Summary

Problem: Customer churn poses a significant risk to business profitability, leading to lost revenue, reduced customer loyalty, and increased acquisition costs. Retaining customers is more cost-effective than acquiring new ones, and proactive detection is essential to prevent churn.

Solution: Implemented an AI-based early warning system using a neural network to predict customers at risk of churning. This model triggers alerts for customer support teams, enabling them to engage with at-risk customers and address potential issues before they leave.

Tools and Models Used:

- Tools: Numpy, Pandas
- Models: Binary Logistic Regression, Two-Layer Feed Forward Perceptron, Artificial Neural Network (ANN) with Backpropagation

Model Performance:

- Binary Logistic Regression: 72.5% accuracy
- Two-Layer Feed Forward Perceptron: 73% accuracy
- Artificial Neural Network: 79% accuracy

Model Usability:

- The system identifies high-risk customers likely to churn and integrates with CRM platforms to provide real-time predictions.

Benefits:

- Proactively retaining high-risk customers before they churn, reducing churn-related revenue losses.
- Improved customer support efficiency through better prioritisation and resource allocation.

Recommendation: Use the neural network model to identify high-risk customers and integrate the system into CRM platforms for real-time predictions. Continuously refine the model based on customer feedback and new data to maintain accuracy.

Conclusion: The early warning system enables proactive customer engagement, preserves revenue by reducing churn, and enhances customer satisfaction through targeted interventions, benefiting both customer retention strategies and overall business performance.