BANK BRANCH PERFORMANCE COMPARISON DASHBOARD

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ABSTRACT

The Bank Branch Performance Comparison Dashboard is a data analytics and visualization system designed to monitor and compare the operational and business performance of different bank branches. Banks operate through multiple branches that may differ in customer volume, deposits, loans, transactions, revenue, and service performance. Analyzing these indicators helps management understand branch-level performance and identify areas that require improvement.

The proposed system collects appropriate branch-level information such as branch ID, location, customer count, deposits, loans, transactions, account openings, revenue, operating expenses, and service metrics. The system processes this information and calculates important Key Performance Indicators (KPIs) such as total customers, deposit growth, loan volume, transaction volume, revenue, profit contribution, and customer-service performance.

The dashboard presents branch performance through interactive charts, graphs, tables, maps, and KPI cards. Bank managers can compare branches based on deposits, loans, customer acquisition, transactions, revenue, and other approved business indicators. Filters allow users to analyze performance according to region, branch type, reporting period, and business category.

The system can identify high-performing and underperforming branches by comparing their KPIs and historical trends. Managers can observe changes in branch performance over time and identify differences between regions or branch categories. These insights can support resource allocation, branch planning, customer-service improvement, and business strategy.

Overall, the Bank Branch Performance Comparison Dashboard provides a centralized platform for transforming branch-level banking data into meaningful management insights. It reduces manual reporting efforts and supports data-driven decision-making. Future enhancements can include AI-based performance forecasting, branch benchmarking, anomaly detection, customer segmentation, profitability prediction, and intelligent resource-allocation recommendations.

I. INTRODUCTION

Banks operate through a network of branches that provide services such as account opening, deposits, withdrawals, loans, payments, and customer support. Each branch may have different customer volumes, transaction levels, financial performance, and operational requirements. Monitoring these differences is important for effective banking management.

Branch performance data contains valuable information about deposits, loans, customers, transactions, revenue, expenses, and service activity. When this information is analyzed properly, management can understand which branches are performing well and which branches may require additional support. However, analyzing large amounts of branch data manually can be difficult and time-consuming.

Traditional banking performance analysis often depends on spreadsheets, core banking reports, database queries, and manually prepared management reports.

Different departments may maintain separate information about deposits, loans, customers, and transactions. Combining these datasets and preparing regular comparison reports can increase the workload of banking analysts.

The **Bank Branch Performance Comparison Dashboard** provides an interactive platform for analyzing branch performance from multiple perspectives. It can display branch-level KPIs, regional comparisons, financial trends, customer growth, loan performance, and transaction activity. Managers can use filters to compare selected branches, regions, or time periods.

The objective of the system is to provide clear and centralized information for branch-performance monitoring. The dashboard can help banking management identify performance gaps, allocate resources, plan branch strategies, and improve operational efficiency. Any sensitive banking or customer information should be protected through appropriate access controls, security measures, and data-governance practices.

II. LITERATURE SURVEY

Traditional banking information systems primarily focus on core banking operations such as account management, deposits, loans, transactions, payments, and customer services. These systems generate large amounts of branch-level data but may provide limited capabilities for interactive performance comparison. Additional reporting and Business Intelligence tools are often used for management analysis.

Branch performance measurement commonly uses financial and operational indicators such as deposit growth, loan volume, transaction count, customer acquisition, revenue, operating cost, and profitability. These KPIs allow management to evaluate branch performance from different perspectives. Combining multiple indicators provides a broader understanding than relying on a single measure.

Business Intelligence and dashboard technologies are widely used in the financial sector to visualize performance information. KPI cards can summarize important metrics, while bar charts can compare branches and line charts can display historical trends. Geographic maps can also help organizations understand regional performance differences.

Benchmarking techniques are commonly used to compare organizational units against one another or against predefined targets. In banking, branch benchmarking can help identify branches that perform above or below expected levels. However, comparisons should consider differences in branch size, customer base, market conditions, and service responsibilities.

Artificial Intelligence and machine learning are increasingly being explored in banking analytics. These technologies can support demand forecasting, customer segmentation, anomaly detection, profitability analysis, and operational planning. However, financial analytics systems require reliable data, strong security, appropriate validation, and responsible use of automated insights.

Existing research demonstrates the importance of data analytics and visualization for financial and operational decision-making. However, traditional banking reports may require manual consolidation and may provide limited interactive branch comparisons. The proposed **Bank Branch Performance Comparison Dashboard** combines branch KPIs, financial analysis, trend monitoring, benchmarking, visualization, and reporting in a centralized platform.

