BUSINESS REQUIREMENT DOCUMENT

Project - Predicting 30-Day Hospital Readmissions Using Patient Health Records

**Objective:**

To build a data-driven model that predicts whether a patient is likely to be readmitted within 30 days of discharge, using demographic, clinical, and hospitalization data. This will support healthcare providers in reducing unnecessary readmissions and improving discharge planning.

**Problem Statement:**

Unplanned 30-day readmissions are costly and often preventable. The hospital seeks to use historical patient data to identify high-risk patients at discharge and intervene proactively.

**Data Source:**

* File: processed\_hospital\_dataset.csv
* Records: 30,002 patients
* Key fields:
  + Demographics: age, gender
  + Health indicators: bmi, cholesterol, blood\_pressure, diabetes, hypertension
  + Hospital metrics: length\_of\_stay, medication\_count, discharge\_destination
  + Target variable: readmitted\_30\_days

**Business Query:**

* Reduce the number of 30-day readmissions
* Optimize discharge planning and post-care support
* Identify patterns and high-risk profiles
* Enable predictive flagging via dashboards or EHR integration

**Scope:**

**In Scope:**

* Exploratory data analysis (EDA)
* Feature engineering
* Classification model development
* Accuracy, precision, recall evaluation
* Deployment recommendations (optional)

**Out of Scope:**

* Real-time hospital integration
* Clinical validation or trial testing

Stakeholders-

|  |  |  |
| --- | --- | --- |
| **Role** | **Stakeholder** | **Responsibility** |
| Project Sponsor | Hospital Management | Sets vision, approves outputs |
| Data Scientist | You | Builds model & analysis |
| Clinician Advisor | (Optional) | Provides medical interpretation |

**Success Criteria:**

* Predictive model achieves at least:
  + **Precision ≥ 75%** on “Yes” readmissions
  + **Recall ≥ 70%**
* Clear reports showing top predictive factors
* Insights shared with stakeholders via the dashboard