

# Instructions

- Select one problem statement from the list provided.
- Propose a solution that aligns with any of the applicable domains mentioned under the chosen problem statement.
- Develop a comprehensive plan (Round-1) and prototype (Round-2) that addresses the problem statement using innovative methodologies, technologies and tools.
- Present your solution, emphasizing its relevance, feasibility, and potential impact.

## Problem Statements

- **AI-Powered Data Query Interface:**

**Problem Statement:** Organizations often struggle with efficiently accessing and understanding client data stored in internal databases. Traditional methods of data retrieval and analysis can be time-consuming and cumbersome, leading to delays in decision-making and inefficiencies in client management. There is a need for a streamlined and intuitive solution that allows organization members to query and receive timely, accurate insights from the database through a user-friendly interface.

**Objective:** Develop a chat interface that leverages a Large Language Model (LLM) to read and interpret client data from an internal database. This interface will enable organization members to query the database and receive accurate, contextually relevant responses about the data.

**Domain:** Not Applicable

- **Demand Forecasting Model for Inventory Management:**

**Problem Statement:** Organizations encounter challenges in accurately forecasting demand, leading to issues like stockouts and excess inventory due to inefficient inventory management. **Objective:** Develop forecasting models (univariate and multivariate) for demand forecasting utilizing historical sales data and market trends to provide accurate forecasts, thereby improving inventory management and production planning efficiency.

**Domain:** Retail, Manufacturing, E-commerce, Consumer Goods, Pharmaceuticals, Automotive, Healthcare, Technology, Telecommunications, Energy and Utilities, Banking and Financial Services.

- **Predictive Maintenance for Machines:**

**Problem Statement:** Downtime of machinery due to unexpected failures can lead to inconvenience for customers and increased maintenance costs for the company and affect sales. Developing a predictive maintenance platform can help anticipate maintenance needs and prevent unplanned outages.

**Objective:** Create an analytics platform that predicts when machines will require maintenance, reducing downtime and improving Performance.

**Domain:** Automobile, Manufacturing, Logistics, Oil and Gas, Utilities, Healthcare, Transportation, Mining, Construction, Telecommunications, Power Generation.

- **AI-Based Disaster Prediction and Response System:**

**Problem Statement:** Natural disasters cause significant loss of life and property, and timely prediction and response are critical to minimizing their impact. Develop an AI system that predicts natural disasters such as earthquakes, floods, and hurricanes using historical data and real-time inputs, and suggests optimal response strategies.

**Objective:** Enhance disaster preparedness and response by providing accurate predictions and actionable insights to emergency responders and affected communities.

**Domain:** Environmental monitoring, Emergency management, Public safety, Government agencies, Disaster relief organizations, Infrastructure management, Climate research, Insurance.

- **Fraud Detection and Prevention System:**

**Problem Statement:** Organizations across various sectors face significant challenges in detecting and preventing fraudulent activities, leading to substantial financial losses and reputational damage. Develop an advanced machine learning model leveraging generative AI technology to analyze patterns and behaviors in data streams. The objective is to swiftly identify and flag potentially fraudulent activities in real-time and to proactively prevent such activities by predicting and mitigating risks before they materialize.

**Objective:** Enhance security by implementing a sophisticated fraud detection and prevention system capable of identifying anomalies and suspicious patterns across diverse datasets. This system should not only detect fraud as it occurs but also predict and prevent future fraudulent activities by analyzing historical data, customer behaviors, and transaction patterns using advanced statistical techniques and generative AI.

**Domain:** Financial Services, Insurance, E-commerce, Cybersecurity, Telecommunications, Healthcare, Government, Retail, Travel and Hospitality, Energy and Utilities

- **Advanced Optimization System:**

**Problem Statement:** Organizations face challenges in optimizing various operational systems, leading to inefficiencies such as increased costs, delays, and resource wastage.

**Objective:** Develop an advanced optimization system that leverages real-time data, advanced algorithms, and predictive analytics to improve the efficiency of diverse operations, including resource allocation, process management, and workflow optimization. This system aims to minimize costs, enhance productivity, and improve overall operational efficiency.

**Domains:** Logistics and Transportation, Supply Chain Management, E-commerce, Retail, Manufacturing, Healthcare Logistics, Food and Beverage Distribution, Pharmaceutical Distribution, Construction Logistics, Automotive Logistics, Energy and Utilities, Telecommunications, Financial Services.