**Paper 1**

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| **Title of the paper** |  |
| **Area of work** | The project focuses on the application of artificial intelligence techniques to detect fraud in healthcare claims.This involves analyzing claim data to identify fraudulent activities using machine learning models. |
| **Dataset** |  |
| **Methodology/Strategy** | The “Healthcare Fraud Detection using Machine Learning” project uses AI techniques like Logistic Regression, Decision Tree, and Random Forest to detect healthcare fraud. The model is trained on a large Medicare claims dataset from Kaggle, the models undergo data cleaning, transformation, and feature selection. Logistic Regression models fraud probability, Decision Trees maximize information gain, and Random Forests combine predictions for accuracy. Evaluated using accuracy and F1-score, Random Forests perform best. The input includes claims data with details like admission dates and diagnosis codes. The goal is to accurately identify fraudulent claims through careful preprocessing and fine-tuning. This research shows AI's potential in healthcare fraud detection, providing an accurate and scalable solution while recognizing the need for ongoing improvements, benefiting providers and patients. |
| **Algorithm** | Logistic Regression , Decision Tree , Random Forest |
| **Result/Accuracy** | Research indicates that AI models, particularly the Random Forest algorithm, can significantly enhance the precision and effectiveness of healthcare fraud detection by balancing the identification of fraudulent claims with minimizing false positives. |
| **Advantages** | Enhance accuracy and efficiency by balancing the identification of fraudulent claims  Maintain the integrity and trust of the healthcare system |
| **Limitations** | The project does not fully address other types of fraud or broader applications. |
| **Future Proposal** | Broader applications in various healthcare-related fraudulent activities. |