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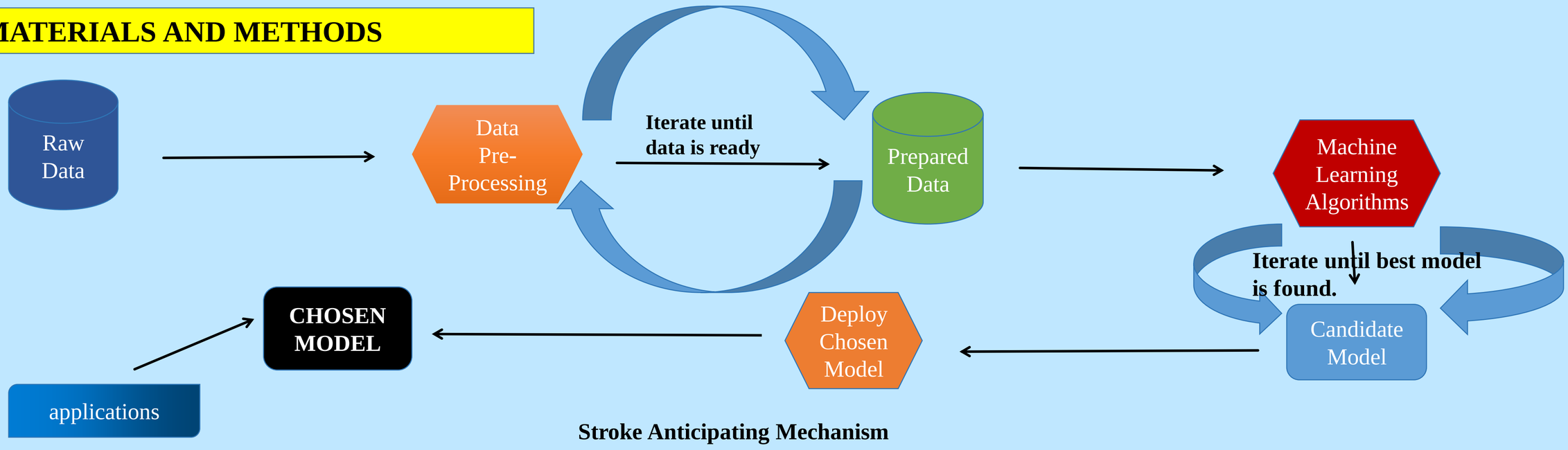
Comparison Of Accuracy on Improved Random Forest Algorithm Over Naïve Bayes Algorithm Automated Stroke Anticipating Mechanism

INTRODUCTION

- The aim of this study is to compare the accuracy of the Improved Random Forest Algorithm with the Naïve Bayes Algorithm in automated stroke anticipating mechanism to determine which algorithm provides better predictive performance.
- The objective is to compare and contrast RF with NB in terms of accuracy for stroke Anticipating Mechanism Using Machine Learning Algorithm.
- The study involves two groups, each with a sample size of 10 patterns, using 'healthcare-dataset-stroke-data.csv' data set for Stoke Anticipating Mechanism with machine learning Prediction settings G-power 90%, CI 95% & α=5%
- Machine learning techniques are used to Stroke Anticipation System analyzing previous Stroke Anticipating Mechanism and other relevant parameters.
- The system makes use of RF and NB which are optimized for the prediction of stroke.The system would incorporate feedback mechanisms to evaluate its predictions and outcomes, allowing for continuous refinement and improvement of the predictive models.
- Implementation of the Advanced Random Forest Algorithm leads to Health policymakers can use the findings to inform decision-making regarding the adoption and implementation of automated stroke anticipating mechanisms in healthcare settings, potentially improving resource allocation and patient care delivery.

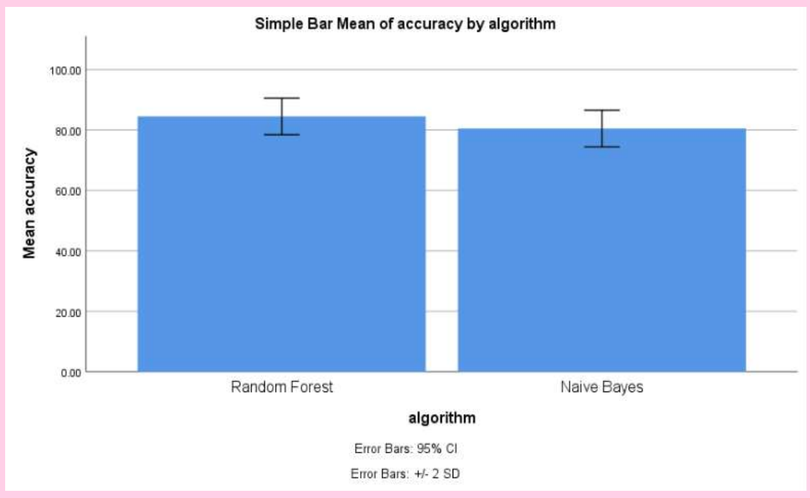
Stroke Anticipating Mechanism

MATERIALS AND METHODS



Stroke Anticipating Mechanism

RESULTS



Comparison of RF algorithm and NB algorithm considering mean accuracy

	Algorithm	N	Mean	Std.Deviation	Std.Error Mean
Accuracy	RF	10	84.5000	2.02765	0.95743
	NB	10	80.5000	2.02785	0.92743

Leven's Test for Equality of Variances				t-test for Equality of Mean			95% Confidence Interval of the Difference	
		F	Sig	Sig (2-tailed)	Mean Difference	Std.Error Difference	Lower	Upper
Accuracy	Equal Variance assumed	0.00	0.035	.001	3.27000	.06587	2.17363	5.36637
	Equal Variance not assumed			.001	3.27000	.06587	2.17329	5.36671

DISCUSSION AND CONCLUSION

- The p-value (significance) is <0.001 obtained from the Independent Samples t-Test using the SPSS statistical tool, which is less than our chosen significance level p=<0.05. In other words, the observations were statistically significant. In this Test we are Taking 10 Samples For Each Group.
- The Random Forest has an 97.00% accuracy when compared to the Naïve Bayes with an accuracy of 84.00%.
- The major drawback is Random Forest algorithms have the potential to overfit the training data, especially with noisy or high-dimensional datasets. Overfitting may result in reduced generalization performance on unseen data and could be a concern when comparing accuracy with Naïve Bayes, which is less prone to overfitting due to its simplicity.
- Additionally, Testing the algorithms in clinical settings and assessing their practical utility for early stroke anticipation and intervention. This could lead to timely interventions, potentially reducing the incidence and severity of strokes.
- In future the drawbacks can be overcome by implementing advanced machine learning algorithms such as Random Forest which give more accuracy within a a short interval of time.
- According to the findings, in terms of accuracy, the Random Forest achieves considerably better than the Naïve Bayes for Stroke Anticipating Mechanism

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