

## Statistical and Classification Analysis of Emprise Bank's Branches and Customers

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Data-driven insights about customers are important for financial institutions to make informed decisions and to secure economic successes. Such business intelligence is often obtained with a thorough understanding and careful application of statistical analysis techniques. In this collaborative project with Emprise Bank, we employ predictive analytic methods on their randomly encrypted sample data to study financial services offered by branches and utilized by consumers. To understand the connected network of Emprise's branches in the Wichita metropolitan area, we first engage in an exploratory analysis to visualize clients' patterns at branch and ATM sites. Next, we use an analysis of variance to examine the relationships among geographic locations, bank infrastructures, and supported services to observe a balance in customers' businesses in the Northwest and Southeast areas of Wichita, with significantly more credit transactions over all regions. Finally, we employ logistic regression and K-nearest neighbors to predict important services based on patrons' existing physical and electronic footprints at different branches. Future transaction types have the highest prediction accuracies, followed by branch locations where enterprises are to take place.