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To: Adarsh Sunkari

Senior Manager

Walmart

Subject: Proposal for Implementation of a Customer Feedback Analysis and Sentiment Prediction Tool

Dear Adarsh,

I am pleased to submit to you the proposal for the implementation of a new data product, titled "Customer Feedback Analysis and Sentiment Prediction Tool," developed to enhance our understanding of customer satisfaction and support strategic decision-making within [Company Name]. This tool is designed to align with our ongoing efforts to place the customer at the center of our operations.

**Summary of the Problem:**

In today’s competitive market, understanding customer feedback is crucial for improving products and services. Currently, [Company Name] lacks a systematic approach to analyze customer sentiments, which results in missed opportunities to harness valuable insights from customer reviews.

**Benefits to the Customer and Decision-Making Process:**

The proposed tool will allow us to quantitatively and qualitatively analyze customer feedback, identifying patterns and trends in sentiment that can inform product development, marketing strategies, and customer service enhancements. This data-driven approach will lead to more targeted and effective decision-making processes.

**Outline of the Data Product:**

The product will be a Jupyter notebook-based application that uses data visualization and machine learning to process and interpret customer feedback. It will provide an interactive interface for non-technical users to explore sentiment analysis results and receive predictions for future customer sentiments.

**Description of Data:**

The data product will utilize existing customer review datasets, comprising textual feedback and associated ratings. These datasets will be sourced from our internal records and potentially augmented with publicly available review data, ensuring a robust foundation for analysis.

**Objectives and Hypotheses:**

The primary objective is to deploy a tool that can accurately determine sentiment scores from customer feedback. We hypothesize that by implementing this tool, we will be able to predict customer sentiment trends with a high degree of accuracy, thereby preempting potential issues and identifying successful features.

**Project Methodology:**

In line with industry best practices, we propose to employ the Cross-Industry Standard Process for Data Mining (CRISP-DM) methodology to guide the project from conception to deployment. CRISP-DM is a robust and well-established model that ensures a comprehensive and systematic approach to predictive analytics projects. The following phases outline the application of this methodology:

1. Business Understanding:
   * Define project objectives and requirements from a business perspective.
   * Determine the circumstances that necessitate this tool, including project goals, deliverables, and business success criteria.
2. Data Understanding:
   * Collect initial datasets and assess the quality and volume of data.
   * Explore the data to discover first insights and understand the underlying structure relevant to the business problem.
3. Data Preparation:
   * Preprocess and clean the customer feedback data to ensure it is ready for analysis.
   * Format and transform the data as needed to facilitate effective modeling.
4. Modeling:
   * Develop predictive models using the Naive Bayes classifier, ensuring the model is tuned for accurate sentiment prediction.
   * Employ best practices in machine learning to iteratively improve the model.
5. Evaluation:
   * Critically assess the model’s performance against business objectives.
   * Review the process and determine if further iterations are required to refine the model.
6. Deployment:
   * Outline a deployment strategy for the integration of the sentiment analysis tool into the business workflow.
   * Plan for monitoring, maintenance, and ongoing evaluation post-deployment to ensure the model remains accurate and relevant.

This methodology provides a structured approach that will guide our project from initial understanding through to deployment, ensuring that the tool developed not only meets but exceeds business requirements. Additionally, this method provides the transparency and traceability that are crucial for stakeholder buy-in and support.

**Funding Requirements:**

The project is estimated to require minimal funding since it leverages existing technologies and datasets. A detailed budget will be provided upon preliminary approval of the project.

**Impact on Stakeholders:**

Stakeholders, including product teams, marketing departments, and customer service personnel, will benefit from deeper insights into customer preferences and pain points, enabling a more customer-centric approach to business.

**Ethical and Legal Considerations:**

We will adhere to all relevant data protection laws and ethical guidelines in the handling and analysis of customer feedback, ensuring confidentiality and integrity of the data.

**Relevant Expertise:**

I bring to this project expertise in data science and analytics, with a proven track record in developing similar tools that enhance decision-making and operational efficiency. My skills in Python programming, data visualization, and predictive modeling ensure the successful execution of this project.

I am confident that the Customer Feedback Analysis and Sentiment Prediction Tool will be a valuable addition to [Company Name]'s suite of decision-support resources. I look forward to discussing this proposal further and am available for any questions you may have.

Thank you for considering this proposal.

Sincerely,

Ian Crisp

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