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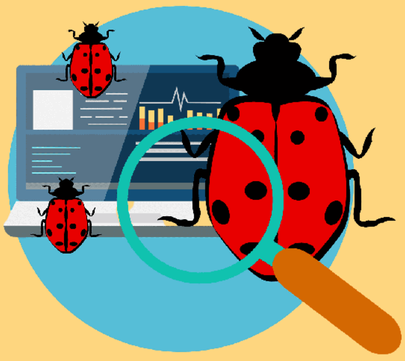
Identification of Software Bugs using SMLT Random Forest Algorithm Model Compared With Logistic Regression , Gaussian NB, K-Nearest Neighbors , Decision Tree

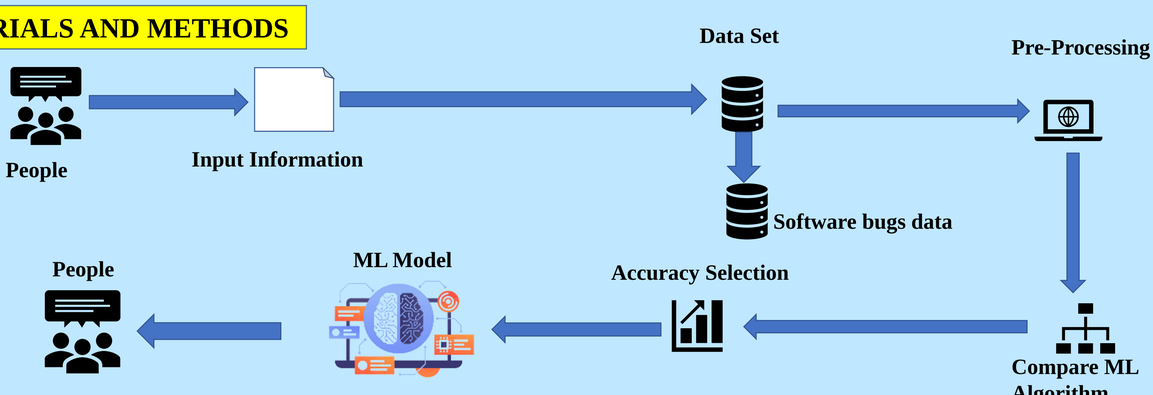
INTRODUCTION

- A software bug is an error, flaw or fault in a computer program or system that causes it to produce an incorrect or unexpected result, or to behave in unintended ways.
- Most bugs arise from mistakes and errors made in either a program's design or its source code, or in components and operating systems used by such programs.
- The analysis of dataset by supervised machine learning technique (SMLT) to capture several information's.
- Investigation of the data validation, data cleaning/preparing and data visualization will be done on the entire given dataset.
- The goal is to develop a machine learning model for Software Bugs Prediction, to potentially replace the updatable supervised machine learning classification models.



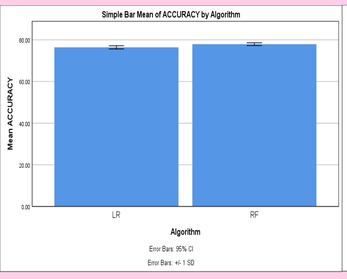
Software Bug Identification

MATERIALS AND METHODS

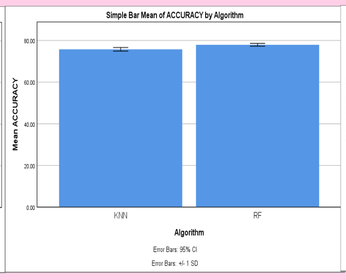


The Procedure of Identifying Software Bug using SMLT Model

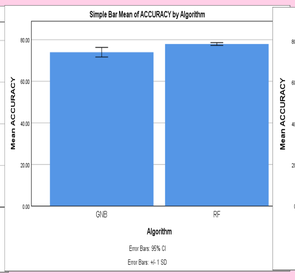
RESULTS



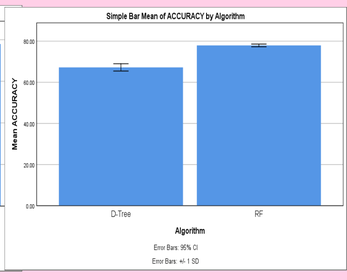
Logistic Regression Vs Random Forest



K-Nearest Neighbors Vs Random Forest



Gaussian NB Vs Random Forest



Decision Tree Vs Random Forest

DISCUSSION AND CONCLUSION

- The best accuracy on public test set is high accuracy score will be found out. This application can help to find the Prediction of Software bugs.
- The Random Forest Algorithm achieved accuracy of 78.9 %,While other algorithms achieved accuracy .

  Logistic regression - 76.54 %
  Gaussian NB - 75.57 %
  K-Nearest neighbors - 75.59 %
  Decision Tree - 67.84 %

- Based on the above results, it can be conclude that using the Random Forest Algorithm for identifying Software bugs leads to higher accuracy.
- The Prediction of errors in software using an artificial intelligence model would be the future scope of this work.

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