LENDING CASE STUDY

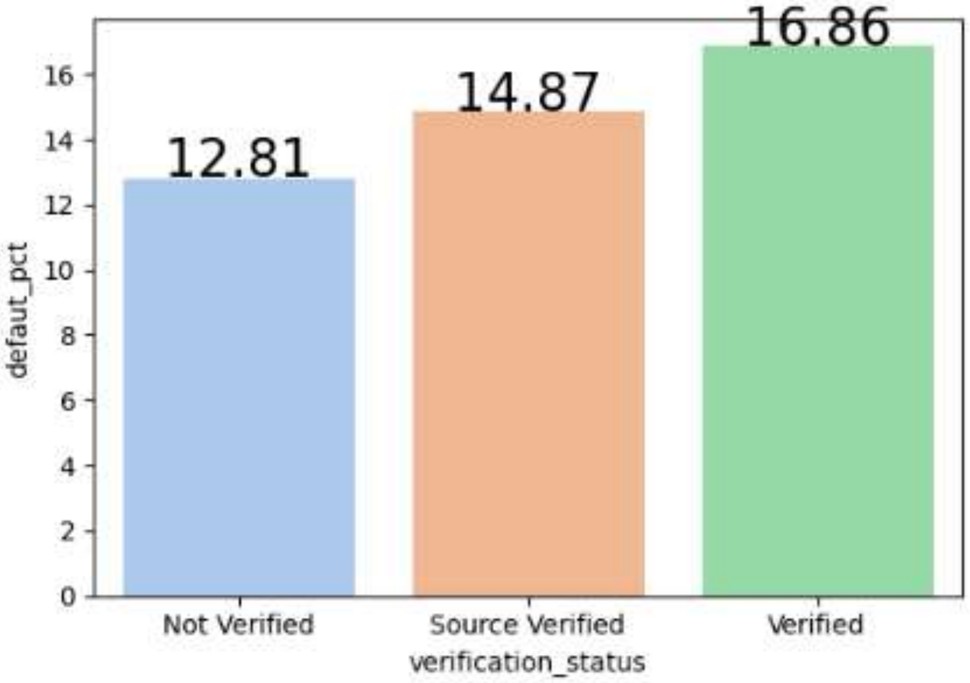
Saket Gupta

Harsh Chaudhary

INTRODUCTION

- This case study explores the banking and financial services sector through Exploratory Data Analysis (EDA) to address a crucial urban lending dilemma.
- The challenge lies in balancing two critical risks in loan approval: the loss of business opportunities by denying loans to eligible applicants and the default risk associated with approving loans to potential defaulters.
- The primary objective is to derive actionable insights for risk management, decreasing loan defaults, and enhancing financial stability. By dissecting historical loan data, we aim to identify the primary drivers of loan defaults, thus facilitating better portfolio management and risk evaluation.

