

FETAL hEALTH CLASSIFICATION

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OUTLINES



Introduction

Dataset

Exploratory data analysis (EDA)

Imbalanced dataset

Classification models

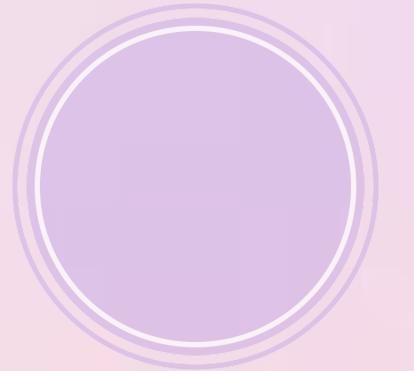
Conclusion

INTRODUCTION

A normal pregnancy lasts 9 months. The fetus grows and gets ready for birth. However, due to various reasons the growth of fetus stops or disturbed. These various reasons may cause disability or mortality of the newborn.

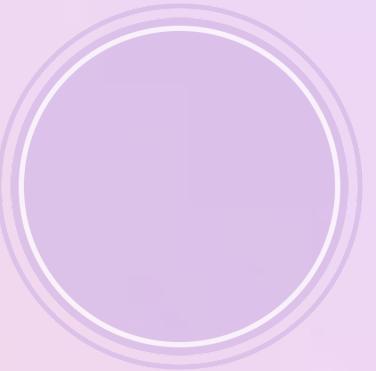
One of the main assessment methods of fetal health is **cardiotocography (CTG)** which evaluates fetal heart beat. CTG monitoring is widely used to assess fetal wellbeing by identifying babies at risk of hypoxia (lack of oxygen). CTG is mainly used during labor.

DATASET



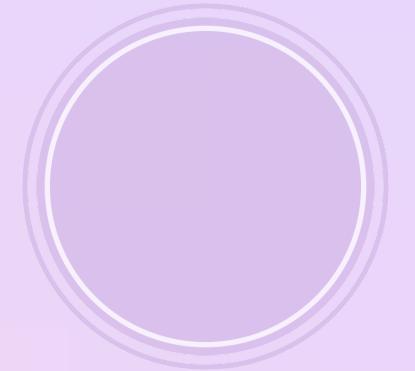
Observations

2126



Features

22



Data From

Kaggle

DATA DESCRIPTION

- o Baseline value: Baseline Fetal Heart Rate (FHR)
- o Accelerations: Number of accelerations per second
- o Fetal movement: Number of fetal movements per second
- o Fetal health:
1 - Normal 2 - Suspect 3 - Pathological



DATA CLEAN

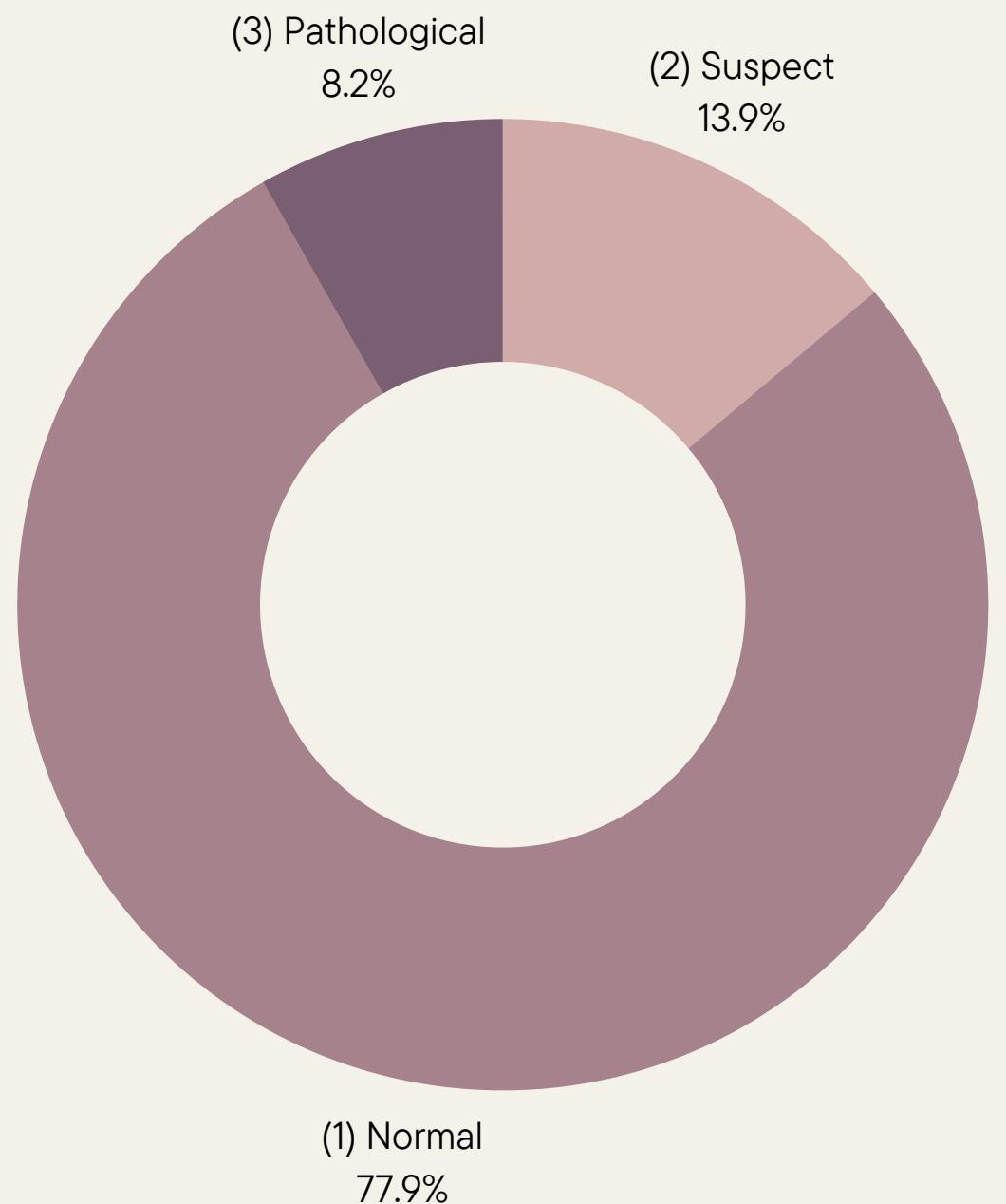
There are no missing
and null values in our
dataset

