HR-TECH INNOVATION CHALLENGE

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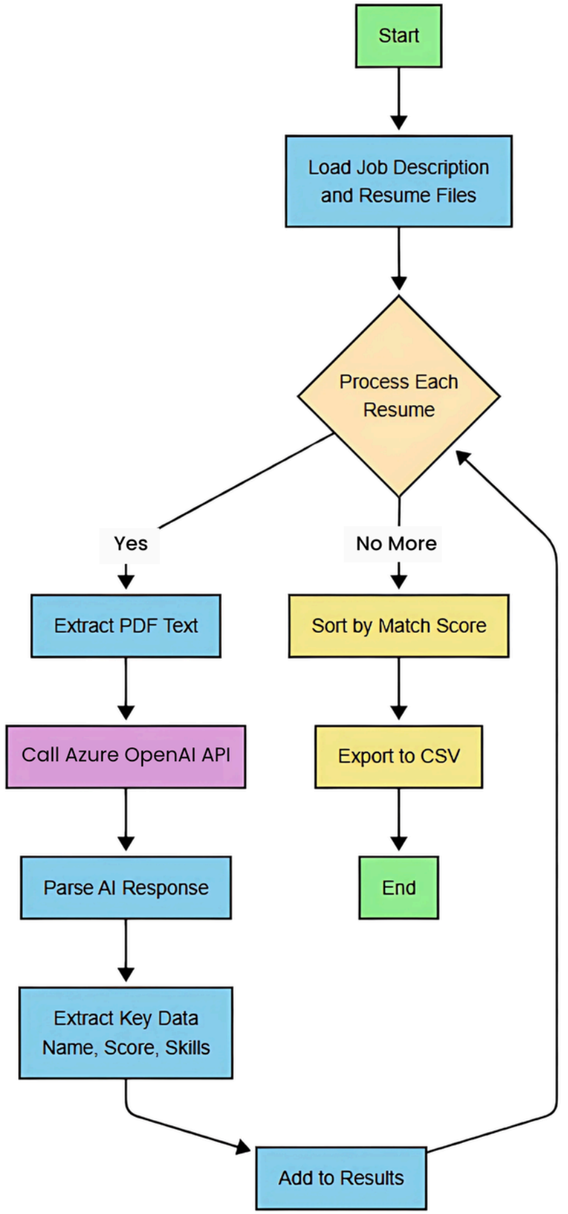
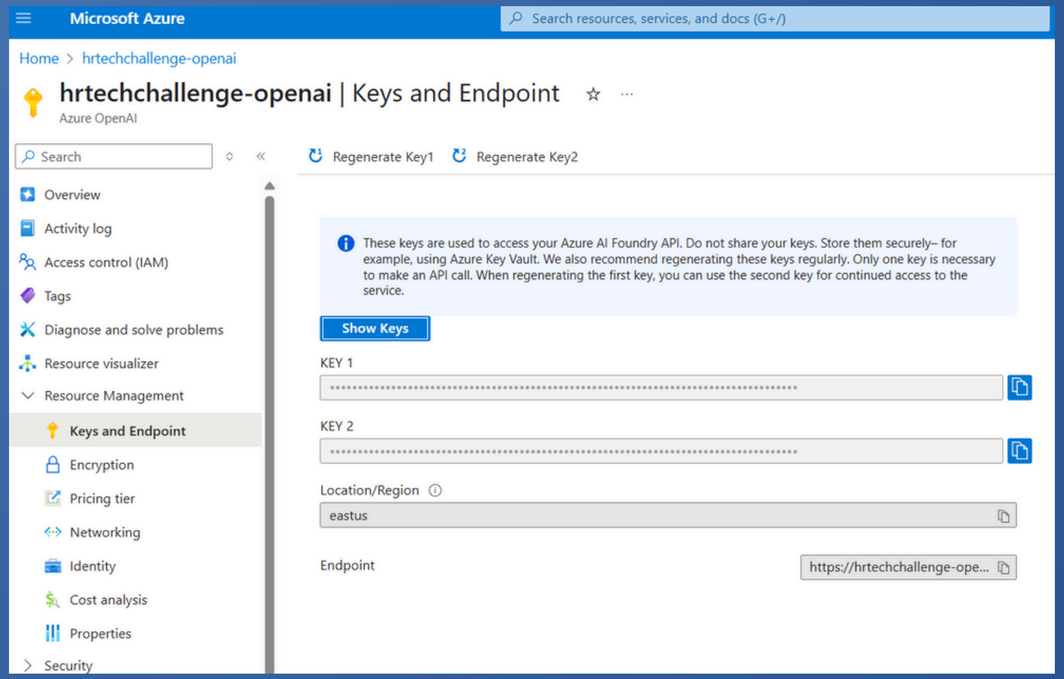
TASK 1
INTELLIGENT RESUME SCREENING

