

Various classifications for caesarian section classification dataset data set

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Abstract: This research work presents a decision making of healthcare operational system by using machine learning classifiers algorithm to predict the decision making in comparison to the actual decision making. This model may help to doctor for making the best decisions. This model helps us to predict surgery. This study explains utilization of machine learning algorithms in determination of medical operation methods. The results show that J48 for this case study generates highest accuracy of 65%.

I. INTRODUCTION

Machine learning in today's healthcare is unavoidable. Optimists predict that machine learning and artificial intelligence will diagnose disease better and earlier, treat illness more precisely and engage patients more efficiently in future healthcare. Recent advancements in machine learning have demonstrated that machine learning can create algorithms that perform on par with human physicians.

Today's healthcare needs effective methods and research methodologies to save lives, reduce the cost of the healthcare services and early discoveries of contagious diseases. Machine learning techniques can enable healthcare organizations to predict trends in patient conditions and their behaviors. Recent findings in healthcare sector led to the collection of large size of rich data. McKinsey estimates that big data and machine learning could generate a value of \$100 billion annually based on better decision making, optimized innovation and improved efficiency of clinical trials. Extracting useful knowledge and regularities from datasets can provide a major opportunity for practical use to improve healthcare. Knowledge acquired in this manner can be used to predict trends of patient's condition in shortest possible time and reduce the cost of healthcare services.

In recent years instances in healthcare such as medical image processing and analyzing, predicting healthcare operational decisions, dosage trials for intravenous tumor treatment detection and management of prostate cancer.

In this paper organizes section one has related works and brief introduction of this fields, section two presents Materials and Methods, the section three describes results and discussions and the section four presents conclusion.

II. MATERIALS AND METHODS

In this section presents the materials and methods of this research work. Here the dataset borrowed from Caesarian Section Classification Dataset Data Set (<https://archive.ics.uci.edu/ml/datasets/Caesarian+Section+Classification+Dataset#>). In this dataset contains information about caesarian section results of 80 pregnant women with the most important characteristics of delivery problems in the medical field. The below table describes the attributes detail in this dataset.

Table 1 Attribute Description in the dataset

S.No	Name of the Attribute	Values of the Attribute	Characteristics of Attribute	Meaning of the Attribute
1	Age	22,26,28,27,32,36,33,23,20,29,25,37,24,18,30,40,31,19,21,35,17,38	Numeric	Pregnant ladies age between 22 to 38
2	Delivery Number	1,2,3,4	Numeric	Delivery Number 1 to 4
3	Delivery time	0,1,2	Numeric	0 = timely , 1 = premature , 2 = latecomer
4	Blood of Pressure	2,1,0	Numeric	0 = low , 1 = normal , 2 = high
5	Heart Problem	1,0	Numeric	0 = apt, 1 = inept
6	Caesarian	0,1	Numeric	0 = No, 1 = Yes

In this research work applied in weka 3.8.3 version for SMO classification method by applying various kernels namely Polykernel, Normalized Polykernel, Puk, and RBF Kernel were applied to calculate for predicting caesarian section operational decisions. In this research work considers name of the attribute Heart Problem ‘0’ represents ‘apt’ and ‘1’ represents ‘inept’ in class.

