

Problem Statement

Fetal health monitoring is critical during pregnancy to ensure the well-being of both the mother and the fetus. Early detection of potential fetal health issues can guide timely medical interventions and reduce the risk of complications during childbirth.

This project aims to develop a machine learning model that can accurately classify the health status of a fetus into three categories — **Normal, Suspect, or Pathological** — based on features extracted from cardiotocography (CTG) recordings.

Using a publicly available fetal health dataset with multiple physiological features, the model applies advanced preprocessing and hyperparameter-tuned XGBoost classification to provide reliable predictions. The ultimate goal is to create an automated, non-invasive diagnostic tool that assists healthcare professionals in monitoring fetal well-being and making informed clinical decisions.