Cash Flow Challenge

Business Context

The business operates multiple legal entities across regions with subscription revenues and routine vendor payments. Cash timing varies due to billing cycles, customer payment behavior, and periodic operational events. Finance teams need reliable short-term visibility of net cash and ending balances, along with simple flags for irregular transactions they should investigate.

Data Provided

Please find the dataset:

Dataset:
Data Dictionary: Appendix A

Task required

<u>Key Aspect</u>

- **Understanding of data:** delivery clear explanation of your dataset and transformation steps (if any)
- **Dashboard Presentation**: a dashboard visualising out the inflow and outflow of cash
- **Pattern analysis:** visualising both actual and forecasted data
- **Forecasting**: Predict weekly net cash flow and ending cash balance for the next 6 months and compare the result with the actual cash flow
- **Anomaly detection**: Identify irregularities cashflow activities that requires business review.
- **Analyse and explain your cash flow analysis:** Analysis on how the company is pending on the inflow and outflow of cash based on the category for example in the table (Others - Category Linkage)

Note: Use this for your storytelling

<u>Additional Requirement</u>

- **Tools used:** Power BI is recommended; other tools are accepted (e.g., Python). Clearly list the tools and libraries used.

- **Theme**: Using AZ colour code for visuals is highly encouraged but not mandatory. Maintain consistent, accessible formatting and labelling.

Suggested Questions:

- **Time-Series Forecasting**
  - How would you build a **1-month-ahead weekly cash flow forecast**, selecting **at least two cash flow categories** to explain:
    - Model choice and assumptions
    - Key drivers behind the forecasted trend
  - *(Optional but highly recommended)* How would you extend this to a **6-month-ahead weekly forecast**?
  - How would you:
    - Compare forecasted values against actual cash flows
    - Evaluate forecast accuracy using appropriate metrics
    - Explain forecast performance and limitations to finance stakeholders?
  - **Near-term cash flow (short-term liquidity focus)**
    Based on the weekly cash flow forecast for the next one month, what is the expected net cash position, and which cash flow categories are the primary drivers of short-term liquidity risk or stability?
  - **Long-term cash flow (sustainability and planning focus)**
    Based on the six-month weekly cash flow forecast and its accuracy versus actuals, how sustainable is the company's cash position over the medium term, and what structural cash flow patterns should finance leadership monitor or act on

- Anomaly detection

  - Which transactions or weeks show unusual inflows/outflows (e.g., duplicates, spikes/drops)?

- Impact and communication

  - How can finance teams use your dashboard/report to monitor weekly cash and quickly triage irregularities?

Appendix A

- File Month: The calendar month this file/report represents. Use it to group results by reporting month.
- Name: The company/entity code (for example, TW10). Use it to filter by legal entity or country.
- Period: The fiscal period number in the year (often 1–12 or 1–13). Useful for fiscal reporting alignment.
- Account: The general ledger (GL) account that records the cash movement (e.g., bank account, clearing). Helps identify the nature of the entry.
- Cost Ctr: Cost center (department/team). Often blank for pure bank lines but can attribute operating cash to a department.
- Profit Ctr: Profit center (business segment). Useful for segment-level cash insights.
- WBS element: Project code (Work Breakdown Structure). Use it to tag investing/capex-related cash flows.
- Ref.key (header) 1: A header-level reference (e.g., bank or remittance reference). Good for tracing transactions back to source.
- Document Header Text: Short description at the document level (e.g., payer/payee or memo). Helpful for human-readable context.
- DocumentNo: The system document number (unique ID in the ERP). Primary key for tracing and joining.
- Clrng doc.: The "clearing document" that links this cash posting to the invoice or item it settled. Essential for reconciliation analysis.
- Type: Document type code (e.g., payment, bank clearing). Use it to classify the kind of cash movement.
- PK: Posting key (numeric code indicating debit/credit behavior and account type). Helps determine cash in vs. cash out when combined with sign.
- Offst.acct: Offsetting account to the bank/cash GL (e.g., vendor, customer, AP/AR clearing). Shows who/what is on the other side.
- Name of offsetting account: Human-readable description of the offsetting account. Easier for dashboards than raw codes.
- Reference: External/bank reference (e.g., bank account string, payment reference). Very useful for matching to bank statements.
- Assignment: A matching tag used to group related entries (often ZUONR in SAP). Think "batch ID" or "invoice reference" to tie lines together.
- Pstng Date: The date the entry hits the books (drives the cashflow period). Use this for time series and period cutoff.
- Doc..Date: The original document date (when the transaction was created). Good for timing analysis vs. posting date.
- Amount in doc. curr.: The signed amount in the transaction's currency (positive = inflow, negative = outflow, by convention). Core value for cash movement.

- Amt in loc.cur.: The amount converted to the company's local currency. Use for local reporting and comparisons across currencies.
- Curr.: The transaction (document) currency code (e.g., TWD). Needed to interpret amounts and do FX conversion.
- LCurr: The local (company) currency code. Confirms what currency "Amt in loc.cur." uses.
- Category: Cashflow category or business process tag (e.g., AP payment, AR receipt; can be mapped to Operating/Investing/Financing). Key for cashflow statements.
- Rate (USD): Exchange rate to USD used for conversion. Use to verify FX math and consolidate multi-currency data.
- Amount in USD: The amount converted to USD (keeps the same sign as the original). Standardizes values for cross-entity analysis.
- Posting Period: Fiscal period in YYYY-MM format (e.g., 2023-08). Reliable for grouping and filtering in dashboards.
- Category Index: Numeric helper for sorting Category in a consistent order (e.g., Operating before Investing).

Tips for students:

- Direction of cash: Check the sign of "Amount in doc. curr." Negative usually means cash out; positive means cash in. Validate with Type/PK if unsure.
- Reconciliation keys: Use DocumentNo, Clrng doc., Reference, and Assignment to tie payments to invoices and bank references.
- Currency handling: Always keep Curr., LCurr, Rate (USD), and Amount in USD together to avoid mistakes when aggregating across entities.
- Cashflow buckets: Category and Category Index make it easy to create an Operating/Investing/Financing view—just map your business categories accordingly.