PARUL **UNIVERSITY**
FACULTY OF ENGINEERING AND TECHNOLOGY

COMPUTER SCIENCE AND ENGINEERING DEPARTMENT

CRITICAL EVALUATION OF JOURNAL PAPER

This activity is an individual activity. Each student has to refer FIVE research papers related to their project title and each paper is to be reviewed as per below. Student need to prepare word file for each paper evaluation and submit it.

1. Student Details

Student Name:	Sane Harsh Balkrishna		
Enrollment No	2203031250084		
Title of Journal Paper	**CANCEL: A Feature Engineering Method for Churn Prediction in a Privacy-Preserving Context**	**Branch:**	**CSE-BDA**
Authors	Gabriel T. Coimbra, Victor Hugo R. Santos, Pedro A. Maia, Letícia O. Silva, Rayanne P. Souza, Fabrício A. Silva, Thais R. M. Braga Silva		
Journal / Conference:	Journal of Internet Services and Applications		
Volume / Issue	15:1	**Pages:**	12

2. Dissection of Paper

Section 01: Abstract / Introduction (Read the abstract and answer the following questions)

1 What is the objective of the Paper?

Ans: 1. The paper proposes CANCEL, a privacy-preserving feature engineering method for churn prediction.

2. It aims to predict churn while ensuring user data privacy using edge computing.

2 What are the main results mentioned in the abstract?

Ans: 1. CANCEL outperforms traditional feature engineering techniques in terms of accuracy and privacy protection.

2. The model achieves high accuracy without requiring centralized data storage.

3 What rational is given by the authors, attributing importance to the research problem?

Ans: 1. Traditional churn prediction models often compromise user privacy by storing sensitive data centrally.

2. Edge computing enables real-time predictions without data transmission risks.

4 How many earlier works are cited by the authors, and what are the perceived drawbacks of these earlier works?

Ans: 1. Several studies focus on improving churn prediction accuracy but ignore privacy concerns.

2. Existing models rely heavily on centralized data, increasing the risk of data breaches.

Section 02: Methodology

1   Describe the methodology is used by author(s) to address the research problem?

Ans: 1. CANCEL extracts behavioral features from user interactions over time.

    2. The method is deployed on edge devices, ensuring computations occur locally without sending sensitive data to central servers.

    3. A comparative analysis is conducted with traditional machine learning models.

2   In what way the methodology used by the authors is relevant to the methodology you proposed to adopt?

Ans: 1. The integration of privacy-preserving techniques aligns with the growing need for secure AI applications.
2. Edge computing reduces latency and improves efficiency for real-time churn prediction.

Section 03: Results and conclusions

1   What are the variables used for the analysis

Ans: User engagement metrics, session duration, frequency of interactions, and uninstall patterns.

2   List the results obtained by the authors.

Ans: 1. CANCEL achieves comparable accuracy to centralized models while maintaining user privacy.

    2. The model reduces data transmission overhead, improving system efficiency.

3   What are the conclusions drawn by the authors from the study.

Ans: 1. Privacy-preserving churn prediction is feasible with edge computing.

    2. CANCEL provides an effective alternative to traditional methods without compromising accuracy.

Write a critical analysis of the paper (about 200 words)

This paper presents a novel approach to churn prediction by integrating privacy-preserving feature engineering with edge computing. The proposed CANCEL method extracts user behavior attributes locally, ensuring data privacy while maintaining high predictive accuracy. The study effectively highlights the growing concern of data privacy in AI-driven customer retention strategies.

One of the significant strengths of the paper is its focus on privacy, which is often overlooked in traditional churn prediction models. The evaluation demonstrates that CANCEL performs competitively compared to centralized models, making it a viable solution for industries handling sensitive user data. However, a limitation of this study is the computational constraints associated with edge devices, which may impact model scalability.

Future research could explore hybrid approaches that combine edge computing with federated learning to further enhance efficiency and scalability. Overall, the study provides valuable insights into privacy-aware machine learning applications, making it relevant for organizations prioritizing data security in churn prediction models.