MACHINE LEARNING BASED BANK CUSTOMER CHURN PREDICTION PROJECT REQUIREMENTS

1 **Python Environment**: Python 3.x installed with necessary libraries.

2 **Dataset**: Dataset containing customer features and churn labels.

3 **Pandas**: For data manipulation and analysis.

4 **NumPy**: For handling numerical computations.

5 **Matplotlib and Seaborn**: For data visualization and exploratory analysis.

6 **Scikit-learn**: For data preprocessing, model training, and evaluation.

7 **Imbalanced-learn**: For addressing class imbalance using Borderline-SMOTE.

8 **XGBoost**: For training the gradient boosting model.

9 **Flask**: For deploying the machine learning model as a web application.

10 **joblib or pickle**: For saving and loading trained machine learning models.

11 **Jupyter Notebook**: For training and experimenting with the model.

12 **VS Code or IDE**: For development and testing of the Flask application.

13 **Excel-compatible library (like openpyxl)**: For storing at-risk customer details in an Excel file.

14 **Machine with sufficient RAM and CPU/GPU**: For handling data processing and model training efficiently.