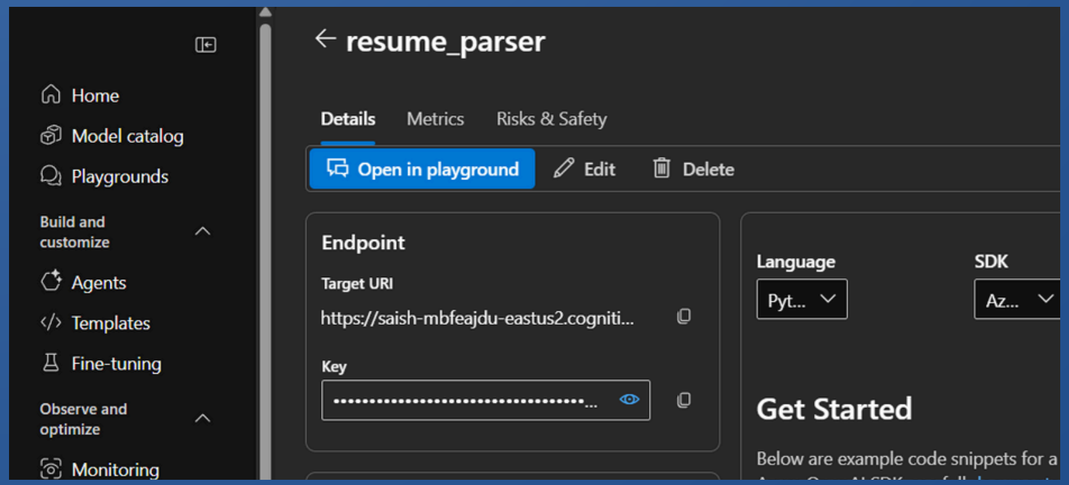
In present-day recruitment, comparing hundreds of applications to a job description is laborious and prone to human bias or oversight. An intelligent and effective solution is required to automatically scan resumes, compare them to a JD, and rank candidates based on their relevance and suitability for the role.

PROPOSED WORKFLOW

- **Automated Matching:** Built a pipeline that accepts a folder of PDF resumes and a .txt job description, automating skill and experience comparison.
- **LLM-Powered Analysis:** Utilized GPT-4.1 (via Azure OpenAI) to extract, evaluate, and match resume content against the job description.
- **Structured Output:** Generated a CSV with candidate name, match score, top 5 matched skills, 5-point summary, and final verdict.
- **Prompt Engineering:** Crafted a robust prompt instructing the LLM to extract, compare, summarize, and conclude with precision.
- **Candidate Ranking:** Sorted candidates by match score to streamline the shortlisting process.







BUSINESS IMPACT

Improved Hiring Accuracy:
Ensures consistent evaluation by objectively matching skills and experience to job requirements.

Time Savings:
Automates resume screening, reducing manual review time by over 80%.

Enhanced Decision-Making:
Delivers actionable insights like match scores, skill gaps, and qualification verdicts to aid faster shortlisting.