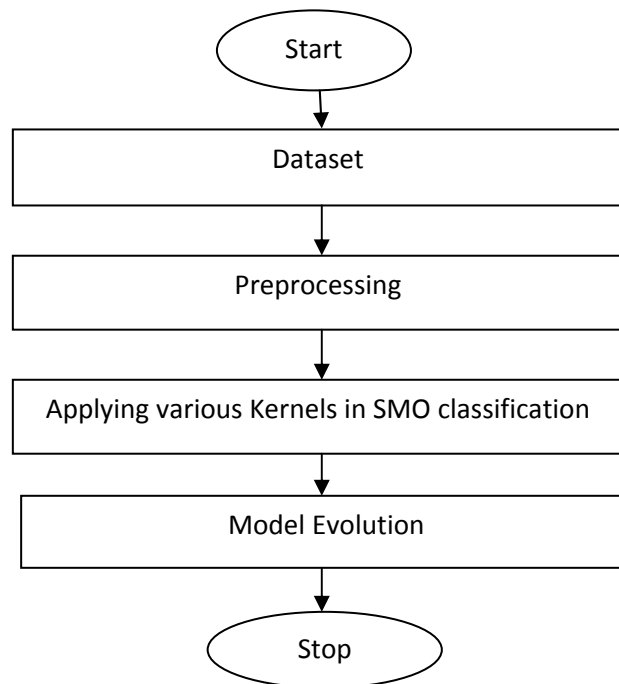


Figure 1 Architecture of Proposed method

III. RESULTS AND DISCUSSIONS

Machine learning has great importance for area of healthcare, and it represents comprehensive process that demands thorough understanding of needs of the healthcare organization regarding operational decisionmaking.

In this study, the machine learning techniques was used for selecting the most significant features to be used in predicting caesarian section accurately. In this work various machine learning algorithms namely BayesNet, SMO, IBK, AdaboostM1 and J48 were used to calculate for predicting caesarian section operational decisions.

Table 2 Accuracy levels of Caesarian Section Classification Dataset Data Set

S.No	Classification	Accuracy level
1	Bayes.BayesNet	62.5%
2	Functions.SMO	61.25%
3	Lazy.IBK	56.25%
4	Meta.AdaboostM1	62.5%
5	Trees.J48	65%

In this work various machine learning algorithms namely BayesNet has 62.5%, SMO has 61.25%, IBKhas 56.25%, AdaboostM1has 62.5% and J48 has 65% were calculated for predicting caesarian section operational decisions.

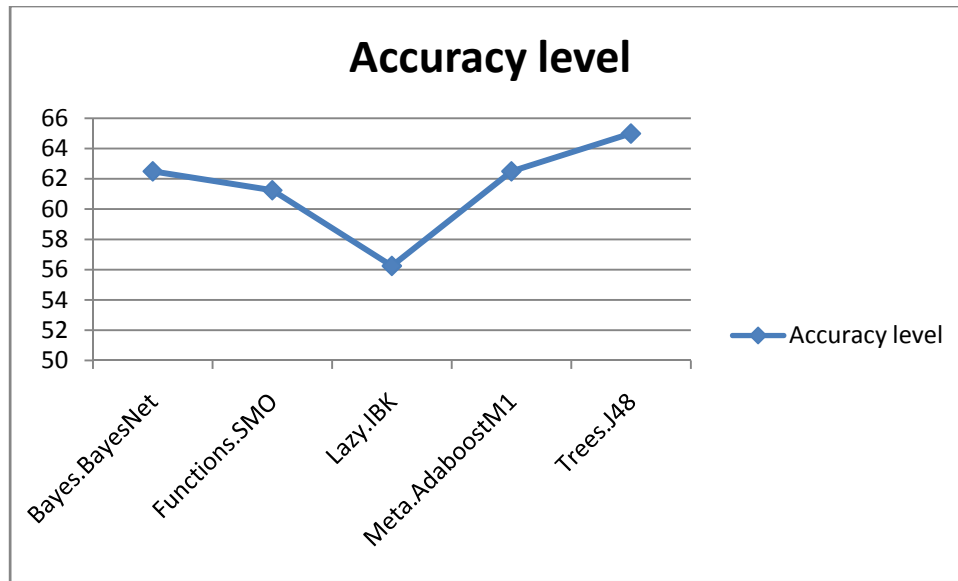


Figure 2 Accuracy levels of various classifications

IV. CONCLUSION

The experiment results show that J48 achieved the best accuracy rates by predicting 65 cases correctly compare than other models. So, this research work recommended for decision making based on the J48 classification.

V. REFERENCES

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