Proposal

Diabetes Patients Readmitted within 30 days:

Abstract:

Diabetes is a chronic disease associated with abnormal high levels of glucose in the blood. Diabetes makes many kinds of complications, which also leads to a high rate of repeated admission of patients with diabetes.

The need for readmission indicates that inadequate care was provided to the patient at the time of first admission. Inadequate care poses threat to patients' life and treatment of readmitted patients leads to increased healthcare costs.

Question:

- If patient discharged, what is the probability of readmitted within 30 days.
- Are the hospitalized patients with diabetes have higher 30-day readmission rates than all other hospitalized patients?
- Are there differences in hospital readmission rates among gender and age with diabetes?
- What are the risk factors for readmission?
- What kind of admission having high rate with readmitted?

The aim of this project is to assist healthcare provider early identification and intervention for high-risk patients.

Data Description:

In this project, I will use dataset of diabetes patients. The data is a de-identified abstract of the Health Facts database (Cerner Corporation, Kansas City, MO).

Reference: UC Irvine Machine Learning Repository website (https://archive.ics.uci.edu/ml/datasets/Diabetes+130-US+hospitals+for+years+1999-2008).

The dataset represents 10 years (1999-2008) of clinical care at 130 US hospital. It includes around 100,000 points and 50 features representing patient and hospital outcomes. Information was extracted from the database for encounters that satisfied the following criteria:

- Inpatient encounter (a hospital admission).
- Diabetic encounter, that is, one during which any kind of diabetes was as entered to the system as a diagnosis.
- The length of stay was at least 1 day and at most 14 days.
- Laboratory tests were performed during the encounter.

› Medications were administered during the encounter.

The data contains such attributes as patient number, race, gender, age, admission type, time in hospital, medical specialty of admitting physician, number of lab test performed, HbA1c test result, diagnosis, number of medications, diabetic medications, number of outpatients, inpatient, and emergency visits in the year before the hospitalization.

The target variable in this project is “Readmitted” which represent if the patient was readmitted in less than 30 days or more than 30 days or no record of readmission.

Algorithm:

The goal of this project is to predict hospital **unscheduled readmission** of diabetic patients using classification algorithm which will identified in the next phase.

Tools:

› Jupyter notebook.
› Python.
› Python libraries (Numpy, Pandas, Scikit-learn, Matpoltlib, seborn).