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| **Project Title** | **Comprehensive Banking Analytics** |
| **Skills take away From This Project** | **Python scripting, Data Collection, Data Pre-processing , Libraries , Data science Lifecycle   , EDA, Predictive analytics , Prescriptive Analytics , Segmentation** |
| **Domain** | **Banking** |

**Problem Statement:**

1. The objective of this project is to leverage advanced data analytics techniques, including classification, regression, and clustering, to extract valuable insights and enhance decision-making processes within the banking sector.
2. The project aims to address various aspects of banking operations, such as customer segmentation, credit risk assessment, and performance prediction.
3. This project aims to demonstrate the power of advanced analytics in optimizing various facets of banking operations, ultimately contributing to the overall success and sustainability of the financial institution

**Approach:**

1. **Customer Segmentation (Clustering):**

* Utilize clustering algorithms to group customers based on their banking behaviours, transaction histories, and demographics.

1. **Credit Risk Assessment (Classification):**

* Develop a robust credit scoring system using classification algorithms to assess the creditworthiness of loan applicants.
* Utilize historical data to train the model and predict the likelihood of default or late payments.
* Enhance risk management by integrating machine learning models into the credit approval process.

1. **Performance Prediction (Regression):**

* Build regression models to predict key performance indicators (KPIs) for the banking institution, such as asset growth, revenue, and profitability.
* Analyze the impact of various factors, such as economic indicators and market trends, on the bank's performance.
* Provide actionable insights to optimize resource allocation, investment strategies, and overall business performance.

**Dataset:**

* Acquire and preprocess a comprehensive banking dataset that includes customer information, transaction details, credit history, economic indicators, and performance metrics or refer the dataset provided along with this project
* Ensure data quality, handle missing values, and conduct exploratory data analysis (EDA) to gain a deep understanding of the dataset.

**Technological Stack:**

1. Python for data pre-processing, analysis, and modeling.
2. Scikit-learn, TensorFlow, or PyTorch for implementing machine learning algorithms.
3. Jupyter Notebooks for code development and documentation.
4. Visualization tools such as Matplotlib or Seaborn for data exploration and presentation.

**Project Evaluation & Deliverables:**

* A well-documented Jupyter Notebook containing the implementation of clustering, classification, and regression models.
* Visualizations and insights derived from the analysis.
* A comprehensive report summarizing the findings, model performances, and recommendations for the banking institution.