TASK 2
ATTRITION RISK DETECTION + SUGGESTION GENERATOR

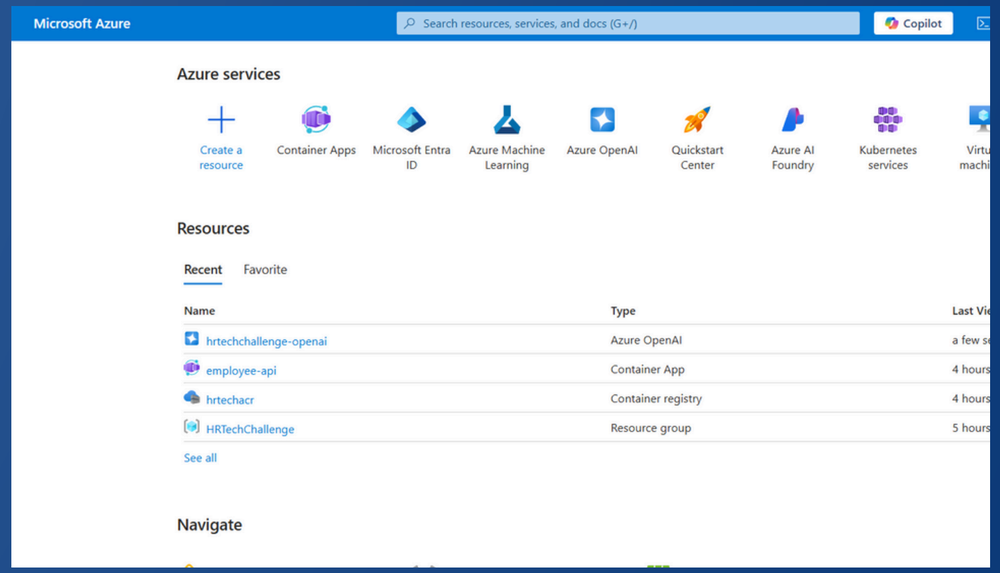
Traditional HR techniques can be useful in tracking attrition patterns, but they frequently miss early warning indicators concealed in employee attitude or qualitative feedback.

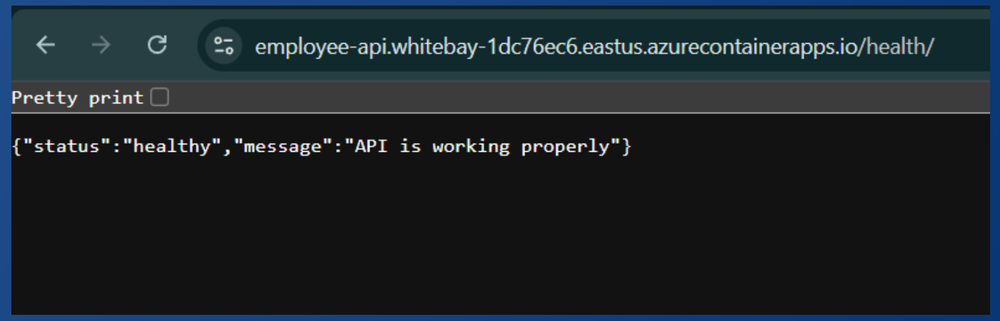
There is a clear need for a robust system that can:

