. If the source material contains outdated, incomplete, or implicitly biased information (e.g., favouring certain demographics in its examples or language), the chatbot will inevitably reflect and perpetuate those biases. In a broader context, if a customer service bot is trained predominantly on interactions with a specific demographic, it might inadvertently develop biases in its responses or understanding when interacting with others.

2. **Lack of Empathy and Misinterpretation:** Chatbots lack genuine empathy. While they can be programmed to use empathetic phrases, they don't *feel* or truly understand human emotions. In sensitive situations (like health advice or financial counselling), a bot's inability to grasp nuance or emotional context could lead to misinterpretations, frustration, or even harmful advice. There's also the risk of misinterpreting user intent, especially with complex or emotionally charged queries.

3. **Privacy and Security:** Deploying a chatbot means potentially handling sensitive user queries. Organizations must ensure robust data encryption, access controls, and compliance with privacy regulations (like GDPR or HIPAA) to protect user information from breaches or misuse. My project, by not using the full Azure Bot Service, did not directly handle user input beyond the test pane, but any real-world deployment would need careful consideration of this.

4. **Transparency and Accountability:** Users should ideally know they are interacting with an AI, not a human. Lack of transparency can lead to a false sense of trust. Furthermore, when a bot makes a mistake or provides incorrect information, who is accountable? Clear lines of responsibility need to be established, and mechanisms for human escalation or review are essential.

5. **Job Displacement:** While chatbots can augment human capabilities, there's a legitimate concern about job displacement, particularly in roles like basic customer service. Responsible AI adoption requires considering reskilling

programs and focusing on how AI can free human agents for more complex, empathetic, or creative tasks rather than simply replacing them.

In conclusion, building this chatbot with Azure AI Language Service has been an insightful journey, demonstrating the practical application of cutting-edge AI. These tools can revolutionize how we interact with information. However, as I step back and analyze, I recognize that the true success and ethical implementation of such AI solutions hinge not just on their technical prowess but on the thoughtful and responsible consideration of their societal impact.