Drop some columns
we don't need in our
model training.

such as : histogram_min, histogram_median,
histogram_mode

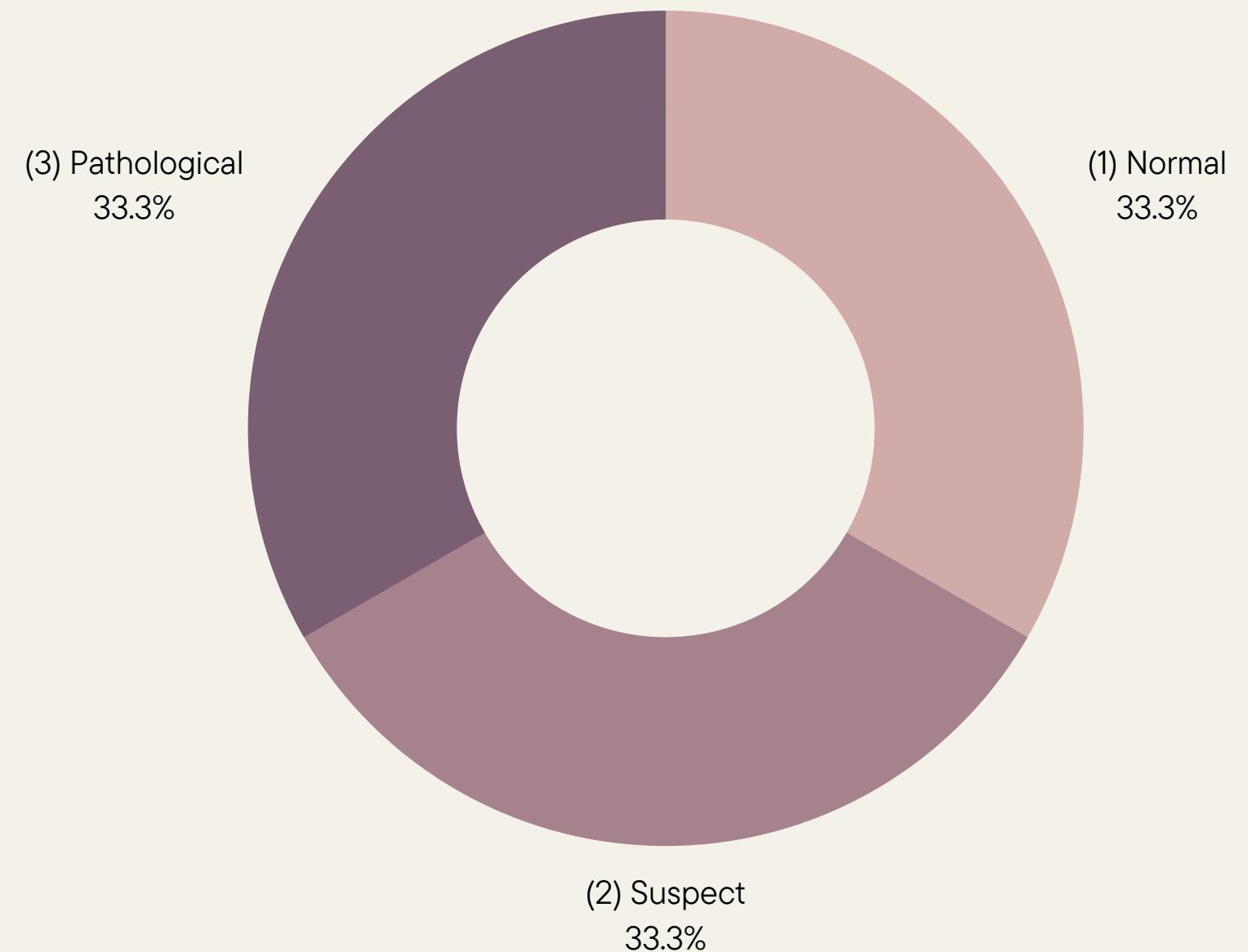
BEFORE BALANCING

Class=2.0, n=295 (13.8758231420508%)
Class=1.0, n=1655 (77.84571966133585%)
Class=3.0, n=176 (8.27845719661336%)



