**Loan Portfolio Risk Assessment Report**

**Introduction**

In this project, I analyzed a loan dataset provided to us in class, with the goal of understanding how different factors like employment, credit score, and loan purpose affect the risk of loan default. I also created a Power BI dashboard to visualize these insights.  
  
The goal of this report is to share my findings and make data-backed recommendations to help improve risk management in lending.

**Summary of Findings**

**Default Rate**

The overall default rate in the dataset is approximately 26.7% (267 defaults out of 1000 loans).

**Risk by Employment Status**

|  |  |  |  |
| --- | --- | --- | --- |
| Employment Status | % of Defaults | Number of Defaults | Total Loans |
|  | 0.0% | 0 | 1 |
| Employed | 27.41% | 71 | 259 |
| Retired | 23.19% | 61 | 263 |
| Self-employed | 28.26% | 65 | 230 |
| Unemployed | 28.34% | 70 | 247 |

I was surprised to see that Employed borrowers had the highest default rate. This shows that employment alone doesn’t guarantee financial stability.

**Risk by Credit Score**

|  |  |  |  |
| --- | --- | --- | --- |
| Credit Score Category | % of Defaults | Number of Defaults | Total Loans |
| Bad | 30.19% | 112 | 371 |
| Fair | 24.0% | 84 | 350 |
| Good | 25.45% | 71 | 279 |

Borrowers with Bad credit scores defaulted the most, but even Good credit borrowers had a relatively high default rate. This shows that while credit score is important, it is not the only factor to consider.

**Loan Purpose Breakdown**

Top 5 Loan Purposes (by number of loans):

* • Medical Bills — 208 loans
* • Home Renovation — 203 loans
* • Business — 197 loans
* • Education — 196 loans
* • Car Purchase — 196 loans

Medical Bills were the most common loan purpose, but these loans are risky because borrowers are usually in financial distress when applying.

**Key Performance Indicators (KPIs)**

|  |  |
| --- | --- |
| KPI | Value |
| Average Interest Rate (Defaulted Loans) | 9.38% |
| Overall Default Rate | 26.7%(27%) (267 / 1000) |
| Average Monthly Income (all loans) | $2659.13 |

Interestingly, loans with defaults had an average interest rate of about 9.38%, so high interest alone was not the main driver of default.

**Recommendations**

Based on my analysis, I would recommend the following:

* Be more cautious when approving loans for:  
   - Borrowers with Bad credit scores  
   - Loans for Medical Bills or Business purposes
* Don’t rely too much on employment status as an indicator of low risk, since employed borrowers still had high default rates.
* Combine credit score, income, and loan purpose when assessing risk.
* Use the Power BI dashboard to continuously monitor default rates by segment and make dynamic adjustments to loan policies.

**Conclusion**

In this project, I learned that default risk is multi-dimensional — it depends on credit score, income, loan purpose, and employment status. Even 'safe' looking applicants can default. By using data visualization and risk segmentation, lenders can make smarter decisions.  
  
I really enjoyed building this project and I think my Power BI dashboard can help managers better understand risk in real time.