

1. Categorizing Payers

- Logic: Utilized the `delay days` column to create distinct categories.
- Buckets:
 - 0-15 Days: Payers who pay within 15 days.
 - 15-30 Days: Payers who pay between 15 to 30 days.
 - 30-45 Days: Payers who pay between 30 to 45 days.
 - ...
- **Implementation:**
 - Created categorical groups based on delay days.
 - Payers are assigned to the corresponding bucket.

2. Recommendations for Reminders Schedule

Recommendations:

Logic: Created reminder based on their previous payment due day, behaviour

1. General Approach

- Bucket 0-15 Days:
 - Send friendly reminders a few days before due date.
- Bucket 15-30 Days:
 - Implement stronger reminders closer to due date.
- Bucket 30-45 Days:
 - Initiate direct contact or escalations.
- ... and so on.

2. Late Payment Charges:

- Clearly communicate late payment charges in the reminders.
- Use incentives or discounts for early payments to encourage timely settlements.

3. Personalized Communication:

- Tailor messages based on their historical payment behavior.
- Understand their reasons for irregular payments and address concerns.

High-Value Payers (based on 'total_amount'):

1. Dedicated Account Manager:

- Assign a dedicated account manager for high-value payers.
- Provide personalized assistance and a direct point of contact for queries.

2. Early Engagement:

- Engage with high-value payers early in the billing cycle to pre-empt potential delays.
- Schedule proactive check-ins to address any concerns promptly.

Low-Value Payers:

1. Automated Reminders:

- Use automated reminders for low-value payers to minimize manual efforts.
- Implement cost-effective communication channels, such as emails or automated calls.

2. Payment Plans:

- Offer flexible payment plans for low-value payers to improve affordability.
- Clearly communicate the available options to encourage timely payments.

3. Insights on Payers and Payment Behavior

- Objective: Derive insights to understand payment patterns.

- Insights:

- Identify patterns among frequent late payers.
- Recognize consistent early payers.
- Evaluate impact of payment history on total amount paid.
- Founded top n payers and relation with avg_delay, avg_delay days vs month etc

- **Implementation:**

- Analyzed delay days, total amount paid till now, avg_delay by payer_id, total_number_payments_made etc and historical payment behavior.

4. Trend of Days Sales Outstanding (DSO)

- Objective: Identify trends in the number of days it takes for an invoice to get paid.

- Analysis:

- Plotted DSO trend over time.
- Identified peaks or valleys in payment speed.

- **Implementation:**

- Utilized `paid_on_date`, `due_date`, and `delay days` for analysis.

5. Categorizing Unlikely-to-be-Paid Invoices

- Objective: Identify invoices with a higher likelihood of non-payment.

- Criteria:

- Invoices with extreme delay days.
- Invoices with high amounts and consistently late payments.
- created some different conditions based on previous payments of payer_id, due/total amount ratio etc

- **Implementation:**

- Applied a combination of delay days and total amount and different condition thresholds.

6. Month-Over-Month Write-Off Trend

- Objective: Understand the trend of amounts that the client may need to write off.

- Analysis:

- Plotted month-over-month trends in amounts.

- Identified consistent write-off candidates.
- **Implementation:**
 - Monitored historical data and flagged potential write-offs.

7. Revenue Prediction Model

- Objective: Predict revenue for the next 3 months and estimate realized revenue.
- Model:
 - Utilized month-over-month data for prediction.
 - Adjusted for historical collection efficiency to estimate realized revenue.
- **Implementation:**
 - Done time series forecasting methods like ARIMA, SARIMAX and LSTM.
 - for using ARIMA model, gone through several statistical checks, stationarity, linearity checks.
 - Finalised with LSTM with optimal parameter values.

Note: I have attached a Practice Notebook, alongwith the main Notebook, where I have done some testing and Calculations, Task 7 has been covered in separate Notebook called Peakflo_3_Month_Predicition for avoiding traffic.

THANKS