Python bootcamp hosted by
Samarthya club
in association
Electronics and communication

Maternal Health Risk Prediction

Semester / Section : III/ A		
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INTRODUCTION

❖ Prediction models use various data points to estimate the likelihood of a particular outcome, such as pre-eclampsia, gestational diabetes, or preterm labor.

❖ By identifying women who are at high risk of developing complications during pregnancy and childbirth, healthcare providers can provide appropriate interventions to prevent adverse outcomes.

❖ For example , if a woman is identified as being at high risk of preterm labor , her healthcare provider may recommend more frequent prenatal visits and monitoring to identify signs of preterm labor early and provide appropriate interventions.

❖ The use of prediction models during pregnancy can lead to improved maternal and fetal health and ultimately save lives.

PROPOSED SOLUTION

- Out of certain number of algorithms we tested , we found decision tree regression to be a best match to the data set we had downloaded
- Decision tree regression uses a tree to model the relationship between independent variables and a dependent variable
- The tree splits at each node based on the independent variable that best separates the data into homogeneous groups.
- The leaf nodes represent the predicted values of the dependent variable for the corresponding group of independent variable values.
- Decision tree regression is interpretable, can handle both categorical and continuous variables, and is resistant to outliers.
- However, it may suffer from overfitting or not perform well On complex datasets.

ABOUT Dataset

- Our data set consists of various parameters such as Age, Diastolic BP, Systolic BP, Blood Sucrose, Heart Rate and the Risk level of the patient

- Using the Parameters other than Risk level as our input into our prediction model which gives us the risk level of the patient in regard.

ABOUT Implementation

- At the start of this bootcamp, we started with finding of the required dataset for the problem statement that was provided to us.

- We later on went on to check out the different algorithms that are present and which would suit our project.

- We then started with our code with the help of various reference sites and videos.

- Application of the prediction models and checking the error percentage and r2 score.

Results

	Method	Training MSE	Training R2	Test MSE	Test R2
0	Linear regression	0.085315	0.464621	0.112098	0.359742
1	Random forest	0.069721	0.562479	0.096749	0.447414
2	Decision Tree	0.014605	0.908352	0.063008	0.640127

References

- Database:https://www.kaggle.com/datasets/csafrit2/maternal-health-risk-data?resource=download

- https://www.w3schools.com/python/default.asp

- https://towardsdatascience.com/3-ways-to-load-csv-files-into-colab-7c14fcbdcb92#:~:text=Click%20on%20the%20dataset%20in,read_csv%20to%20get%20the%20dataframe

- https://www.youtube.com/watch?v=29ZQ3TDGgRQ

- https://scikit-learn.org/stable/#

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