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.