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	**A Comparative Study of Customer Churn Prediction in Telecom Industry Using Ensemble-Based Classifiers**	**Branch:**	**CSE-BDA**
Authors	Abinash Mishra, U. Srinivasulu Reddy		
Journal / Conference:	International Conference on Inventive Computing and Informatics (ICICI 2017)		
Volume / Issue	IEEE Xplore	**Pages:**	5

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: The paper aims to compare various ensemble-based classifiers for customer churn prediction in the telecom industry.

2 What are the main results mentioned in the abstract?

Ans: 1. Random Forest achieved the highest accuracy of 91.66%.
2. Ensemble methods performed better than individual classifiers.

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

Ans: 1. Customer churn leads to revenue losses in the telecom industry.
2. Accurate churn prediction helps retain customers by implementing proactive strategies.

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

Ans: Several previous works focused only on a single classifier rather than comparing multiple models.

Section 02: Methodology

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

Ans: 1. The study used ensemble-based classifiers such as Bagging, Boosting, and Random Forest.

2. Comparisons were made with base classifiers like Decision Tree, Naïve Bayes, and SVM.

3. The dataset consisted of customer attributes like call records, service usage, and complaint history.

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

Ans: The use of ensemble methods improves prediction accuracy, which is useful for real-world telecom applications.

Section 03:Results and conclusions

1 What are the variables used for the analysis

Ans: Call duration, service usage patterns, customer complaints, contract details.

2 List the results obtained by the authors.

Ans: 1. Random Forest had the highest accuracy (91.66%).

2. Bagging and Boosting also showed improved performance over individual classifiers.

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

Ans: 1. Ensemble-based classifiers provide better churn prediction accuracy.

2. Random Forest is a preferred model due to its robustness and lower error rates.

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

Customer churn prediction is crucial for telecom companies to retain customers and increase profitability. This study evaluates various ensemble-based classifiers, including Bagging, Boosting, and Random Forest, and compares them with traditional classifiers such as Decision Tree, Naïve Bayes, and SVM. The findings indicate that Random Forest performs the best with an accuracy of 91.66%, highlighting its capability to handle large and complex datasets.
One of the study's strengths is its comparative analysis of multiple machine learning techniques, providing valuable insights into their effectiveness. However, a limitation is the lack of real-world implementation and cost analysis of these models. Future research could explore deep learning techniques and hybrid models to further enhance predictive accuracy.