Improving Data Accuracy in CRM using AI

PHASE 1- PROBLEM ANALYSIS

College Name: Maratha Mandal Engineering College

Group Members:

- **Name:** Sumit Kalal

  CAN ID Number: CAN_33834392

  implementation,expected outcomes

- **Name:** Prathamesh Patil

  CAN ID Number: CAN_34003622

  Application requirements, tools and platforms

- **Name:** Gireesh A Tallur

  CAN ID Number: CAN_33834641

  target users, non functional requirements

- **Name:** Rohil Uday Gurav

  CAN ID Number: CAN_33986080

  defining problem statement ,key questions

ABSTRACT

1. Data accuracy is a cornerstone of effective Customer Relationship Management (CRM). Traditional CRM systems often struggle with data inconsistencies, missing entries, and outdated information. This project proposes an AI-driven solution to enhance data accuracy in CRM systems. Leveraging machine learning models, natural language processing (NLP), and automated anomaly detection, this system ensures real-time validation and updates for CRM data. The outcome is a scalable, robust, and actionable platform that empowers businesses to make informed decisions.

2. PROBLEM STATEMENT:

CRM systems frequently encounter data quality issues, which can lead to misguided strategies, inefficiencies, and lost opportunities. These challenges often arise due to:

• Manual data entry errors.

• Outdated customer information.

• Duplicate or incomplete records.

Key Questions:
• How can AI address inaccuracies in CRM data?

• What models or methods can ensure real-time data validation?

Target Users:
• Sales Teams: Relying on accurate customer data for targeted outreach.

• Marketing Departments: Designing personalized campaigns.

• Data Analysts: Extracting actionable insights from CRM systems.

3. KEY QUESTIONS:

4. • How can AI address inaccuracies in CRM data?

5. • What models or methods can ensure real-time data validation?

Target Users:

• Sales Teams: Relying on accurate customer data for targeted outreach.

• Marketing Departments: Designing personalized campaigns.

• Data Analysts: Extracting actionable insights from CRM systems

Goal:

Minimize inaccuracies in CRM data to improve customer interactions and business decision-making.

6. APPLICATION REQUIREMENTS:

3.1 Functional Requirements:

• Data Validation: Automate the process of identifying and correcting errors.

• Duplicate Detection: Flag and merge duplicate records.

• Real-Time Updates: Monitor and update customer profiles dynamically.

3.2 Non-Functional Requirements:

• Scalability: Handle extensive and growing CRM databases.

• Security: Ensure compliance with data privacy regulations.

5.2. Non-Functional Requirements:

• Scalability: Handle extensive and growing CRM databases.

• Security: Ensure compliance with data privacy regulations.

7. TOOLS AND PLATFORMS:

4.1 Tools:
• python : for implementing preprocessing pipelines.

• pandas : For handling and cleaning large sensor datasets.

• NumPy : For numerical computations and array operations.

• Scikit-learn : Provides a wide range of data preprocessing tools

Model Development :

Scikit-learn: For building machine learning models to improve sensor data quality.

TensorFlow/PyTorch : For deep learning models if required.

Visualization :

Matplotlib: For visualizing trends and anomalies in sensor data.

Seaborn: For creating detailed statistical plots to support analysis.

Plotly: For interactive and web-based visualizations.

PLATFORMS:

8. IBM Cloud Object Storage: To store raw and processed sensor data securely. AWS S3 or Azure Blob Storage.

9. Jupyter Notebook : For interactive data preprocessing and exploration.

10. IBM Watson Studio : For developing, training, and deploying AI models to enhance sensor data quality.

8. Future Scope
The application of AI in CRM systems is still evolving, with numerous opportunities for further development and innovation. Future research can focus on incorporating advanced deep learning models to analyze unstructured data such as customer feedback, social media interactions, and call logs. Additionally, integrating AI with predictive analytics can enable businesses to anticipate customer needs and behavior patterns, paving the way for more personalized and proactive engagement strategies. Finally, enhancing the scalability and

adaptability of AI-powered CRM systems will be crucial in catering to the diverse and dynamic needs of modern enterprises.

11. IMPLEMENTATION:

Step 1: Data Preparation
• Collect and load CRM data into a secure storage platform.

• Preprocess data by removing duplicates, handling missing values, and standardizing formats.

Step 2: Model Development
• Train machine learning models for anomaly detection and prediction of missing data.

• Apply NLP to process unstructured customer data (e.g., emails, notes).

Step 3: Integration and Automation
• Integrate AI tools with CRM systems using APIs.

• Implement real-time monitoring dashboards for data health.

Step 4: Reporting and Feedback
• Generate periodic reports on data accuracy improvements.

• Incorporate user feedback to refine models and processes.

6. Expected Outcomes
1. Enhanced Data Accuracy: Reduction in errors and missing information in CRM systems.

2. Real-Time Monitoring: Dashboards to track data health metrics.

3. Business Insights: Improved customer segmentation and predictive analytics based on accurate data.

Conclusion
By integrating AI technologies into CRM systems, organizations can achieve unprecedented levels of data accuracy. This project underscores the importance of clean, reliable data for enabling meaningful customer interactions and empowering informed business decisions.

IBM.

12. EXPECTED OUTCOMES:

13. 1. Enhanced Data Accuracy: Reduction in errors and missing information in CRM systems.

14. 2. Real-Time Monitoring: Dashboards to track data health metrics.

15. 3. Business Insights: Improved customer segmentation and predictive analytics based on accurate data.

PHASE 1