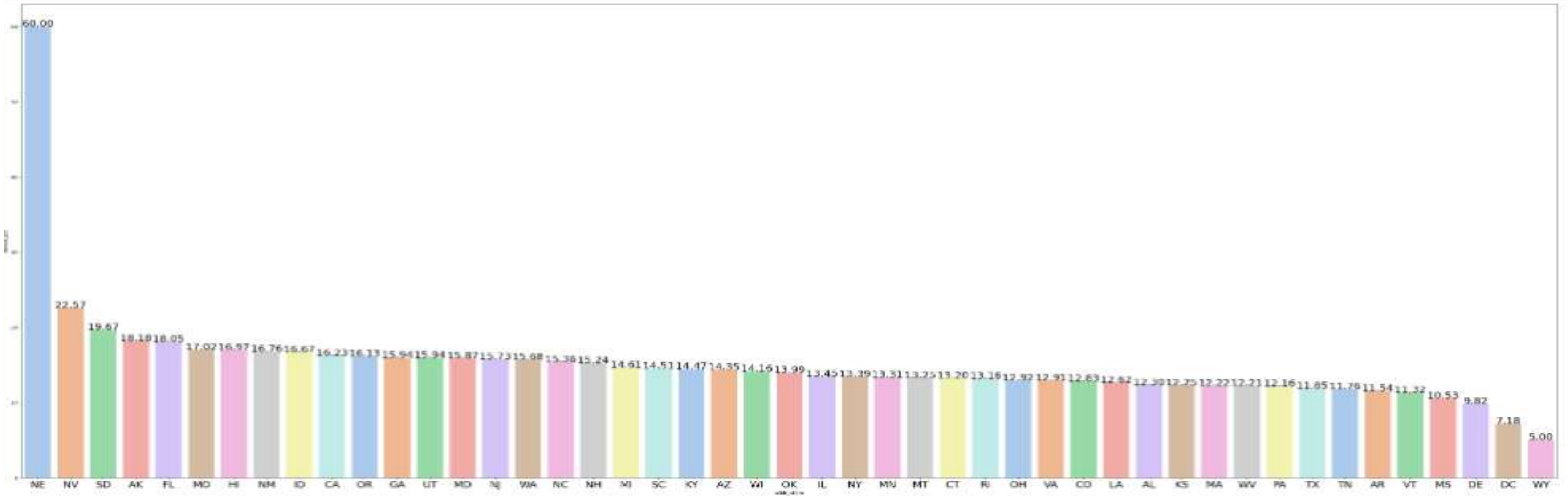
VERIFICATION STATUS ANALYSIS



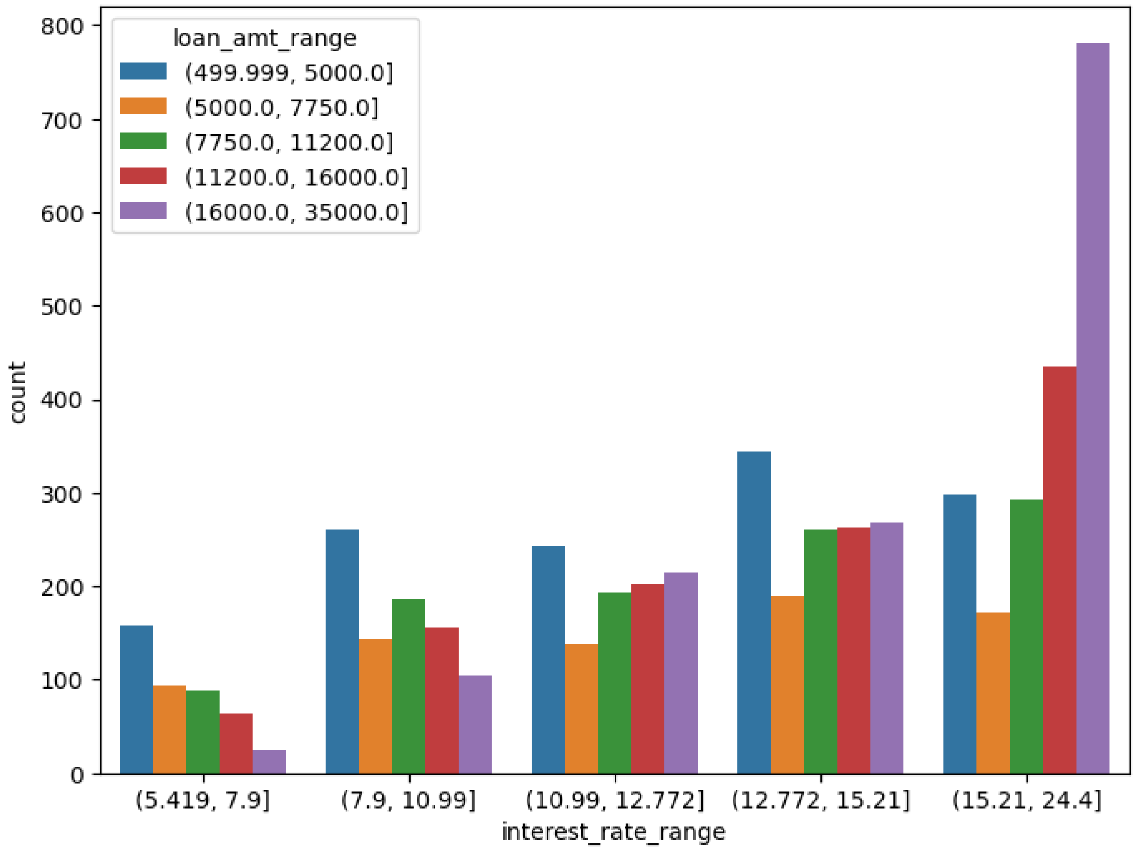
Borrowers with unverified income sources are 16.86% more likely to default on their loans. This suggests a connection between inadequate income verification and a higher risk of loan default. Lenders should consider improving income verification processes to mitigate this risk

