Project Proposal-Medical Sector Fraud Detection(USA)

Introduction

The healthcare sector in the U.S. is substantial, involving both private and government-run programs. Costs continue to rise, partly due to the growing elderly population. Medicare spending alone represents a significant portion of healthcare expenses, prompting the need for cost-cutting measures, such as reducing fraud. Healthcare fraud, estimated to account for a considerable percentage of total healthcare spending, particularly affects Medicare. While government initiatives like the Medicare Fraud Strike Force aim to combat fraud, there's a continued need for efforts in this direction. This project aims to develop a Medicare Fraud Detection model using big data solutions, leveraging anomaly analysis and geo-demographic metrics to predict and identify fraudulent providers. Accurate fraud detection offers numerous benefits, including cost reduction, easier fraud prevention, and improved compliance with government regulations.

Problem in Brief

Medicinal services misrepresentation is a principal issue that causes generous fiscal misfortune in the Medicare/Medicaid and protection industry. The Centres for Medicare and Medicaid Services (CMS) have arranged Medicare Part D programs since 2006. CMS depends on it to identify and forestall extortion, waste and maltreatment in Part D program.Creating an advanced data science model to predict fraud in medical insurance by real-time analysis. This tool, beneficial for patients, pharmacies, and doctors, enhances industry credibility and tackles rising healthcare costs due to fraud. Traditional fraud detection methods are inefficient. Main project goals: establish a basic data model, develop AI for fraud detection, set benchmarks, and create a market-ready product.

The primary consumers of data and analytics would likely include:

1. Government agencies, such as the Centers for Medicare and Medicaid Services (CMS), responsible for overseeing healthcare programs and combating fraud.
2. Insurance companies seek to prevent fraudulent claims and reduce financial losses.
3. Healthcare providers, including doctors and pharmacies, are interested in identifying fraudulent activities within their networks.
4. Patients and policyholders who benefit from improved fraud detection, potentially leading to reduced premiums and better coverage options.

DataSets

- CMS Part D dataset:
  https://data.cms.gov/provider-summary-by-type-of-service/medicare-part-d-prescribers

- LEIE Datasets:
  https://oig.hhs.gov/exclusions/exclusions_list.asp

- FDA datasets:
  https://www.fda.gov/drugs/drug-approvals-and-databases/drugsfda-data-files#collapseOne

Methodology

- Database Selection
- Data Preprocessing
- Data Modelling
- End result