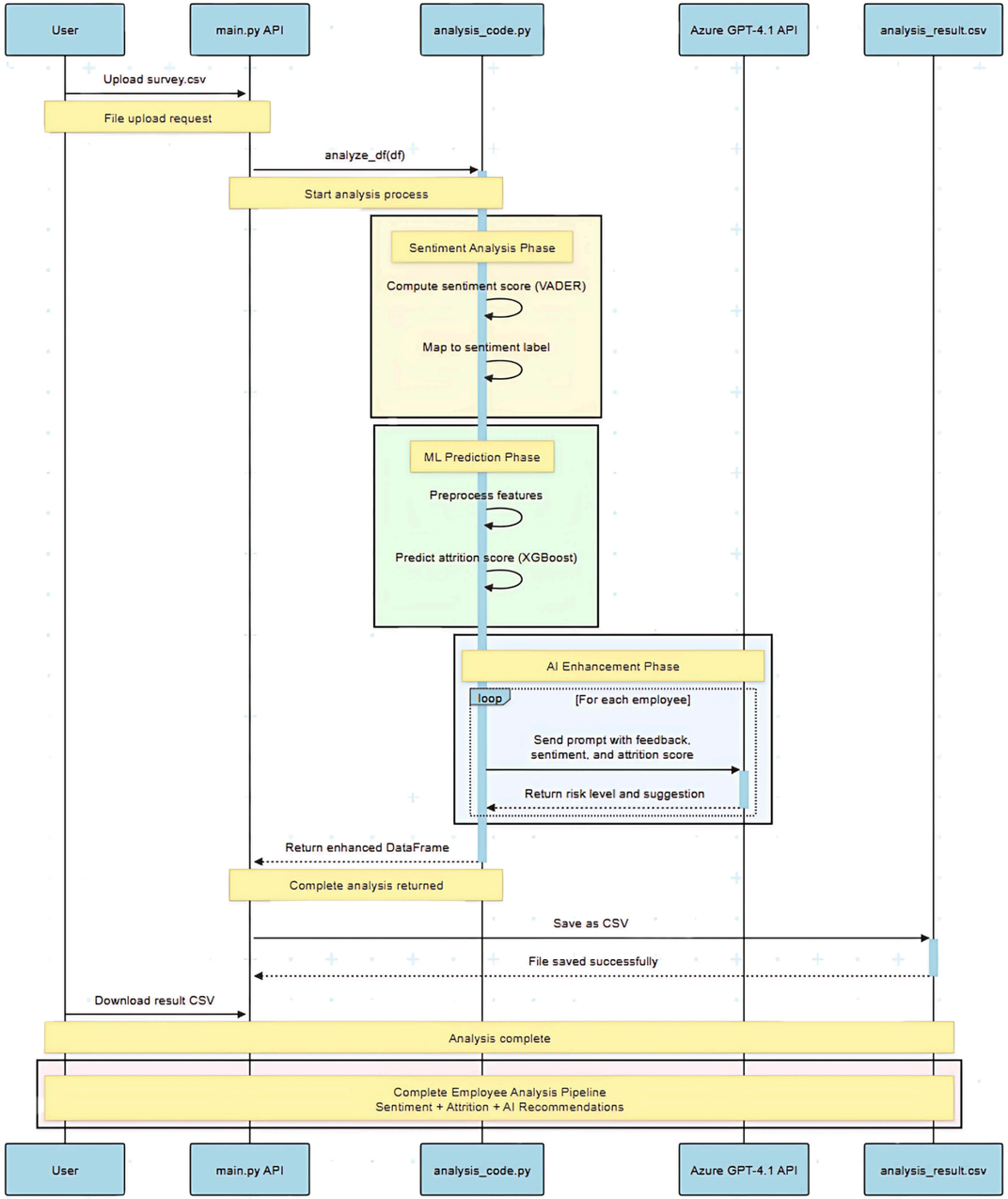
- Automatically interpret employee feedback,
- Quantify both emotional sentiment and attrition probability,
- And provide tailored, actionable recommendations to improve retention.

PROPOSED WORKFLOW

- **Input:** The input is a structured CSV file containing employee details and feedback.
- **Sentiment Analysis with VADER:** Valence Aware Dictionary for Sentiment Reasoning is a lightweight NLP model, processes the employee feedback to assign:
  - A compound sentiment score between -1 (negative) and +1 (positive)
  - A sentiment label (e.g., Positive, Neutral, Negative) based on the score
- **Attrition Risk Prediction with XGBoost:** A trained XGBoost classifier uses employee features (excluding feedback) to calculate an attrition score on a 0–10 scale, reflecting the likelihood of the employee leaving.
- **LLM-Powered Analysis with GPT-4.1 (Azure OpenAI):** A custom-designed prompt sends the feedback, sentiment, and attrition score to GPT-4.1, which returns:
  - **An Attrition Risk Level: High, Medium, or Low**
  - **A personalized retention suggestion to address employee concerns or risks**
- **Output:** Enhanced CSV with Employee ID, Feedback, Sentiment, Attrition Risk, Suggestion







BUSINESS IMPACT

Proactive Attrition Management

HR teams can identify high-risk employees before they decide to leave, allowing timely interventions and retention strategies.

Scalable HR Decision Support

The automated pipeline analyzes hundreds of feedback entries in minutes, enabling large-scale analysis without manual effort.

Improved Workplace Satisfaction

With actionable insights per employee, companies can foster a more supportive, responsive, and engaging work environment.