CATEGORY	Information Technology Recognition Award
ORGANIZATION	Philippine Health Insurance Corporation
CONTACT PERSON	Dr. Arturo C. Alcantara, MD Acting Chief Information Officer Dr. Benjamin V. Pague, MD Acting Senior Manager, PMO-PIMS Head, Task Force Informatics
NAME OF PROJECT	PhilHealth Fraud Risk Scoring System
OBJECTIVE AND NATURE OF PROJECT	The project aimed to develop a scalable, extensible, and effective decision support system for fraud detection in health insurance claims. The project utilized machine learning techniques to develop metrics.
WHY IT SHOULD BE RECOGNIZED	Healthcare fraud is estimated at 3% to 10% of insurance payment. Based on these estimates, the total yearly loss for PhilHealth could be around Php 3 billion to 10 billion. Defrauding healthcare insurance can lead to significant cost reductions enabling better and accessible healthcare. Worldwide, health insurance institutions are commonly dependent on private entities for system or software development. In this project, we can provide insights on in-house development using Machine Learning and DevOps (MLOps) principles and open source technologies.
SUMMARY OF THE PROJECT	The project describes an in-house software/application development of a metric based predictor of fraud in the health insurance claims. Estimates for health insurance fraud can be 3% to 10% for paid claims. Machine learning techniques such as outlier and anomaly detection are suggested to be effective predictors of fraud that can be used to support claim evaluation and initiate audit activities. A fraud risk score is generated per claim and is compared to a threshold level. Claims with scores exceeding the threshold value are held for further evaluation and scrutiny. The application was evaluated using claims tagged for Medical Prepayment Review (MPR), a system used to evaluate claims prior to payment and limited to claims with top utilizations per year: pneumonia, acute gastroenteritis, urinary tract infection, and sepsis. Analysis showed promising recall at specified precision rates in identifying MPR denied claims. While MPR denied claims cannot be directly linked to irrefutable fraud, use of the fraud risk scoring system can expand the coverage of the MPR to all disease classes and can lead to the increase of detection and successful fraud prosecution. Applying Machine Learning – DevOps (MLOps) will enable the system to automatically test and deploy new pipelines. That way, it will help us to cope up with the changes in data and business environment.