**Machine Learning – Problem Identification Assignment**

A company works with number of employees, all the works are dependents on the employees. Even if one of the employees resign the job immediately then assigned work will be not finished at the time, so delivery of the project to the clients will be delayed. Company planned to make solution for this, they want to know which employee may resign next. If they know previously, they can arrange alternative to avoid such problem. As an AI Engineer you must give Solution to this.

1. A) How will you achieve this in AI?
2. B) Find out the 3 -Stage of Problem Identification
3. C) Name the project
4. D) Create the dummy Dataset.

**Approach**

**Project Name:** HR Predictive Insights

Here are the three stages for AI in this scenario:

**Stage 1: Domain Selection - Machine Learning (ML)**

Since the task involves predicting employee attrition based on historical data, ML techniques will be suitable for this problem.

**Stage 2: Supervised Learning**

The model will be trained on historical employee data with labeled outcomes (resigned vs. retained).

**Stage 3: Classification**

The model will classify employees into two categories:

Class 1: Likely to resign

Class 2: Likely to stay

**Sample Dataset**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| EmpID | Age | Gender | MaritalStatus | Position | Department | Salary | Tenure | PerformRating | Absences | Promotions | EngagementScore | Resignation |
| 1 | 35 | Male | Married | Software Engineer | IT | 70000 | 5 | 4.5 | 3 | 1 | 85 | No |
| 2 | 29 | Female | Single | Data Analyst | Data Science | 65000 | 3 | 4.0 | 2 | 0 | 78 | No |
| 3 | 45 | Male | Married | Project Manager | Management | 90000 | 10 | 4.8 | 0 | 3 | 92 | No |
| 4 | 34 | Female | Married | HR Specialist | HR | 60000 | 6 | 3.5 | 7 | 0 | 42 | Yes |
| 5 | 28 | Male | Single | Marketing Executive | Marketing | 55000 | 2 | 3.9 | 10 | 0 | 33 | Yes |