Project Proposal: AI Chatbot for Data Insights and Assistance

# Current Process

The Preventative Maintenance (PM) team manages the planning and upkeep of building service equipment across 600+ buildings. Currently, users rely on manual spreadsheet reviews, FAQs, and historical work orders to extract insights. This process is inefficient, especially for non-technical staff, and lacks scalability. Manual searches for equipment manuals based on manufacturer or serial number are time-consuming and often yield inconsistent results.

# Solution

Develop an AI-powered chatbot that allows internal users to:  
- Ask questions using natural language.  
- Analyze uploaded Excel/CSV files for key metrics and trends.  
- Retrieve preventive maintenance FAQs.  
- Fetch equipment manuals based on manufacturer and model.

# Tool Features

• Upload Excel/CSV files for instant analysis  
• Ask natural language questions about uploaded data  
• Generate graphs and summaries automatically  
• Save and resume chat sessions  
• Restrict access to users with @calgary.ca emails  
• Fetch equipment manuals using SerpAPI based on manufacturer/model  
• Store data and chat history securely using Supabase

# Benefits

• Saves analysts and engineers hours each week  
• Makes data accessible to all team members  
• Promotes data-driven decisions  
• Reduces repetitive manual tasks  
• Fast access to manuals, historical data, and process knowledge

# Assumptions/Constraints

• Users will upload structured Excel or CSV files  
• Manual links depend on data availability on third-party sites (e.g., ManualsLib)  
• Authentication and user data must be secured (using Supabase & environment variables)  
• OpenAI and SerpAPI usage must be monitored for cost control

# Proof of Concept (PoC) Deliverables

1. Frontend: Streamlit user interface  
2. Backend: FastAPI, integrated with Supabase  
3. OpenAI integration for chatbot responses  
4. SerpAPI integration for manual lookups  
5. Data visualizations auto-generated from user-uploaded data  
6. Secure authentication for Calgary staff only

# Scope

• Provide a web-based chatbot interface for interacting with Excel data  
• Add context-aware answers using existing FAQ database  
• Deliver basic and advanced charting tools based on user input  
• Include ability to fetch manuals via API  
• Store session-based memory for chat continuity

# Schedule

• Prompt and interface design: 1–2 weeks  
• Endpoint deployment and testing: 1 week  
• Streamlit frontend development: 1 week  
• Supabase integration and migration: 1–2 weeks  
• Full deployment and hosting: 2 week

# Resources

• OpenAI GPT-3.5 or GPT-4   
• SerpAPI for manual lookup  
• Supabase for authentication and data storage  
• Streamlit Cloud / Railway / Render for deployment  
• GitHub for version control  
• Docker (optional for scaling)