Pitch Deck: Birth Mortality Rates AI Project

Project Title: Predicting Birth Mortality Rates Using AI
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Problem Statement

High birth mortality remains a critical issue, especially in developing regions.

Despite advances in healthcare, lack of timely insights into risk factors prevents effective interventions.

Traditional methods are reactive, siloed, and fail to uncover early-warning patterns.

Key Global & Regional Statistics:

- **2.3 million neonatal deaths** occurred globally in 2022 — that's **6,400 newborns dying every day** *(UNICEF, 2023)*.
- **Africa accounts for 43% of global neonatal deaths**, with a neonatal mortality rate (NMR) of **27 per 1,000 live births** *(WHO, 2023)*.

- **Kenya's neonatal mortality rate** is **20 deaths per 1,000 live births** *(KDHS, 2022)* — well above the **Sustainable Development Goal target** of **12**.

- Up to **70% of neonatal deaths** are preventable through early detection and timely, targeted interventions *(WHO)*.

- Traditional data systems in developing countries are often **delayed, incomplete, or non-actionable** — leading to **missed chances to save lives**.

The Gap:

- **Lack of predictive tools** to identify high-risk births **before** complications arise.
- **Health workers and policymakers** lack actionable insights to proactively allocate resources.

Objective

To build an AI-powered predictive model that estimates the risk of birth mortality based on maternal, neonatal, and environmental data.

Goals:

- Identify high-risk pregnancies early
- Enable targeted medical interventions
- Support policy with actionable data insights

Solution Overview

A Streamlit-based AI web application that predicts the likelihood of birth mortality using ML models.

Key Features:

- User-friendly web interface
- Risk prediction from historical and real-time data
- Visual analytics dashboard
- Deployable in cloud or hospital systems

Data Overview

Data Sources:

- National and international birth records
- WHO datasets
- Hospital-level maternal data

Features Used:

- Maternal age, education, prenatal visits
- Infant weight, Apgar scores
- Delivery conditions, geographic variables

Modeling Approach

Pipeline:

1. Data cleaning & preprocessing

2. Feature selection (correlation analysis, domain knowledge)

3. Model training (Random Forest, Logistic Regression)

4. Evaluation (accuracy, precision, recall, ROC-AUC)

5. Model export with Pickle for deployment

Best Performing Model:

- [Insert model type, e.g., Random Forest Classifier]

- [Insert evaluation metric, e.g., 87% accuracy]

Demo – Streamlit App

Key Interactions:

- Input patient data through UI
- Get instant prediction: "High Risk" or "Low Risk"
- Visualize important risk features
- Designed for healthcare workers with minimal training

Deployment Architecture

Stack:

- Frontend: Streamlit
- Backend: Pickled ML model
- Data Management: Pandas & Scikit-learn
- Hosting: Streamlit Cloud (or can migrate to AWS/GCP)

Version Control & Collaboration:

- GitHub repo for full project
- Requirements.txt and model.pkl for reproducibility

Impact & Use Cases

Target Users:

- Hospitals & maternity wards
- NGOs working in maternal health
- Health ministries for early alerts

Expected Impact:

- Reduced birth mortality via early risk identification
- Better resource allocation in hospitals
- Support for policy and community health planning

Next Steps & Call to Action

Next Milestones:

- Expand dataset with regional hospitals
- Deploy in real-world hospital pilot
- Collaborate with public health stakeholders

Call to Action:

- Seeking partnerships for funding & data access
- Looking for pilot sites in high-risk regions
- Collaborate with researchers in maternal health