Business Requirements Document (BRD)

Project: Loan Performance Summary Dashboard

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1. Executive Summary

The Loan Servicing team at Walker & Dunlop requires a centralized Power BI dashboard to streamline monthly loan performance reporting. The dashboard will serve as a single source of truth, supporting both strategic decision-making and day-to-day portfolio monitoring. By delivering timely, accurate, and interactive visualizations, it will enable stakeholders across business and technical teams to identify trends, mitigate risk, and improve operational efficiency.

2. Stakeholder Goals

- Maintain continuous visibility into monthly loan portfolio performance.
- Support early identification of delinquency risks through timely, data-driven insights.
- Provide transparency across portfolio size and health by incorporating aging trends and historical comparisons.
- Enable granular analysis through intuitive filters and drilldowns by region, loan officer, loan type, and status.
- Streamline executive reporting with clearly defined, high-impact KPIs.
- Reduce manual reporting efforts by automating data refresh and visualization processes.

3. Scope

In Scope:

- Development of a Power BI dashboard leveraging existing loan servicing data.
- Scheduled monthly data refresh to reflect updated portfolio performance.
- Visualization of key metrics, including breakdowns by region, loan status, and aging buckets.
- Interactive filtering capabilities and exportable views for further analysis.

Out of Scope:

- Real-time or streaming data integrations.
- Automated alerting or notification systems for delinquency thresholds.
- API-level connectivity with servicing or core banking platforms.

4. Key Metrics

Primary KPI's

KPI	Description
Delinquency Rate (%)	Percentage of loans currently past due, relative to the total number of active loans.
Portfolio Size	Total number of active loans and their aggregated outstanding balance.
Charge-offs	Total dollar value of loans written off as uncollectible.
Recovery Rate (%)	Percentage of funds recovered from loans that were previously delinquent or charged off.
Average Loan Balance	Average outstanding balance across all active loans.

Additional KPI's

KPI	Description
Property Occupancy Rate	An indicator that shows whether a property's occupancy rate is above or below the average occupancy rate for its state.
Aging Buckets	Classification of delinquent loans by days overdue: 0–30, 31–60, 61–90, 90+.
Loan Status Breakdown	Distribution of loans by status (e.g., active, delinquent, closed), by count and value.
Total Number of Loans	Count of all loans in the servicing portfolio, regardless of status.
Total Outstanding Balance	Combined loan balance segmented by status (e.g., performing, delinquent, closed).
Delinquency Trend Over Time	Month-over-month evolution of delinquency rate, with optional short-term forecasting.

To ensure usability, KPIs will be grouped by stakeholder relevance, showing high-level metrics upfront and detailed operational indicators in secondary panels or tabs.

5. Data source & proposed visual elements

The following data sources are used for the initial development and demonstration of the Loan Performance Summary Dashboard:

Provided CSV Files:

- property_dataset_sample.csv: Core property-level loan dataset.
- demographics_US.csv: State-level demographic indicators for enrichment.
- states_codes_mapping.csv: Mapping between U.S. state codes and names.

Future Production Integration:

- In a real-world deployment, these datasets would be replaced by curated tables within Amazon Redshift, Walker & Dunlop's enterprise data warehouse. This would support scheduled refreshes, stronger governance, and automation via Power BI and Power Automate.

These are the visualization requirements:

Power BI Component	Description
KPI Cards	Summary indicators: Delinquency Rate, Total Outstanding Balance, Loan Count.
Line Chart	Trend of delinquency over time (monthly granularity).
Stacked Bar Chart	Visual breakdown of delinquent loans by aging bucket.
Matrix Table	Detailed view by loan ID, officer, region, balance, status, and days past due.
Map Visualization	Interactive map using geographic data (Region, State, County, City, and Address) to visualize loan distribution and delinquency hotspots.
Slicers	Filters by Loan Officer, Region, Loan Type, and Reporting Month.
Export Functionality	Ability to export filtered tables to Excel for compliance or extended analysis.

6. Assumptions and Gaps

Assumption	Gaps / Risk
Provided CSVs represent an accurate snapshot of property and demographic data.	Data will be treated as complete and authoritative within the project scope.
All properties include sufficient attributes (rent, occupancy, state code) to compute required metrics.	Missing or null values may limit metric coverage or distort rankings.
Demographic data is representative at the state level.	Insights at the city or county level may require additional enrichment.
Property occupancy is benchmarked only at the state level, as per challenge instructions.	Sub-state occupancy risk is considered out of scope.
Sub-state demographic data (e.g., city, county) will be used where available in the provided datasets.	No assumptions will be made to infer city or county-level characteristics from state-level aggregates. This may limit some insights.

7. Automation & Scalability Strategy

In a future production environment, the dashboard would integrate with **Amazon Redshift**, Walker & Dunlop's enterprise cloud data warehouse, to support scalable insights and automation. While Power Automate does not natively connect to Redshift, a sustainable automation workflow can be implemented using Power BI's scheduled refresh capability.

Proposed workflow:

- Data Integration: Power BI can be configured to connect to Redshift using the native Amazon Redshift connector or ODBC, depending on network and authentication setup. This enables access to curated datasets for analysis and reporting.
- Scheduled Refreshes: Power BI datasets are refreshed based on a cadence aligned with Redshift update intervals, enabling up-to-date performance tracking.
- Post-Refresh Automation: Power Automate can be triggered after dataset refreshes in Power BI to send executive summaries, compliance exports, or risk alerts.
- Insight Distribution: Reports or filtered views can be shared via email, Teams, or SharePoint, reducing manual effort and improving visibility across stakeholders.

8. Closing Statement

This Business Requirements Document outlines the scope, data needs, stakeholder goals, and proposed automation approach for the Loan Performance Summary Dashboard. It is intended to serve as the foundation for implementation and collaboration between business stakeholders, data engineers, and the BI development team.

All recommendations and assumptions have been made in alignment with the provided challenge scope and Walker & Dunlop's domain context. Future enhancements may include integration with production data pipelines, real-time alerting, and expanded metric sets.