III. SYSTEM ANALYSIS

System Analysis

The **Bank Branch Performance Comparison Dashboard** is designed to analyze and compare the operational and business performance of bank branches. The system collects appropriate branch information such as customer count, deposits, loans,

transactions, account openings, revenue, expenses, and service indicators. A data-ingestion module imports information from core banking systems, branch databases, spreadsheets, financial systems, or approved APIs. The preprocessing module validates records, handles missing values, removes duplicates, and standardizes financial and operational data. The system organizes information according to branches, regions, branch types, business categories, and reporting periods. A KPI engine calculates customer volume, deposits, loans, transaction count, revenue, expense, growth rate, and other approved performance indicators. A trend-analysis engine examines changes in branch performance over time. A comparison engine ranks and benchmarks branches using selected KPIs and targets. The visualization layer presents results through KPI cards, charts, graphs, tables, and maps. Interactive filters allow authorized users to select branches, regions, business categories, and reporting periods. The dashboard can highlight significant performance gaps or changes for further management investigation. Finally, authorized banking managers can generate reports to support branch planning, resource allocation, and performance improvement.

Existing System

Existing banking organizations commonly use core banking systems, spreadsheets, databases, financial reports, branch-management systems, and manually prepared performance reports. These systems record information about customers, deposits, loans, transactions, and branch activities. However, performance information may be distributed across different systems and departments. Bank employees may need to export data and manually calculate branch KPIs before preparing management reports. Comparing multiple branches can require several spreadsheets and separate reports. Historical branch performance may be difficult to analyze when data is stored across different reporting periods. Static reports may provide limited interactive visualization and filtering. Branch managers may need to request updated reports when performance indicators change. Manual calculations can introduce inconsistencies and consume significant analyst time. Traditional systems may also provide limited benchmarking and geographic comparison capabilities. Identifying underperforming branches may therefore require manual investigation. As a result, existing systems provide important banking data but may lack a centralized interactive platform for comprehensive branch performance comparison.

Disadvantages of Existing System

- Heavy dependence on spreadsheets and manual reports.
- Branch information may be distributed across multiple systems.
- Time-consuming data preparation.
- Manual calculation of performance KPIs.
- Difficult to compare many branches quickly.
- Limited interactive visualization.
- Limited geographic performance analysis.
- Historical trends may require multiple reports.
- Manual calculations may introduce errors.
- Limited automated benchmarking.
- Reports may become outdated.
- Difficult to identify performance gaps quickly.

Proposed System

The proposed **Bank Branch Performance Comparison Dashboard** provides a centralized platform for monitoring and comparing bank branch performance. The system collects appropriate branch-level data from core banking systems, financial

databases, branch-management platforms, spreadsheets, and approved APIs. A preprocessing layer validates, cleans, and standardizes the collected information before analysis. The system organizes data according to branches, regions, branch types, financial categories, and reporting periods. A KPI engine calculates customer count, deposits, loans, transactions, revenue, expenses, growth rates, and other approved performance indicators. A trend-analysis engine identifies changes in branch performance over time. A comparison and benchmarking engine allows managers to compare branches against selected targets or peer groups. The visualization engine presents performance through KPI cards, bar charts, line charts, tables, rankings, and geographic maps. Users can apply filters to examine specific branches, regions, business categories, and periods. The dashboard can highlight significant performance gaps for further investigation. Authorized users can generate reports for management review and planning. Optional AI analytics can assist with forecasting and trend summarization while keeping important banking decisions under appropriate human oversight.

