

## **Problem Framing & Data**

### **Part 1: Short Answer**

#### **1. Problem Definition**

##### **AI Problem:**

Predicting the likelihood of hospital readmission within 30 days after patient discharge.

##### **Objectives:**

1. Identify high-risk patients early to enable timely interventions.
2. Reduce unnecessary hospital readmissions and associated costs.
3. Improve overall quality of post-discharge care.

##### **Stakeholders:**

1. Hospital Administrators – to manage penalties and improve healthcare performance.
2. Patients and Caregivers – to receive timely follow-up and better care.

##### **KPI (Key Performance Indicator):**

Percentage reduction in 30-day hospital readmission rate after AI model deployment.

#### **2. Data Collection & Preprocessing**

##### **Two Data Sources:**

1. Electronic Health Records (EHR) – demographics, diagnoses, lab results.
2. Insurance Claims – discharge data, readmission dates, billing history.

##### **Potential Bias in Data:**

Underrepresentation of rural or low-income patients may lead to biased predictions, worsening healthcare inequality.

##### **Preprocessing Steps:**

1. Handling Missing Data – impute missing lab values or demographics.
2. Encoding Categorical Variables – convert diagnoses, gender using one-hot encoding.
3. Normalization – scale numerical features like age, length of stay for model input.

### **Part 4: Support Reflection**

To support the final reflection:

- Review team sections to ensure consistent wording, flow, and technical accuracy.
- Provide editing support to refine grammar and clarity.
- Help ensure the reflection aligns with the AI workflow and the ethical implications discussed.