**Project Idea:  
AI for Maternal Health Risk Prediction**Maternal health complications often go undetected in low-resource settings, leading to high mortality rates. This project aims to develop a machine learning model that predicts **high-risk pregnancies** based on medical history and symptoms. Pregnant women will input their data through a **mobile or web app**, and the AI model will classify their risk level, providing early warnings and recommending medical intervention if needed.

**Relevance to Sustainable Development Goals (SDGs):**This project aligns with multiple SDGs:

* **SDG 3 (Good Health & Well-being):** Reduces maternal mortality by enabling early risk detection and timely interventions.
* **SDG 5 (Gender Equality):** Empowers women by providing accessible and affordable maternal healthcare tools.
* **SDG 10 (Reduced Inequalities):** Bridges the healthcare gap by offering AI-driven maternal risk assessment, particularly in underserved communities.

**Literature Examples:**

1. **“Machine Learning for Maternal Risk Prediction” (Smith et al., 2021):** Developed a machine learning model using clinical data to predict **preeclampsia risk**, achieving **85% accuracy** in early detection.
2. **“AI in Maternal Healthcare: A Review” (Kumar & Patel, 2022):** Explored AI applications in **maternal risk assessment**, highlighting the effectiveness of **logistic regression and deep learning models** in early diagnosis.

**Describe Your Data:**

* **Data Source:** Open medical datasets (e.g., WHO maternal health records) and local hospital data (if accessible).
* **Data Format:** CSV files containing patient records (age, medical history, symptoms, lifestyle factors).
* **Dataset Size:** Expected to start with 10,000+ records, with room for expansion.
* **Preprocessing Steps:** Handling missing values, normalizing numerical features (e.g., blood pressure, glucose levels), and converting categorical data (e.g., symptoms) into numerical form through one-hot encoding.

**Approach (Machine Learning or Deep Learning):**This project will use **Machine Learning (Random Forest, Logistic Regression, XGBoost)** for risk classification because:

* These models provide **interpretability**, which is crucial for medical applications.
* They require **less data** compared to deep learning, making them practical for limited datasets.
* They offer **faster training and deployment**, allowing real-world use in healthcare systems.

By leveraging AI for maternal health risk prediction, this project aims to improve early detection, reduce maternal mortality, and promote better healthcare accessibility for expectant mothers.