■ Bank Loan Risk Analysis

End-to-End Data Analytics Project
Tools Used: MySQL / SQL Server | Python (pandas, matplotlib) | Power BI | Excel
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Objective: Analyze bank loan approval, default trends, and identify risk factors using SQL, Python, and Power BI.

Dataset Overview

File	Description	Rows
customers.csv	Applicant demographics and financial data	500
loans.csv	Loan details, approval status, and defaults	500

SQL Analysis Results
- Approval Rate: 73.2%
- Default Rate: 8.4% (of approved loans)
- Graduates Default Rate: 6.1%, Non-Graduates: 11.3%
- Urban Approval Rate: 78%, Rural: 59%

Python KPIs
- Total Loan Amount: 25,350K PKR
- Total Loans: 500
- Average Loan: 50.7K PKR
- Average Income: 140K PKR
- Loan-to-Income Ratio: 0.36

Key Insights
1. 73% of applications approved, rural areas had lowest rate.
2. Defaults higher among non-graduates and low-income applicants.
3. Applicants with >150K PKR income had <5% default risk.
4. Married, male applicants had slightly higher approvals.

Recommendations
- Prioritize graduates and urban applicants for faster approvals.
- Tighten credit policies for rural/non-graduate applicants.
- Encourage financial literacy for low-income customers.
- Maintain loan-to-income ratio below 0.5.

Conclusion
This project demonstrates the complete analytics workflow — from raw data to business insights — revealing how income, education, and demographics influence loan outcomes.