# Meeting Summary

Group Number: 9

## Project Overview

## The goal of this project is to leverage time series analysis for practical trend forecasting. We will work with a real-world dataset, applying and refining models such as ARIMA, SARIMA, and XGBoost. The project will also focus on generating clear visualizations and delivering findings through an analytical presentation and a concise summary video to facilitate data-driven decisions.

## Meeting 1: Project Direction and Dataset Update

The initial team meeting secured professor approval to continue with the established project topic and dataset. Key agreements included collaboratively updating the dataset to encompass data up to December 2024, ensuring consistent class attendance by all members, maintaining reliable availability for professor meetings, and scheduling regular discussions to track progress and keep the dataset current.

## Meeting 2: EDA and Model Planning

The second meeting focused on the updated dataset, initiating a new EDA (assigned to Faith and Janvi) and chart creation (Sandeep and Ebenezer). The team refined the project plan, opted for Time Series Analysis as the main modeling approach (with other ML models for comparison), and tasked each member with researching Time Series Analysis implementation.

## Meeting 3: Model Implementation and Interim Report

The third meeting involved reviewing Time Series Analysis implementation with ARIMA, SARIMA, and XGBoost (each member assigned a model for independent work and later comparison). The interim report was reviewed with a directive to include detailed modeling insights and comparisons. Faith and Janvi continued EDA finalization, while Sandeep and Ebenezer focused on visualizations. The meeting concluded with an emphasis on deep model understanding, resolving implementation issues, and preparing a structured model comparison.

## Meeting 4: Model Evaluation and Report Refinement

The fourth meeting involved each member presenting their ARIMA, SARIMA, and XGBoost model implementations, including results and challenges. The team discussed performance improvement through hyperparameter tuning and feature engineering, deciding to collectively analyze outcomes to choose the best single or combined model approach. Feedback on the interim report led to an agreement to add more comprehensive modeling details, with each section being reviewed and revised for clarity. The team also continued exploring additional models for a stronger comparison.

## Meeting 5: Final Presentation and Video Preparation

The fifth meeting focused on feedback for the project presentation and final submissions. The professor critiqued the PowerPoint slides for poor design (black background) and missing evaluation metrics (MSE, R-squared). The team agreed to redesign the slides and include these metrics, also planning a five-minute YouTube video to present the final model and major findings. Janvi and Faith finalized the model comparison (reviewed and confirmed by the team), while additional models were tested for improvements. All members committed to rehearsing the revised presentation for clarity and completeness.

## Final Deliverables & Next Steps

Final Model Implementation → Most accurate model (XGBoost) selected after evaluation.  
Time Series Analysis → ARIMA and SARIMA tested for comparison.  
EDA and Visualization → Key patterns visualized to support insights.  
Presentation and Summary Video → A five-minute explanatory video and a redesigned presentation.  
  
Next Steps:  
- Final testing and documentation  
- Submission of project presentation and video  
- Team rehearsal for final showcase

**Overall Contribution and Attendance**

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| Team Member | Contribution Summary | Attendance (%) |
| Faith | EDA, Model Implementation (ARIMA), Report Writing | 100% |
| Janvi | EDA, Final Model Selection, Presentation Prep | 80% |
| Sandeep | No Contribution | 60% |
| Ebenezer | No Contribution | 60% |
| Harman | No Contribution | 60% |