Advantages of Proposed System

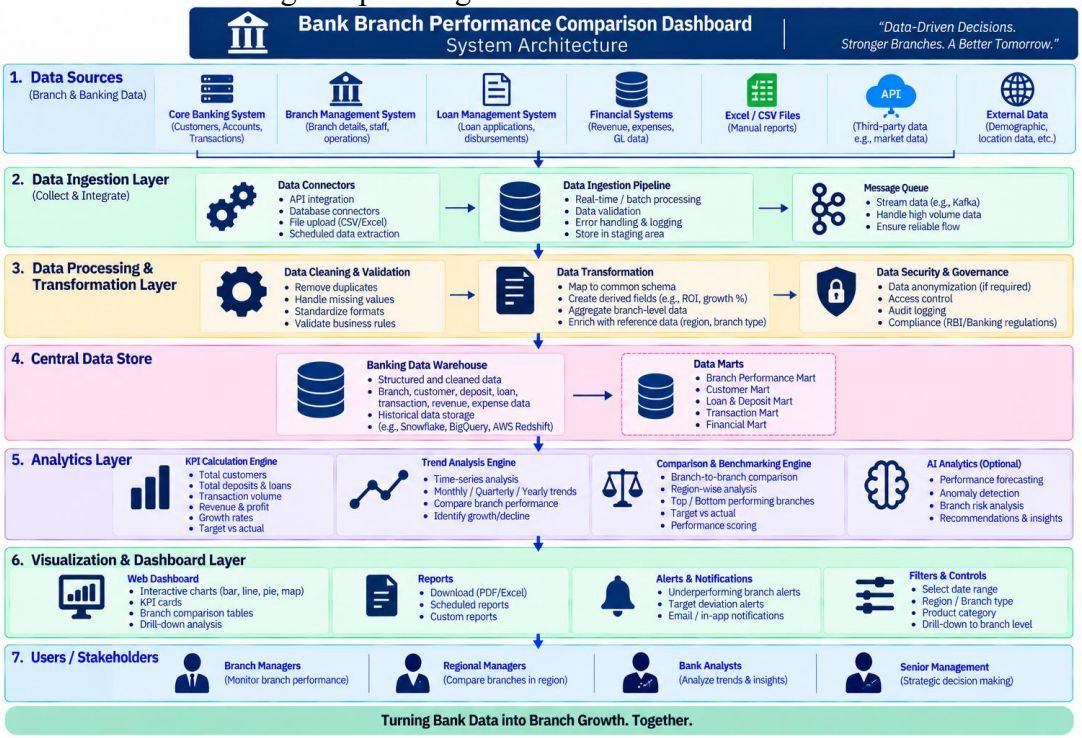
- Provides centralized branch performance analytics.
- Automatically calculates important branch KPIs.
- Supports branch-to-branch comparison.
- Enables regional performance analysis.
- Supports financial and operational analysis.
- Provides historical performance trends.
- Enables branch benchmarking.
- Provides interactive charts and maps.
- Supports filtering and drill-down analysis.
- Reduces manual reporting effort.
- Helps identify performance gaps quickly.
- Supports data-driven banking management.

IV. METHODOLOGY

The methodology begins by collecting appropriate branch-level banking information from authorized core banking systems, financial databases, branch-management systems, spreadsheets, or APIs. The data-ingestion module imports customer, deposit, loan, transaction, revenue, expense, and service information into the analytics platform. The preprocessing module validates records, removes duplicates, handles missing values, and standardizes financial and operational fields. The cleaned information is organized into structured datasets containing branches, regions, customers, products, transactions, and reporting periods. A KPI engine calculates customer volume, deposit amount, loan volume, transaction count, revenue, expenses, and growth indicators. A trend-analysis module examines changes in branch performance across monthly, quarterly, and yearly periods. A benchmarking engine compares branches using selected KPIs and predefined targets or peer groups. A comparison module evaluates differences across regions, branch types, and business categories. The visualization engine converts processed information into KPI cards, charts, rankings, maps, and tables. Authorized users can apply filters to analyze selected branches, regions, periods, or business indicators. The system highlights significant performance changes for further investigation and management review. Optional AI analytics can provide forecasting or summarize aggregate performance trends using validated data. Finally, authorized managers can generate reports to support branch planning, resource allocation, and performance improvement.

SYSTEM ARCHITECTURE

The Bank Branch Performance Comparison Dashboard consists of several interconnected layers for securely collecting, processing, analyzing, and visualizing branch performance information. The User Interface allows authorized bank managers and analysts to access dashboards, filters, comparisons, and reports. The Data Ingestion Layer collects approved information from core banking systems, branch-management systems, financial databases, spreadsheets, and APIs. The Security and Access-Control Layer protects sensitive banking information and ensures that users can access only authorized data. The Data Cleaning and Transformation Module validates records, handles missing values, removes duplicates, and standardizes financial and operational fields. The Central Banking Data Warehouse stores structured branch, customer, deposit, loan, transaction, revenue, and expense information according to approved data-governance policies. The KPI Calculation Engine calculates branch performance indicators such as customers, deposits, loans, transactions, revenue, expenses, and growth rates. The Trend Analysis Engine identifies historical changes in branch performance. The Comparison and Benchmarking Engine compares branches, regions, branch types, and selected performance targets. The Optional AI Analytics Module can support forecasting and aggregate trend summarization. The Visualization Engine generates KPI cards, charts, rankings, tables, and maps. Finally, the Bank Branch Performance Comparison Dashboard presents the analyzed information to authorized banking stakeholders for performance monitoring and planning.



