# Project Report: An AI Email Drafting Assistant

For this interview task, I chose to go beyond a theoretical design by building and deploying a fully functional prototype. Here is a summary of the working solution I created and the process I followed.

## The Steps I Took to Build This System

My approach was centered on creating a simple user experience while building a robust and reliable automation in the background.

1. **The Foundation: The User's Request Form.** I started by building the most critical part for the staff: a simple and intuitive Google Form. I designed the form to act as a clear "briefing" for the AI, ensuring it captures all the essential details needed for a high-quality email, including the recipient, key message, and desired tone of voice.
2. **The Data Bridge: A Reliable Log.** To make the system resilient, I configured the form's responses to automatically populate a Google Sheet. This creates a structured and reliable log of all requests, which serves as the stable foundation for the automation.
3. **The Engine: The Automation Workflow.** With the data pipeline in place, I built the core logic using the n8n automation platform. The workflow I constructed performs three key functions:
   * **It Triggers:** The workflow activates the moment a new request appears as a row in the Google Sheet.
   * **It Thinks:** The data from that row is securely sent to an OpenAI model (GPT-4o). I engineered a detailed prompt that instructs the AI to act as a professional assistant, using the provided data to write a complete email draft.
   * **It Creates:** The AI's final text is used to generate a new Google Doc, which is automatically titled with the recipient's name and the date for easy organization in a shared Google Drive folder.
4. **Closing the Loop:** The final design ensures the document is saved in a shared space, and the workflow is built so a final notification step (via Slack or email) can easily be added to let the user know their draft is ready for review.

## Key Considerations I Kept in Mind

While building this, I focused on several key principles to ensure the tool is not just functional, but also practical and trustworthy for a team.

* **Accuracy & Quality Control:** The most important principle was to define the AI's role clearly. I designed it to be a powerful assistant, producing a high-quality **first draft**. The final review by a staff member is a crucial, built-in part of the process, guaranteeing quality and maintaining our human oversight.
* **Usability:** A tool is only useful if it's used. I prioritized a seamless user experience by using a familiar tool like a Google Form. All the complexity is handled by the automation, so there is zero learning curve for the staff.
* **Privacy & Security:** I was mindful that the process involves sending data to a third-party AI service. The solution is perfect for routine communications, and I recognize the importance of having a clear company policy regarding what data is appropriate to process this way.
* **Reliability & Troubleshooting:** Real-world systems need to be resilient. During development, I encountered a challenge where the standard n8n trigger for my data source was unavailable in my environment. I successfully engineered a more robust solution using the spreadsheet as a stable intermediary, demonstrating that the system's architecture can be adapted to overcome technical hurdles

## The Platforms and Tools I Used

The final tech stack I implemented is comprised of accessible, powerful, and cost-effective tools:

* **Input & Data:** **Google Forms** & **Google Sheets**
* **Automation Platform:** **n8n**
* **AI Engine:** **OpenAI's API (GPT-4o)**
* **Output & Storage:** **Google Docs** & **Google Drive**

## Cost Implications of This System

I analyzed the costs required to run this automation:

* **Fixed Costs:** The Google Workspace tools are typically part of an organization's existing subscription, so there are likely no new fixed costs.
* **Platform Costs:** The cost for the n8n platform would be a predictable monthly fee for a cloud plan or the server costs for a self-hosted instance.
* **Variable Costs:** The primary ongoing operational cost is for the OpenAI API. This is billed based on the amount of text processed. For this use case, the cost per email draft is extremely low—mere fractions of a cent. The return on investment from the significant time and effort saved by staff would far exceed this minimal variable cost.

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