ADDRESS STATE ANALYSIS

It's apparent that specific states, notably **NE** (Nebraska) and **NV** (Nevada), exhibit a notably elevated occurrence of loan defaults. To address this issue, financial institutions should conduct more comprehensive credit assessments and risk evaluations for borrowers residing in these states.

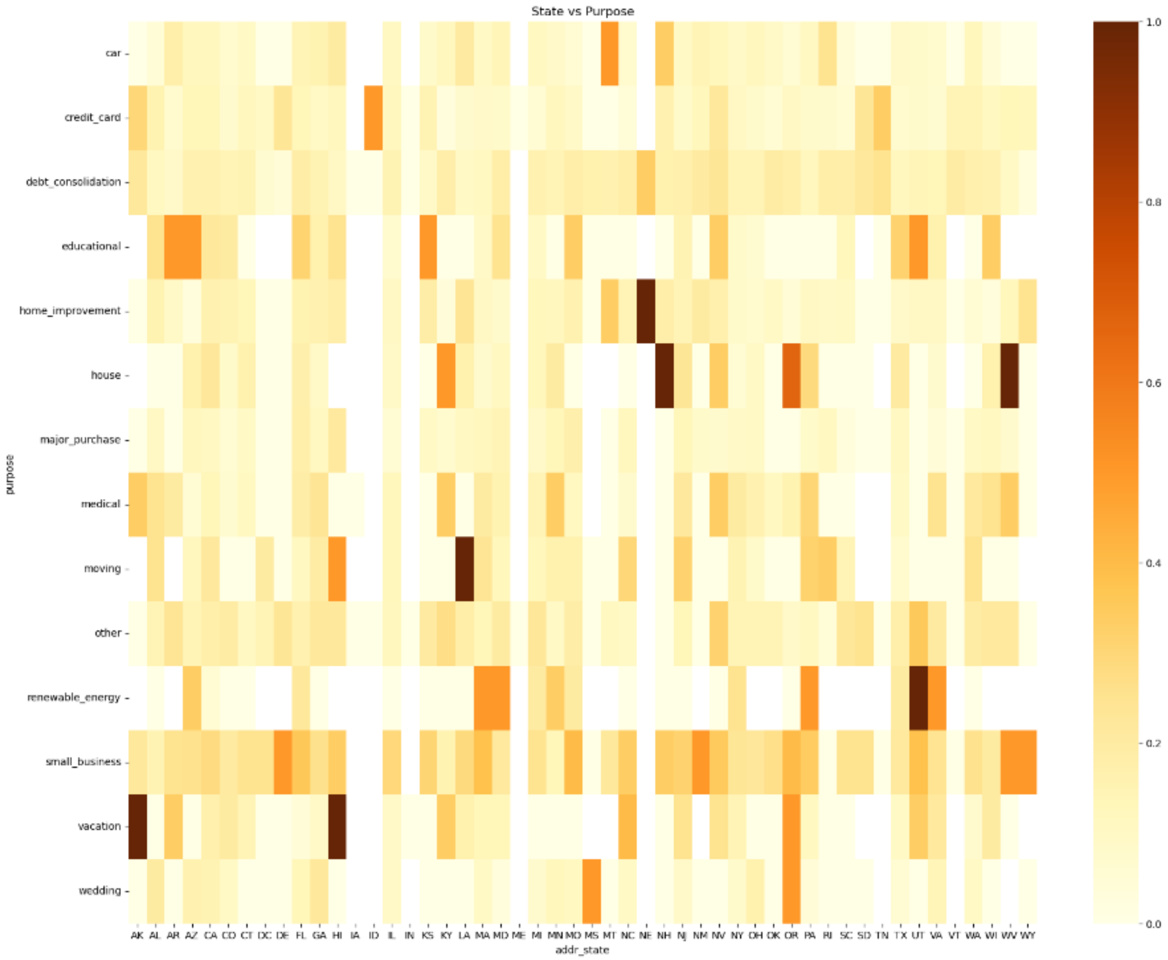


INTEREST RATE VS LOAN AMOUNT



A noticeable trend emerges when examining the data: borrowers who have secured larger loan amounts and are subject to the highest interest rates tend to exhibit a significantly higher rate of defaults. This correlation indicates that there is an inherent risk associated with offering larger loans with high interest rates.

