Part 4: Reflection & Workflow Diagram

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1. Reflection

Most Challenging Part of the Workflow

The most challenging part of the workflow was **data collection and preprocessing**.
In healthcare, patient data is often stored across multiple systems — Electronic Health Records (EHRs), laboratory databases, and administrative files — which use different formats and standards. Integrating these data sources while ensuring **data quality, consistency, and privacy compliance** was complex.
Additionally, handling **missing values, inconsistent codes**, and potential **biases** required careful analysis and domain understanding to avoid compromising model performance or fairness.

Improvement with More Time and Resources

With additional time and resources, I would:

1. **Enhance data quality** through automated data validation pipelines and data provenance tracking.
2. **Collaborate with domain experts** (clinicians, data engineers, and ethicists) to refine feature selection and ensure clinical relevance.
3. **Implement more robust model monitoring tools** to detect concept drift and recalibrate the model in real-time.
4. **Expand model interpretability** using advanced explainability frameworks (e.g., SHAP dashboards) to strengthen clinician trust and regulatory compliance.

These improvements would lead to a more scalable, transparent, and trustworthy AI solution capable of long-term deployment in a clinical environment.

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2. Diagram

AI Development Workflow

Below is the flowchart representation you can draw or insert digitally in Word/PowerPoint: