**EXECUTIVE SUMMARY**

MOTIVATION

BUSINESS PROBLEM

METHODOLOGY

KEY TAKEAWAYS

TOOLSET & VISUAL AIDS

The primary focus of hospitals is improving the outcomes and create more satisfied patients. But the most ignored fact is on reducing the readmission rate hospitals can achieve their goals. It’s hard for some patients to decide upon the statement if whether another admission would help them recover in a more effective way or get them some more risks. A few remedies would be improving some functions of the hospitals: like giving patients better instructions after discharging, following up with advice and referrals, also if possible, providing them home care.

What are the main causes for readmission?

Are there any immediate actions which can help in reducing the rate?

Can we predict the probability of the patient readmission?

The data has been collected through the UCI machine learning repository. We cleaned the data and analysed it. We have performed EDA on the data, built machine learning models and predicted the probability of readmission with the best model with higher accuracy.

The results show that 88% been achieved for logistic regression and 86% for random forest. From Random Forest output we found that number of lab procedures is the main feature for prediction.

Data collection, Random Forest model, PCA, Elbow method and K means is done using Python. Logistic regression is done using R. We used various packages like pandas, Numpy, matplotlib.pyplot, PCA, plt, sns, sklearn.preprocessing etc.