Project: Healthcare - Persistency of a drug

Week 7: Deliverables

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(Individual project)

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1.Problem Description

The project focuses on a critical and complex challenge faced by pharmaceutical companies worldwide: understanding and predicting the persistency of drug usage as per physician prescriptions. This challenge is not just about assessing whether patients are taking their medications as prescribed but also involves a deep dive into the myriad factors that influence this behavior. The persistency of drug usage is a multifaceted issue, encompassing aspects such as patient demographics, clinical history, medication characteristics, and socio-economic factors.

In the healthcare sector, especially in chronic disease management, the effectiveness of treatment is heavily dependent on patients consistently following their prescribed medication regimens. However, non-persistence to medication is a common issue, leading to suboptimal treatment outcomes, increased healthcare costs, and heightened risk of disease complications.

This project aims to tackle this issue by leveraging data analytics to identify and analyze patterns and factors that contribute to drug persistency. Through a comprehensive analysis of patient data, the project seeks to develop predictive models that can accurately forecast medication adherence, thereby offering valuable insights into patient behavior.

2.Business Understanding

Relevance

In the pharmaceutical industry, understanding drug persistency is crucial, as it directly affects patient health outcomes and drives key business metrics. Persistency rates are indicative of medication effectiveness, patient satisfaction, and overall treatment success. High persistency rates are often correlated with better health outcomes, reduced hospitalization rates, and lower healthcare costs. From a business perspective, insights into drug persistency are invaluable. They enable pharmaceutical companies to fine-tune their marketing strategies, tailor patient support programs, and make informed decisions about drug development and formulation. In essence, understanding persistency helps bridge the gap between patient needs and the treatments offered.

Objective

The primary objective of this project is to automate the process of identifying and analyzing the factors that impact drug persistency. By utilizing machine learning and data analytics, the project aims to build a robust classification model that can sift through vast amounts of patient data to highlight key predictors of medication adherence.

This automated process is not just about simplifying data analysis; it's about enabling more accurate, data-driven decision-making. The insights gleaned from this analysis can guide pharmaceutical companies in developing more patient-centric strategies, optimizing treatment plans, and ultimately contributing to better healthcare outcomes.

Through this project, we seek to provide a tool that empowers pharmaceutical companies to gain a deeper understanding of their patient base, tailor their approaches to meet patient needs, and improve the overall effectiveness of their treatments.

3.Project Lifecycle

Week	Date	Plan
Week 7	19th Nov 2023	Problem statement, business understanding and project lifecycle with deadline
Week 8	26th Nov 2023	Problem description, Data understanding and identifying approaches to overcome problems like missing data, outliers etc.
Week 9	2nd Dec 2023	Data cleaning and transformation
Week 10	9th Dec 2023	EDA and model recommendation
Week 11	16th Dec 2023	Presentation on EDA and proposed model technique
Week 12	23rd Dec 2023	Model Selection and Model Building/Dashboard
Week 13	30th Dec 2023	Final project report and code submission