Prep Notes

1. Clear Problem Statement & Motivation

- My project addresses a critical, real-world problem: early detection of global pandemics, which remains an urgent challenge exposed by COVID-19.
- I'm motivated by the potential to save lives and improve global health preparedness using AI.

2. Unique Approach & Innovation

- Unlike existing methods, I integrate diverse real-time data sources — including underreported signals — leveraging advanced NLP models for comprehensive analysis.
- The innovation lies in combining data-driven AI techniques with a novel pandemic early-warning framework.

3. Technical Depth & Rigor

- I built a multi-layered architecture using BioBERT for NLP and time-series forecasting to predict outbreak trends with high accuracy.
- My evaluation used standard metrics like precision, recall, and ROC-AUC, showing promising results.

4. Impact & Ethical Responsibility

- This project has significant social impact potential by empowering early interventions that can mitigate pandemic effects.
- I addressed ethical considerations carefully — ensuring data privacy, reducing bias, and fostering transparency in AI predictions.

5. Challenges & Learning

- I faced challenges in handling heterogeneous data and optimizing model performance, which taught me critical skills in data preprocessing and model tuning.
- Failures and iterative improvements strengthened my problem-solving and perseverance.

6. Future Vision & Scalability

- Looking ahead, I plan to expand data sources globally and develop a user-friendly dashboard for public health officials.
- This project forms a foundation for ongoing research and practical deployment in health systems.