Project Title: AI-Enhanced Customer Support Ticket Resolution and Proactive Issue Prevention System

Project Statement:

This project aims to develop an advanced AI-powered customer support system that leverages historical ticket data analysis to predict recurring issues and proactively address potential concerns. By integrating LLMs like OpenAI GPT, Meta LLaMA for natural language processing and sentiment analysis with Google Sheets, Slack, and Email, the system will automate responses to common issues, escalate high-priority tickets based on sentiment and urgency, and provide preemptive solutions. This solution will significantly enhance customer support efficiency, reduce response times, and improve overall customer satisfaction by addressing issues before they escalate.

Outcomes:

- Predictive issue detection and automated solution generation for recurring support problems.
- Real-time sentiment-based ticket escalation for priority handling of high-stress situations.
- Automated resolution system for common issues, integrated with multiple communication platforms.
- Significant reduction in support ticket volume and improved first-contact resolution rates.

Modules to be Implemented:

1. Historical Analysis and Recurrence Detection Engine
    - Analyzes past ticket data to identify patterns and predict future issues.
    - Generates preemptive solutions for commonly recurring problems.
2. Real-Time Sentiment Analysis and Escalation System
    - Monitors incoming tickets for urgency and customer sentiment.
    - Automatically flags and routes high-priority tickets for immediate attention.
3. Automated Response and Resolution Hub
    - Drafts responses for repetitive issues using AI-generated content.
    - Integrates with Slack for seamless communication.
4. Proactive Issue Prevention Dashboard
    - Provides insights on potential future issues based on historical data.
    - Suggests proactive measures to prevent common problems.

Milestones:

Milestone 1: Weeks 1-2

Introduction & Initial Training
Objective: Set up the project infrastructure, introduce team members to the tools (LLMs like OpenAI GPT, Meta LLaMA), and gather initial data for training models.
Tasks:

- Set up the environment for ticket data analysis (e.g., integration with Google Sheets).
- Train team members on using LLMs for ticket analysis and sentiment detection.
- Begin collecting initial data from historical customer support tickets.

Milestone 2: Weeks 3-4

Module 1: Historical Analysis & Recurrence Detection Engine
Objective: Build a system that analyzes past ticket data to predict recurring issues and generate preemptive solutions.
Tasks:

- Implement algorithms to analyze historical support tickets for patterns of recurring issues.
- Develop a system that generates automated solutions for commonly recurring problems.

Milestone 3: Weeks 5-6

Module 2 & 3: Real-Time Sentiment Analysis & Automated Response Hub
Objective: Develop a system that monitors incoming tickets for sentiment shifts while automating responses to common issues.
Tasks:

- Implement real-time sentiment analysis using LLMs (OpenAI GPT, Meta LLaMA) to flag high-priority tickets.
- Build an automated response hub that drafts replies for repetitive issues using AI-generated content.

Milestone 4: Weeks 7-8

Module 4: Proactive Issue Prevention Dashboard Deployment
Objective: Provide real-time insights into potential future issues through an integrated dashboard synced with communication platforms (Slack & Email).
Tasks:

- Deploy a dashboard that provides insights on potential future issues based on historical data using data visualization libraries like ‘matplotlib’ or ‘seaborn’ etc.
- Integrate the system with Slack & Email to notify staff about proactive measures needed to prevent common problems.

Evaluation Criteria:

- Milestone 1 Evaluation (Week 2): Successful setup of the project environment, initial training completed, and first batch of historical ticket data collected for analysis.
- Milestone 2 Evaluation (Week 4): Historical analysis engine deployed; recurring issues identified with preemptive solutions generated.
- Milestone 3 Evaluation (Week 6): Real-time sentiment analysis implemented; automated response hub deployed with AI-generated replies for common issues.
- Milestone 4 Evaluation (Week 8): Proactive issue prevention dashboard deployed; real-time insights provided on potential future problems along with notifications sent via Slack/Email.