V. RESULT AND OUTPUT

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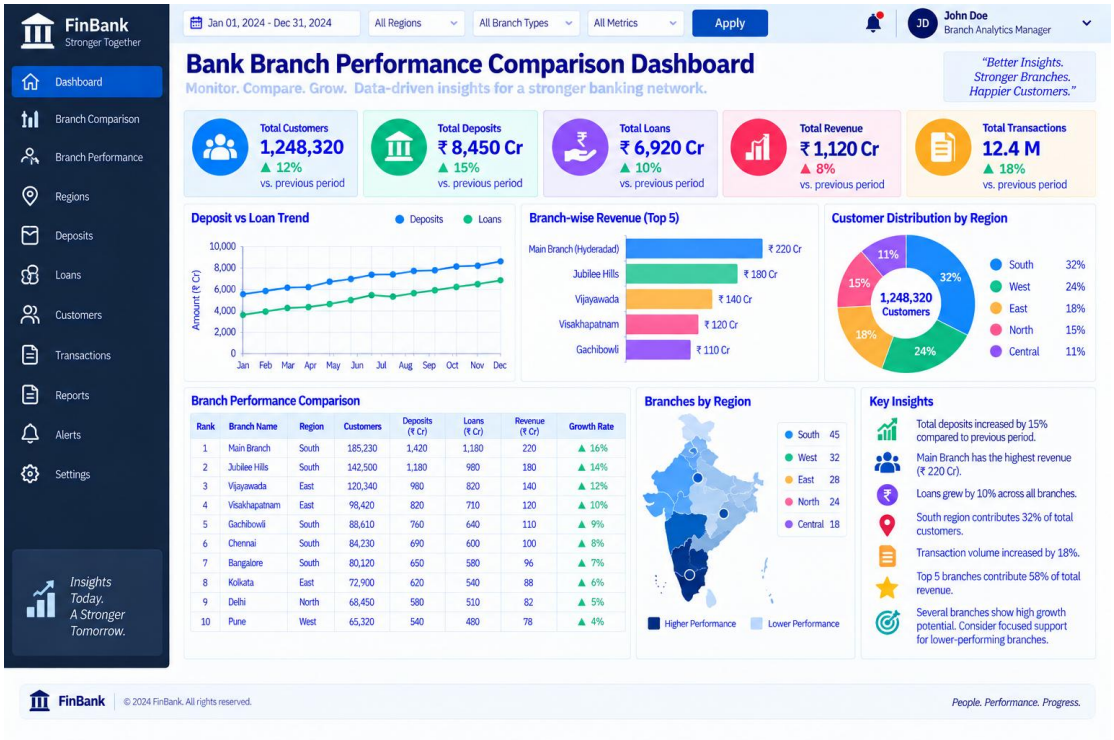

VI. CONCLUSION

The Bank Branch Performance Comparison Dashboard provides an effective and centralized solution for monitoring and comparing the performance of different bank branches. The system brings important information such as customer count, deposits, loans, transactions, revenue, expenses, and growth rates into a single interactive dashboard.

By using data processing, KPI analysis, trend analysis, benchmarking, comparison techniques, and data visualization, the system transforms raw banking data into meaningful management insights. Bank managers can easily compare branches, identify high-performing and underperforming branches, and understand differences in financial and operational performance.

The dashboard also helps management analyze regional performance and monitor changes in deposits, loans, revenue, and transaction volumes over time. Interactive charts, KPI cards, rankings, maps, tables, and filters make it easier to identify performance gaps and areas that may require additional resources or operational improvements.

Overall, the Bank Branch Performance Comparison Dashboard reduces manual reporting efforts and supports faster, data-driven decision-making. It can help banks improve branch planning, resource allocation, performance monitoring, and strategic management. Future enhancements can include AI-based performance forecasting, profitability prediction, anomaly detection, intelligent benchmarking, branch-growth prediction, and automated management recommendations.

The system should handle banking and customer information responsibly through appropriate authentication, authorization, encryption, access control, audit logging, and data-governance mechanisms. Automated analytics should support management decisions rather than independently making important financial or customer-related decisions.

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