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| RAZDA Co. | | |
| **Filename: [sales\_reports.py]** | | |
| **Summary***:*  Generates, retrieves, and visualizes sales data across various time frames (daily, monthly, yearly). The module calculates total sales, total orders, and provides trend analysis through a line chart. Interacts directly with the database and logs actions for traceability. | | |
| ***Processes*** | | |
| * **Generate Daily Report:** | **Calculates total orders and sales for a specific day. Saves results to the sales\_reports table for record-keeping (generate\_daily\_report).** | |
| * **Get Sales Report:** | **Retrieves a previously generated report for a specific date, allowing admins to view sales statistics (get\_sales\_report).** | |
| * **Generate Periodic Reports:** | **Generates reports for a specified date range and frequency (daily, monthly, yearly), iterating over the range and invoking specific report functions (generate\_periodic\_report)** | |
| * **Generate Monthly Report:** | **Calculates monthly totals for orders and sales, saving the data in the sales\_reports table. Helps identify trends and fluctuations over the month (generate\_monthly\_report).** | |
| * **Plot Sales Trends:** | **Produces a line chart showing total sales over a specified date range, giving admins a visual representation of sales trends. Saves the plot as an image file (plot\_sales\_trends).** | |
| **Files it Gets Information From:** | | **Files it Sends too:** |
| * **Database (razda\_market\_db)**: Reads and writes sales data, including total orders and sales, in the orders and sales\_reports tables. | * **Logs (sales\_reports.log)**: Records success, failure, and errors for each report generation, retrieval, and visualization function, ensuring accountability and traceability. | |
| * **matplotlib**: Utilized to generate line charts for sales trends, creating visual data analytics for the dashboard or reports. | * **Image Output (sales\_trend.png)**: Saves generated sales trend charts as PNG files, which can be displayed on the dashboard or included in reports. | |
| **Expected input into file:** | | **Expected output from file:** |
| * **Date Parameters**: Dates provided for daily, monthly, or yearly report generation, enabling targeted analytics. * **Time Range for Trends**: Date range input for plotting trends, generating visual data between specific periods for analysis. * **Frequency Specification**: Frequency (daily, monthly, yearly) determines the type of report produced in periodic report generation. | | * **Sales Reports Data**: Generated sales reports saved in the database for historical reference and trend analysis. * **Trend Visualization**: Generates a sales trend line chart as a PNG, providing visual insights into sales performance. * **Log Entries**: Detailed logging of each function’s actions, including success or failure of data retrieval, report generation, and visualizations. |
| **Things that need to be taking place:** | | |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  | | --- | | **- Database Connection Management: Efficiently connects to and disconnects from the database, ensuring data integrity and availability.** |  |  | | --- | | **- Date Validations and Parsing: Validates and converts date formats for accurate data retrieval and report calculations.** |  |  | | --- | | **- Graphical Representation: Utilizes matplotlib for trend analysis, providing admins with intuitive visual insights into sales metrics.** |  |  | | --- | | **- Error Logging: Implements detailed logging for successful and failed operations, facilitating debugging and audit trails.** | | | | |
| Edit log (update each time you make changes to doc or file). | | |
| | **Possible Enhancements:** | | --- |  |  | | --- | | - **Customizable Graphs**: Adds support for multiple visualization types (bar charts, heatmaps) and interactive features (zoom, hover details). |  |  | | --- | | - **Scheduled Report Generation**: Automates periodic report generation (e.g., every end of the month), emailing results to admins. |  |  | | --- | | - **Detailed Revenue Breakdown**: Integrates product category or regional sales breakdowns for deeper insights into revenue distribution. |  |  | | --- | | - **Automated Anomaly Detection**: Alerts admins of unexpected fluctuations or trends based on predefined thresholds (e.g., sudden sales drops). | | | |
| * Oliver Smith (Razda Admin) Nov 8, 2024: | | |