**Paper Summary 3**

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| Paper number | 3 |
| Read by | Param Jagani |
| Title of paper and author details | A Review on Machine Learning Methods for Customer Churn Prediction and Recommendations for Business Practitioners  Authors – Awais Manzoor, M Atif Quershi, Etan Kidney, Luca Longo |
| Publication year, publication body | 2024  IEEE Access |
| Domain of paper [sentiment analysis/ ontology construction…etc] | Customer Churn Prediction in the context of Machine Learning and Artificial Intelligence. |
| Dataset used/ Datasources [if any] | The paper does not focus on a specific dataset but rather reviews multiple studies from 2015 to 2023 that have used various datasets in sectors such as telecommunications, finance, and online gaming for churn prediction. |
| Implementation tools/ technlologies used [if any] | Support Vector Machine (SVM)  Logistic Regression  Decision tree  Random Forest (RF)  Boosting Technique: Catboost and XGBoost |
| Results given and evaluation parameters used | Gradient boosting models that offer high accuracy. For instance, CatBoost achieved an accuracy of around 81.8%. |
| Highlights/summary of paper in your words | Comprehensive Review: The paper scrutinizes 212 published articles, making it one of the most extensive reviews in the domain.  Profit-Based Metrics: It identifies a gap in research related to the profitability of churn prediction models and advocates for the use of profit-based evaluation metrics.  Recommendations: The paper recommends the adoption of ensemble methods, deep learning techniques, and explainable AI to enhance the performance and transparency of churn prediction models. |
| Future enhancements suggested | The authors suggest further research into the profitability aspect of churn prediction models, advocating for the integration of profit-based metrics to better support decision-making. They also recommend exploring the use of deep learning techniques and ensemble methods to improve model accuracy and generalization. |