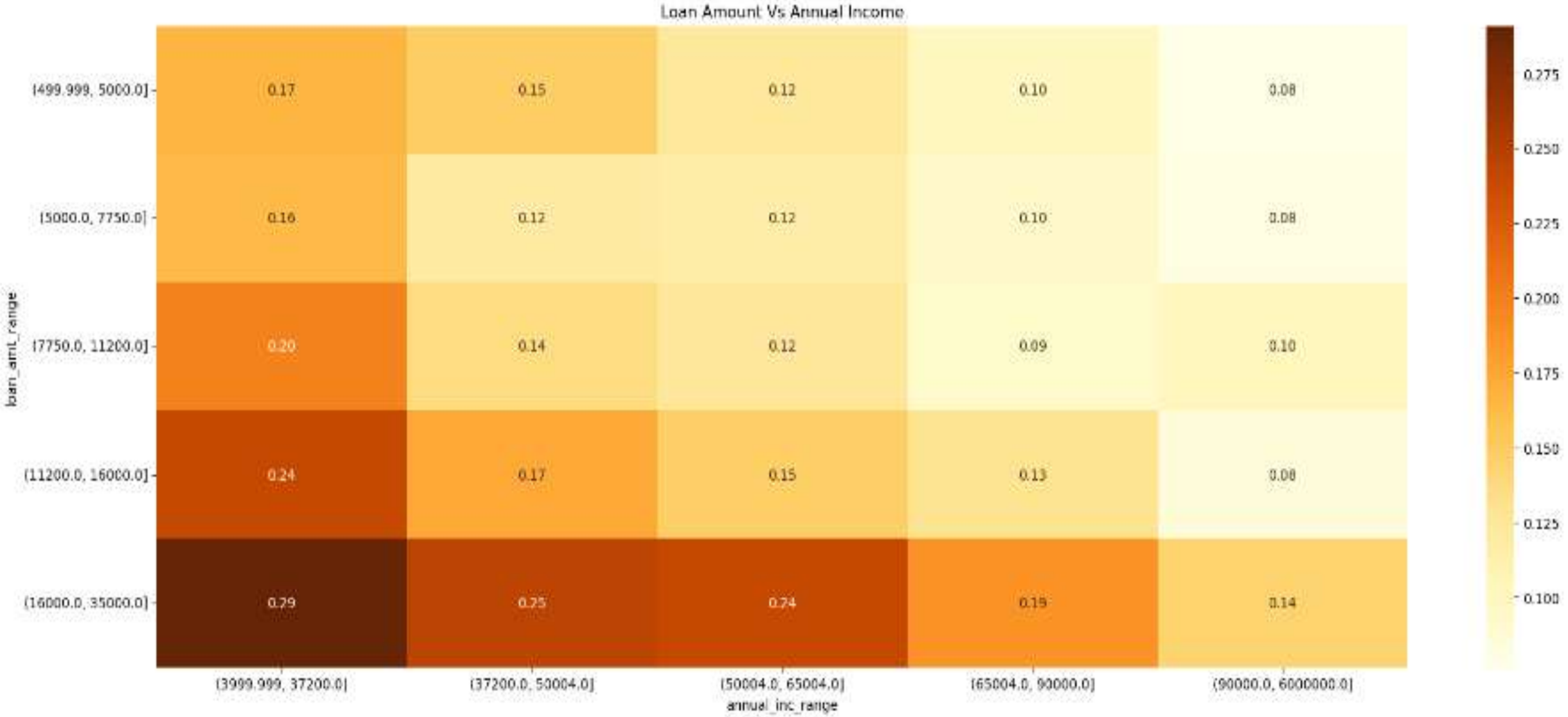
STATE VS PURPOSE



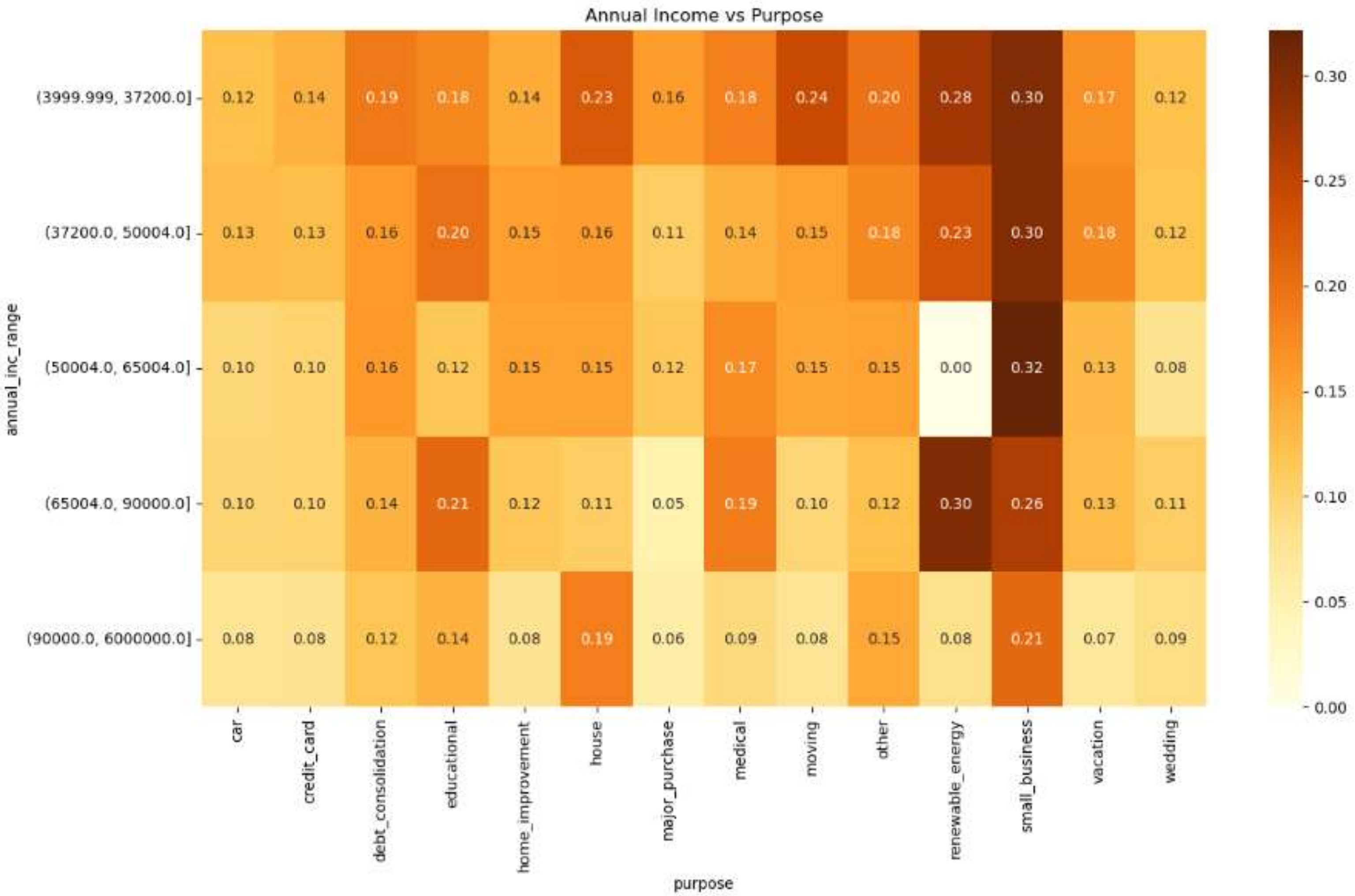
- **AK and HI (Alaska and Hawaii) for Vacation Loans:** Implement stricter eligibility criteria and financial education for vacation loans to address seasonal income challenges.
- **UT (Utah) for Renewable Energy Loans:** Offer more flexible financing options for renewable energy projects to make them more affordable and reduce defaults.
- **LA (Louisiana) for Moving Loans:** Assess employment stability and consider providing financial counseling to help manage moving expenses effectively.
- **NH (New Hampshire) & WV (West Virginia) for Home Loans and NE (Nebraska) for Home Improvement**: Conduct thorough credit assessments and offer specialized loan products, like down payment assistance, to address economic challenges and improve home loan repayment rates.

