Project Title: ResignGuard AI

Scenario-Based Learning: Business Problem

A company relies heavily on its workforce to deliver projects on time. Each employee plays a critical role in ongoing assignments. If an employee resigns suddenly, it directly impacts work progress and delays the final delivery to clients. To mitigate such risks, the company seeks a predictive solution that can forecast which employee might resign in the near future. This would allow management to plan alternatives in advance and ensure smooth project delivery.

As an AI Engineer, your task is to design a predictive system using Artificial Intelligence to solve this challenge.

A) AI-Based Solution Approach

We propose building a **predictive model using Machine Learning** to estimate the likelihood of employee resignation.

Steps to Implement:

1. **Data Collection**: Gather historical employee data, including both resigned and retained employees.
2. **Feature Selection**: Include relevant attributes such as:
    - EmployeeID
    - Age
    - Role
    - Experience (in years)
    - Projects Handled
    - Last Appraisal Score
    - Absenteeism (days)
    - Workload Level
    - Recent Promotion (Yes/No)
    - Resignation Status (Label)
3. **Labeling**: Target variable is "ResignedStatus" with classes: Resigned, Retained.
4. **Model**: Use ML - classification algorithms
5. **Deployment**: Integrate the model into HR systems for real-time prediction.
6. **Actionable Insights**: Alert managers about high-risk employees for proactive intervention.

B) Problem Identification: 3-Stage Framework

1. We can use - **Machine Learning** ---> For complex scenarios (DL could be used for have millions of records and NLP if using unstructured data like text from employee feedback) <---
2. Falls under **Supervised** - as the purpose is very clear.
3. **Problem Formulation**:
    - A supervised machine learning **classification** problem.
    - Input: Employee attributes
    - Output: Resigned or Retained

C) Project Name

ResignGuard AI – An intelligent system to safeguard project delivery by predicting employee exits.

D) Dummy Dataset

EmployeeID	Age	Role	Experience(yrs)	ProjectsHandled	LastAppraisal	Absenteeism(days)	WorkloadLevel	RecentPromotion	ResignedStatus
101	30	Developer	5	3	4.2	2	Medium	No	Retained
102	28	Tester	3	4	3.5	6	High	No	Resigned
103	35	Manager	10	2	4.8	1	Medium	Yes	Retained
104	26	Developer	2	5	2.9	5	High	No	Resigned
105	40	Architect	15	1	4.9	0	Low	Yes	Retained
