

PROBLEM STATEMENT:

The hospitals need a way to accurately predict the Length of stay for each patient at the time of admission so that the patients with high LOS have their treatment plan optimized on minimum LOS and also the hospital resources such as rooms and beds are efficiently utilized.

IN AN ELABORATE MANNER:

The recent Covid-19 Pandemic has raised alarms over one of the most overlooked areas to focus on: Healthcare Management.

In earlier days, doctors and hospital management were not able to handle multiple numbers of patients at the same time. And due to the lack of proper treatment, the patient's conditions used to get worse.

With the help of the application of Data Science in healthcare, it has now become possible to detect the symptoms of a disease at a very early stage. Also, with the advent of various innovative tools and technologies, doctors are able to monitor patients' conditions from remote locations.

Data science is an interdisciplinary field that extracts knowledge and insights from many structural and unstructured data, using scientific methods, data mining techniques, machine-learning algorithms, and big data. The healthcare industry generates large datasets of useful information on patient demography, treatment plans, results of medical examinations, insurance, etc.

While healthcare management has various use cases for using data science, patient length of stay is one critical parameter to observe and predict if one wants to improve the efficiency of healthcare management in a hospital.

This parameter helps hospitals to identify patients of high LOS risk (patients who will stay longer) at the time of admission. Once identified, patients with high LOS risk can have their treatment plan optimized to minimize LOS and lower the chance of staff/visitor infection. Also, prior knowledge of LOS can aid in logistics such as room and bed allocation planning.

Suppose you have been hired as a Data Scientist of Health Man – a not-for-profit organization dedicated to managing the functioning of Hospitals in a professional and optimal manner.

GOAL:

The goal is to accurately predict the Length of Stay for each patient on case by case basis so that the Hospitals can use this information for optimal resource allocation and better functioning. The optimal resource allocation will help in better care of patients.

The length of stay is divided into 11 different classes ranging from 0-10 days to more than 100 days.