LOAN AMOUNT VS ANNUAL INCOME

We observed that when the loan amount is between 16k to 35k and annual income is around 40k, borrowers tend to default the most. However, as income increases, the default ratio decreases.



ANNUAL INCOME VS PURPOSE



- Loan Purpose and Defaults: Small Business and Renewable Energy loans exhibit higher default rates.
- Small Business Loans (0-65K Income): Borrowers in this income range have a higher Small Business loan default rate, indicating potential challenges in entrepreneurship.
- Moving and Housing Loans (4-37K Income): These loans face increased defaults among lower-income borrowers, suggesting financial strain related to relocation and housing expenses.
- Renewable Energy Loans (65-90K Income): Borrowers with incomes of 65K to 90K experience higher defaults in Renewable Energy loans, possibly due to project affordability.

CONCLUSION

In conclusion, our analysis has revealed several key insights into loan defaults and their associated factors. Firstly, borrowers with unverified income sources are significantly more likely to default on their loans, emphasizing the importance of improving income verification processes for lenders. Additionally, specific states such as Nebraska (NE) and Nevada (NV) exhibit notably higher default rates, prompting the need for more comprehensive credit assessments and risk evaluations in these regions.

Furthermore, a clear correlation exists between larger loan amounts, high-interest rates, and increased default rates. Lenders should exercise caution when offering large loans with high interest, as they inherently carry a higher risk of default.

Finally, we noted that borrowers with annual incomes ranging from 16k to 35k exhibit the highest default rates, but as income increases, the default ratio decreases. Additionally, small business and renewable energy loans face higher default rates among specific income ranges, suggesting potential challenges in entrepreneurship and project affordability, respectively. Lenders should consider these insights when designing loan products and risk management strategies to minimize defaults and promote financial stability among borrowers.

THANK YOU