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| RAZDA Co. | | |
| **Filename: [payment\_reconciliation.py]** | | |
| **Summary***:*  Conducts payment reconciliation, verifies payment amounts, flags discrepancies, updates statuses, and alerts admins if payment mismatches occur. | | |
| ***Processes*** | | |
| * **Database Connection Management** | **connect\_to\_db establishes a secure connection with the MySQL database for payment data retrieval and updates. close\_db\_connection ensures a safe closure post-reconciliation.** | |
| * **Pending Payment Retrieval:** | **fetch\_pending\_payments retrieves payments marked as "Pending" for processing, ensuring only unverified payments are reconciled.** | |
| * **Payment Reconcilation:** | **reconcile\_single\_payment compares payment records against calculated expectations, ensuring consistency before marking as "Reconciled."** | |
| * **Expected Payment Calculation:** | **calculate\_expected\_amount estimates the correct payment amount based on order data, aiding in detection of mismatched payments.** | |
| * **Discrepancy Flagging and notification:** | **flag\_discrepancy identifies and logs mismatches, notifying admins if they exceed DISCREPANCY\_ALERT\_THRESHOLD, thereby improving oversight.** | |
| * **Status Update Database:** | **update\_payment\_status records payment status in the database (e.g., "Reconciled" or "Discrepancy") to maintain an accurate record.** | |
| * **Admin Notification System** | **notify\_admin alerts admins of flagged payments, enabling quick intervention for high-discrepancy payments.** | |
| * **Payment History Logging:** | **log\_payment\_history tracks all reconciliation attempts and statuses, aiding in audits and tracking discrepancies over time.** | |
| * **Failed Reconciliation Retry Mechanism:** | **retry\_failed\_reconciliations automatically attempts to reprocess payments that failed reconciliation up to RETRY\_LIMIT, with exponential backoff.** | |
| **Files it Gets Information From:** | | **Files it Sends too:** |
| * **MySQL Database**: Queries payment details, logs payment history, updates statuses, and tracks retries for failed reconciliations. | * **Alerts Module**: Sends notifications for any payments flagged for high discrepancies, helping prevent undetected payment errors. | |
| **Expected input into file:** | | **Expected output from file:** |
| * **Pending Payment Data**: Receives data for payments marked "Pending" in the system, ensuring unverified payments are addressed. * **Reconciliation Thresholds**: Defines discrepancy alert thresholds and retry limits, establishing tolerance levels for potential discrepancies. * **Retry Limits**: Determines how many attempts the system will make to reconcile failed payments, improving reliability. | | * **Updated Payment Status**: Payments marked as “Reconciled” or “Discrepancy” after verification. * **Reconciliation Logs**: Detailed logs for each payment, including flags, reconciliations, and retries. * **Admin Notifications**: Alerts to inform admins of flagged payments that require manual review. |
| **Things that need to be taking place:** | | |
| |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  | | --- | | **- Accurate Payment Verification: reconcile\_single\_payment confirms payment accuracy by checking amounts against expected totals to prevent errors.** |  |  | | --- | | **- Discrepancy Detection: flag\_discrepancy identifies mismatches, logging and alerting admins for discrepancies that exceed the configured threshold.** |  |  | | --- | | **- Reliable Retry Mechanism: retry\_failed\_reconciliations retries reconciliation for flagged payments, ensuring transient issues are addressed effectively.** |  |  | | --- | | **- Admin Alert System: notify\_admin alerts admins of significant discrepancies, preventing unaddressed payment mismatches.** |  |  | | --- | | **- Historical Logging: log\_payment\_history maintains a comprehensive record of all payment verifications and statuses, supporting audits and compliance.** | | | | |
| Edit log (update each time you make changes to doc or file). | | |
| | **Possible Enhancements:** | | --- |  |  | | --- | | - **Automated Discrepancy Adjustment**: Implement rules for automatic minor adjustments, reducing admin involvement for small discrepancies below a certain threshold. |  |  | | --- | | - **Batch Reconciliation for Efficiency**: Process payments in batches to improve reconciliation speed and efficiency. |  |  | | --- | | - **Detailed Reconciliation Reports**: Generate periodic summary reports of reconciliations, discrepancies, and resolutions to improve oversight. |  |  | | --- | | - **Enhanced Fraud Detection**: Add logic to flag suspicious payments based on unusual patterns, such as unexpected frequency or size of transactions. | | | |
| * Oliver Smith (Razda Admin) Nov 8, 2024: | | |