Project Title	**Finance: Loan Default Prediction**
Skills take away From This Project	**Model Building, Visualization**
Domain	**Finance**

Problem Statement:

The primary goal of this project is to develop a predictive model that can assess the risk of loan default for loan applicants. The objective is to help financial institutions make informed decisions about whether to approve or reject loan applications.

Business Use Cases:

Potential Business Scenarios

- **Risk Management:** predictive model that can assess the risk of loan default for loan applicants. The objective is to help financial institutions make informed decisions about whether to approve or reject loan applications.

  Customer Segmentation: Segment customers based on their risk profile to tailor financial products and services.
  Credit Scoring: Enhance traditional credit scoring models with predictive analytics to improve accuracy.
  Fraud Detection: Identify patterns that may indicate fraudulent loan applications.

Approach:

Methodology

1. **Data Preprocessing:** This task involves cleaning, transforming, and preparing the loan applicant data. It includes handling missing values, encoding categorical variables, and scaling or normalizing numerical features.
2. **Model Building:** Develop a machine learning or statistical model capable of predicting the risk of loan default for each applicant. Common approaches include logistic regression, decision trees, random forests, gradient boosting, or support vector machines.
3. **Model Evaluation:** Assess the performance of the loan default risk prediction model using appropriate evaluation metrics. Common metrics include accuracy, precision, recall, F1-score, ROC curve, and AUC (Area Under the Curve).

4. **Interpretability & Reporting:** Provide interpretability for the model's predictions and create reports that offer insights into the risk assessment process. Transparency and interpretability are crucial when dealing with financial decisions.

Results:

- Model evaluation should include standard binary classification metrics such as accuracy, precision, recall, F1-score, ROC curve, and AUC.
- These metrics help assess how well the model predicts loan defaults and non-defaults.

Project Evaluation metrics:

Success Criteria
Accuracy, Precision, Recall, F1 Score, ROC-AUC
All should be in high range

Technical Tags:

Machine Learning
Data Preprocessing
Feature Engineering
Model Training
Model Evaluation
Hyperparameter Tuning

Data Set:

Dataset is available in CSV format.

Dataset:
https://drive.google.com/file/d/19_BjmsClFQx17BEVwJnqeGauO-3sPXjm/view?usp=sharing

Data Set Explanation:

Content and Context

- The data for this project typically includes information about loan applicants.
- This includes features such as applicant demographics, credit history, income, employment status, loan amount, loan term, and any other relevant factors.
- Additionally, the data include labels indicating whether a loan was repaid or resulted in default.

Project Deliverables:

Submission Requirements
Source Code: The complete code used for data preprocessing, model training, and evaluation.
Documentation: A report detailing the methodology, analysis, results, and insights.
Presentation: A slide deck summarizing the project and key findings.
Model File: The trained model ready for deployment.
README: Instructions on how to run the code and reproduce the results.

Project Guidelines:

Best Practices
Coding Standards: Standard code standard for Python code.
Version Control: Use Git for version control and regularly commit changes.
Documentation: Comment your code and provide clear explanations for your logic.
Collaboration: Use collaborative tools like GitHub or GitLab for team projects.

Timeline:

Analyse data EDA Ploting Building Model ML Model Selection	2 weeks
NLP	2 Days
Total	2 weeks 2 Days

PROJECT DOUBT CLARIFICATION SESSION (PROJECT AND CLASS DOUBTS)

About Session: The Project Doubt Clarification Session is a helpful resource for resolving questions and concerns about projects and class topics. It provides support in understanding project requirements, addressing code issues, and clarifying class concepts. The session aims to enhance comprehension and provide guidance to overcome challenges effectively.
Note: Book the slot at least before 12:00 Pm on the same day

Timing: Tuesday, Thursday, Saturday (5:00PM to 7:00PM)

Booking link :https://forms.gle/XC553oSbMJ2Gcfug9

LIVE EVALUATION SESSION (CAPSTONE AND FINAL PROJECT)

About Session: The Live Evaluation Session for Capstone and Final Projects allows participants to showcase their projects and receive real-time feedback for improvement. It assesses project quality and provides an opportunity for discussion and evaluation.
Note: This form will Open on Saturday and Sunday Only on Every Week

Timing: Monday-Saturday (11:30PM to 12:30PM)

Booking link : https://forms.gle/1m2Gsro41fLtZurRA