AFTER BALANCING

Class=2.0, n=1655 (33.3333333333333%)
Class=1.0, n=1655 (33.3333333333333%)
Class=3.0, n=1655 (33.3333333333333%)

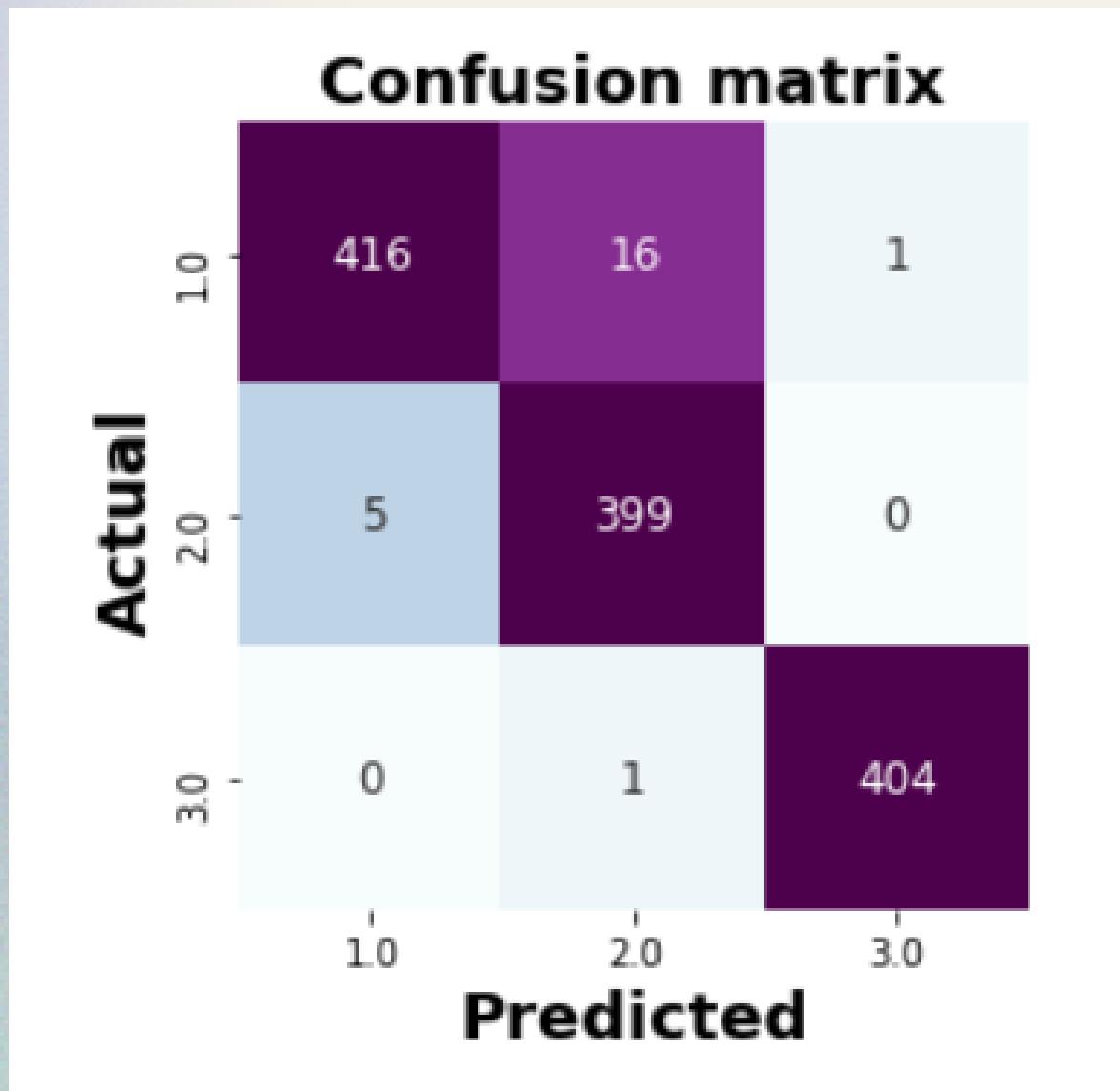


WHAT ARE THE BEST
CLASSIFICATION MODELS
FOR THIS PROJECT?

CLASSIFICATION MODELS

	Model	Accuracy
0	Logistic Regression	0.788245
2	Gradient Boosting	0.971820
1	Random Forest	0.975040
3	XGBoost	0.981481

BEST MODEL



	precision	recall	f1-score
1.0	1.0	0.99	0.97
2.0	2.0	0.95	0.97
3.0	3.0	0.99	0.99
accuracy			0.98

XGBOOST

CONCLUSION

As we see the best model with the lowest prediction error was XGBoost .





Thank you! *