An Improved Traffic Crime Predictive System using Multinomial Naïve Bayes Text Classification Algorithm

Volume 182
Number 39

Year of Publication: 2019

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10.5120/ijca2019918483

Abstract

Traffic law enforcement agencies in Nigeria have faced a huge setback as they do not have records of offenders or criminals that have been persecuted in the past. In this paper, a system was developed that can predict the possible class of traffic crime together with the penalty attached to that class of criminal offence that a known traffic criminal offender is most likely to commit next. The likelihood and frequency table will be constructed from a dataset of traffic crime data, the likelihood of a user falling under a particular class of traffic crime will also be established. Also, proposed to be designed and developed is a predictive system that uses object-oriented analysis and design methodology (OOADM), improved naïve bayes text classification algorithm to solve these problems. This will be achieved by implementing the stated model with python model-view-controller (MVC) framework known as Django Framework. This improved system is implemented using a real-time, cloud-hosted NOSQL database called FireBase which guarantees scalability. From the results, it was found out that the speed and predictability of probability of any user falling under a class 1 crime type was 81.42% and 10.39%, 8.19% for class 2 and class 3 respectively.
References


Index Terms

Computer Science Information Systems

Keywords

Predictive system, naïve bayes, classification algorithms, traffic crime, machine learning algorithm, NoSQL, Firebase, scalability.