

## Contents

<b>1. Overview .....</b>	<b>2</b>
<b>2. Data Inputs .....</b>	<b>2</b>
<b>3. OpenAI Risk Classification .....</b>	<b>3</b>
<b>4. OpenAI Recommendations .....</b>	<b>3</b>
<b>5. Dashboard Layout .....</b>	<b>3</b>
<b>6. AI Implementation Notes .....</b>	<b>3</b>

# AI Employee Retention Predictor – Supporting Notes

## 1. Overview

This AI-powered solution predicts employee retention risk and provides actionable recommendations. The system is designed to help HR teams proactively address potential attrition and improve engagement.

**Key Features:**

- Predict retention risk (Low / Medium / High) based on employee data
- Provide actionable AI-generated recommendations
- Drill-down view per employee
- Overall insights with department-level analysis

## 2. Data Inputs

The following data points are used from the employee CSV file:

Column	Description
name	Employee full name
department	Employee department
current_salary	Current salary of the employee
market_salary	Market benchmark salary for the role
recognition_count	Number of recognitions received by employee
tenure	Years of service
engagement_score	Employee engagement score (0–100)
attendance_rate	Attendance percentage
survey_response	Employee feedback / survey text

### 3. OpenAI Risk Classification

- Takes in employee data (salary, engagement score, tenure, survey responses, etc.).
- Sends it to GPT-4 with a prompt asking for retention risk classification: Low, Medium, or High.
- Extracts both the risk level and a short reason.

### 4. OpenAI Recommendations

Based on the calculated risk level, actionable recommendations are generated:

- **High Risk**
  - Define a clear career progression roadmap.
  - Offer targeted skill development workshops.
  - Monitor workload and redistribute tasks.
- **Medium Risk**
  - Schedule regular mentorship sessions.
  - Implement monthly recognition for small wins.
  - Adjust workload to prevent burnout.
- **Low Risk**
  - Continue regular recognition for contributions.
  - Offer small stretch projects for growth.
  - Maintain strong team engagement practices.

### 5. Dashboard Layout

- **Overall Insights Page**
  - Summary table with employee name, risk level, reason, and top recommendation.
  - Risk distribution pie chart.
  - Department-level stacked bar chart showing risk counts.
- **Individual Employee Analysis Page**
  - Select employee from sidebar dropdown.
  - View detailed metrics, survey response, AI retention risk, and recommendations.
  - Visual badges and progress bars for engagement, salary gap, and attendance.

### 6. AI Implementation Notes

The app is designed to generate live retention predictions and recommendations using the **OpenAI API**.

However, due to API key availability constraints, the current demo uses **mock responses** to simulate AI output.

The **logic documented above** mirrors the rules that would otherwise be generated dynamically by the AI model in a live setup.

**APIs Used in Real Version:**

- **chat.completions.create** – to classify retention risk (Low, Medium, High) and provide explanation.
- **chat.completions.create** (separate call) – to generate tailored retention recommendations.

**Supported Models (examples):**

- gpt-4 – More accurate reasoning, better contextual analysis.
- gpt-4o-mini – Faster, cheaper, optimized for lightweight analysis.

**Instructions to insert your API key:**

- To enable live predictions, you need an OpenAI API key.
- Sign up or log in at <https://platform.openai.com>.
- Navigate to API Keys in your account settings.
- Generate a new secret API key.
- Copy the key and replace the placeholder in the code file provided. Alternatively, this can be done setting environment variable (recommended).