**Project Summary — Expense Forecasting & Scenario Simulation**

**Project Title:**  
Monthly Expense Forecasting with 8% Increase Scenario Simulation

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**📌 Objective:**

To forecast the next 6 months’ expenses based on the previous 12 months of expense data using a Linear Regression model, and simulate the financial impact of an 8% increase in expenses starting from Month 4 of the forecasted period.

**📊 Methodology:**

* Loaded 12 months of historical expense data from a CSV file
* Visualized the existing expense trend using a line chart
* Applied a **Linear Regression model** to predict expenses for Month 13 to 18
* Simulated a business scenario by increasing expenses by **8% starting from Month 4** in the forecast
* Plotted Actual Expenses, Predicted Expenses, and Scenario Expenses in a single graph for comparison

**📈 Key Findings:**

* Expenses have shown a steady month-on-month increase ranging from ₹56,000 to ₹70,000 over the past year
* Linear Regression predicts a gradual increase in expenses over the next 6 months
* Under the 8% increase scenario, expenses from Month 16 onward show a noticeable jump compared to the standard forecast
* The scenario visualization clearly highlights the financial impact of such an increase over time

**📌 Recommendations:**

* Plan budgets and reserves considering the possibility of increased operational expenses from Month 16
* Explore areas to optimize costs before the scenario triggers
* Use this forecast for monthly cash flow planning and to set revised financial goals

**📋 Deliverables:**

* Jupyter Notebook with forecasting model
* Visual graph comparing Actual, Predicted, and 8% Scenario Expenses
* This project summary PDF