

NamasteKart Order File Validator - Project Description

Project Background

NamasteKart is an online retail store operating in Mumbai and Bangalore. Every day, it generates transaction files from both cities and sends them to the analytics team for validation. You, as a data engineer, are responsible for building an automated validation system that processes all daily order files, applies a set of validation rules, and sorts the files accordingly.

Folder Structure

NamasteKart/

incoming_files/

YYYYMMDD/ <- daily order files (input)

success_files/

YYYYMMDD/ <- valid files (output)

rejected_files/

YYYYMMDD/ <- rejected files + error details (output)

Files Description

Each incoming file contains a list of orders with fields such as:

- order_id
- product_id
- order_date
- city
- quantity
- total_sales_amount

You are also provided a product master file, which contains:

- product_id
- product_name
- price

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Validation Rules

1. Product ID should exist in the product master table.
2. Total sales amount must equal $\text{product_price} * \text{quantity}$.
3. Order date should not be in the future (compared to current date).
4. No field should be empty (all fields must have values).
5. City must be either 'Mumbai' or 'Bangalore'.

Expected Behavior

1. Read all files from: `NamasteKart/incoming_files/YYYYMMDD/`
2. For each file:
 - If any one order fails validation, the entire file is considered rejected.
 - Valid files should be moved to: `NamasteKart/success_files/YYYYMMDD/`
 - Rejected files should be moved to: `NamasteKart/rejected_files/YYYYMMDD/`
3. For every rejected file, create an error file:
 - `error_{original_file_name}.csv`

This file should contain only the rejected order rows, and an additional column:

 - `rejection_reason` (If multiple reasons exist, list them separated by semicolons)

Email Notification

Once all files are processed, send an email to the business team with:

Subject:

validation email YYYY-MM-DD

Email Body Example:

Total 10 incoming files processed.

8 files passed validation.

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2 files failed validation.

If there are no incoming files for the day, send an email with:

No incoming files found for YYYY-MM-DD.

Goal

Automate the entire pipeline:

- Read
- Validate
- Organize
- Log rejections
- Notify business team

Make sure your code is modular using functions wherever applicable.