**Project Name: Borrower Risk Navigator**

**Objective:**

To identify factors contributing to loan defaults and reduce credit loss by analysing borrower data.

**Importance:**

Understanding borrower risk profiles helps optimize lending practices and enhance financial performance.

**Submitted by :**

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**Brief description about the project.**

This project aims to leverage data analysis to identify risky loan applicants within an online loan marketplace.

By examining various factors—including demographics, credit history, loan characteristics, and economic indicators

We will utilize Exploratory Data Analysis (EDA) to reveal patterns associated with loan defaults.

The insights gained will enable the company to reduce credit loss, refine lending criteria, and improve the overall loan approval process. Ultimately, this initiative will enhance risk management practices and foster a more profitable lending environment.

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**## General Information about the project**

**Summary of Business Objectives**

The company aims to identify risky loan applicants to reduce credit loss from defaults. Key objectives include:

1. **Credit Data Analysis**: Data Analysis: Review, Analyse, Cleansing and Normalizing the Historical Credit Data
2. **Create Analytics Model**
3. **Proposed solution on** 
   1. **Identify Risky Borrowers:** Use Exploratory Data Analysis (EDA) to uncover characteristics of defaulters.
   2. **Reduce Credit Loss:** Minimize loans to high-risk applicants to lower financial losses.
   3. **Enhance Portfolio Management:** Refine lending criteria based on EDA insights.
   4. **Improve Approval Processes:** Implement data-driven decisions for more accurate loan approvals.
   5. **Strengthen Customer Segmentation:** Tailor products and marketing strategies based on borrower risk profiles.
   6. **Monitor Performance Metrics:** Establish KPIs to evaluate the success of risk management efforts.
4. **Key Driver Variables to Investigate**
5. **Demographics:** Age, income, employment, education.
6. **Credit History:** Credit score, payment history, bankruptcies.
7. **Loan Characteristics:** Amount, interest rate, term, purpose.
8. **Economic Indicators:** Unemployment rates and regional performance.
9. **Behavioural Factors:** Transaction history and spending habits.
10. **Application Details:** Application completion time and inquiries made.

**## Business Problem trying to solve**

The project aims to address the significant issue of **credit loss** resulting from loan defaults. In the lending industry, particularly within online loan marketplaces, identifying borrowers who are likely to default is critical for maintaining financial health and minimizing losses.

Key aspects of the problem include:

1. **High Default Rates:** Many borrowers labelled as 'charged-off' lead to substantial financial losses for lenders. Understanding the characteristics and behaviours that indicate a higher likelihood of default is essential.
2. **Inefficient Loan Approval Processes:** Current lending practices may not adequately account for the risk factors associated with borrowers, leading to misguided approvals and increased exposure to defaults.
3. **Lack of Data-Driven Insights:** Without thorough data analysis, it is challenging to establish effective criteria for evaluating borrower risk. This lack of insight can hinder the company’s ability to optimize its loan offerings and customer segmentation.
4. **Impact on Profitability:** Credit losses directly affect the bottom line. Reducing the number of high-risk loans can improve overall profitability and sustainability for the business.

By solving this problem, the project aims to enhance risk assessment strategies, reduce credit loss, and ultimately improve the company’s financial performance and customer experience

**## Dataset Overview- dataset that is being used**

The dataset used for this project typically includes various attributes related to borrowers and their loan applications. Here’s a description of the key components:

1. **Borrower Demographics:**
   1. **Age:** Age of the borrower.
   2. **Income:** Annual income or monthly salary.
   3. **Employment Status:** Current employment situation (e.g., employed, unemployed, self-employed).
   4. **Education Level:** Highest degree or education attained.
2. **Credit History:**
   1. **Credit Score:** Numerical representation of the borrower's creditworthiness.
   2. **Payment History:** Records of past payments (on-time vs. late payments).
   3. **Number of Open Accounts:** Total active credit accounts the borrower holds.
   4. **Bankruptcies:** Any history of bankruptcy filings.
3. **Loan Characteristics:**
   1. **Loan Amount:** Total amount requested or issued.
   2. **Interest Rate:** Rate charged on the loan.
   3. **Loan Term:** Duration of the loan (e.g., 12 months, 24 months).
   4. **Loan Purpose:** Reason for taking out the loan (e.g., personal, business, medical).
4. **Economic Indicators:**
   1. **Geographical Region:** Location of the borrower (which may correlate with economic conditions).
   2. **Local Unemployment Rate:** Economic context affecting the borrower.
5. **Behavioural Factors:**
   1. **Transaction History:** Spending and payment behaviour over time.
   2. **Previous Interactions:** Number of inquiries or past loans with the lending platform.
6. **Application Details:**
   1. **Application Completion Time:** Time taken to fill out and submit the loan application.
   2. **Number of Inquiries:** Total number of credit inquiries made by the borrower.

<!-- You don't have to answer all the questions - just the ones relevant to your project. -->

**## Recommendations**

- Conclusion 1 from the analysis

- Conclusion 2 from the analysis

- Conclusion 3 from the analysis

- Conclusion 4 from the analysis

**## Technologies Used**

* **Platform Framework-** Anaconda and Jupiter Lab
* **Programming Language** - Python 3.12
* **libraries** - NumPy, Pandas, Matplotlib, Seaburn

**## Acknowledgements**

Give credit here.

- This project was inspired by...

- References if any...

- This project was based on [this tutorial](https://www.example.com).

**## Contact**

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feel free to contact us!