

ANALYSIS ON SAFETY EVALUATION RAIL TRANSIT STATION Using DECISION TREE TECHNIQUE

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Abstract - Road safety could be an essential side of the structure, nevertheless accidents at national highways still happens. For avoiding these accidents and for up standard strategies we've got to utilize latest technologies, like machine learning (ML). This work presents the results from the examination study on applying massive scale data processing strategies into analysis of traffic accidents on the end roads. The info sets collected from traffic fatal accidents area unit large, difficult, and completely different. Moreover, they'll contain incomplete and inaccurate values that create its exploration and understanding a really demanding task. The target knowledge of this study was collected by the end Road Administration Datasets. the aim is to explore the usability of sturdy clump, association and frequent item sets, and visual image strategies to the road traffic accident analysis. whereas the results show that the chosen data processing strategies area unit ready to turn out express patterns from the info, finding additional fertile data may well be increased with additional elaborate and comprehensive knowledge sets. K-means algorithmic rule takes accidents frequency count as a parameter to cluster the locations. Then we tend to used association rule mining to outline this surface condition. the foundations unconcealed various factors related to road accidents at completely different drunk and drive with varied accident frequencies. The association rules for high-frequency accident location reveal that intersections on highways area unit additional dangerous for each form of fatal accidents.

Key Words: K-means Clustering Algorithm, Decision Tree, Machine Learning, Road Accidents, Fatal rate.

1. INTRODUCTION

In recent times a lot of road accidents are happening, there is an opportunity for digital technologies to grant improved levels of safety, in addition to reducing the risk of possible harm to passengers. There are loads of vehicles driving on the road on a daily basis, and traffic accidents may happen at any time anyplace. Some accident involves fatality, suggests that individuals die therein accident. As soul, we have a tendency to all need to avoid accident and keep safe. To seek out a way to drive safer, data processing technique may well be applied on the traffic accident

dataset to seek out some valuable info, so offer driving suggestion. Data processing uses many alternative techniques and algorithms to find the link in great amount of information. it's thought-about one in every of the foremost vital tools in info technology Association rule mining rule could be a standard methodology to spot the many relations between the info keep in massive information and conjointly plays a really vital role in frequent item set mining. A classical association rule mining methodology is that the Apriori rule whose main task is to seek out frequent item sets, that is that the methodology we have a tendency to use to investigate the road traffic knowledge. The Naive Bayes {mathematician} technique is one in every of the terribly basic probability-based ways for classification that's supported the Bayes hypothesis with the presumption of independence between every try of variables.

1.1 LITERATURE REVIEW

1. **AUTHOR:** Divay Bansal and IekhaBhambhu(2020)

The author proposed execution of apriori algorithm of data mining directed towards tumultuous crimes concerning women. The primary limitations of this algorithm are the efficiency and apriori algorithm may become really slow especially when there are more candidates to analyze.

2. **AUTHOR:** Vikas Pareek and Abdelaziz Araar(2020)

The authors tried for applying association rules mining algorithms for traffic accidents. Association rules are if then statements that facilitate to indicate the chance of relationships between data items within large datasets in numerous forms of databases.

3. **AUTHOR:** S. Krishnaveni and M. Hemalatha(2020)

The authors tried a perspective analysis of traffic accident exploitation processing techniques. A Naive Thomas mathematician classifier is associate rule that uses Bayes theorem to classify objects.

Naive Bayes classifiers assume robust or naive, independence between attributes of data points. These are used wide for machine learning as a result of they are simple to implement.

1.2. SCOPE OF THE PROPOSED WORK

Road accident injury is a major health problem. Quick implementation in low-income countries along with the poor safety quality of road traffic systems and the lack of institutional capacity to manage outcomes contribute to a growing crisis.

More than 1.3 million people die each year on the world's road accidents. Many more suffer permanent disability, and between 20 to 50 million suffer non-fatal injuries. These are mainly in amongst vulnerable road users and involve the most socio-economically active citizens.

1.3. K-means Clustering Algorithm

K-means clustering is a simple in solitary learning algorithm that is used to solve clustering problems. It classifies a given data set into a number of clusters, and it is taken by the letter "k", which is fixed. The clusters are then positioned as points and all examinations or data points are associated with the nearest cluster, calculated, adjusted and then the process starts over using the new adjustments until a desired result is reached.

1.4. Decision Tree

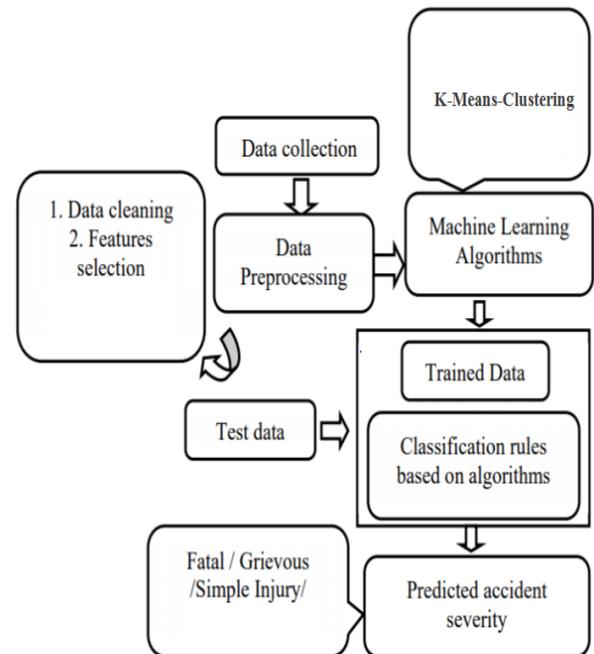
Decision Trees are a type of direct Machine Learning that is you explain what the input is and what the corresponding output is in the training data where the data is endlessly split according to a certain parameter. The tree can be described by two entities, namely decision nodes and leaves.

2. PROPOSED SYSTEM

In our project we show the severity of injury resulting from traffic accidents using k-means clustering algorithm. In our analysis we show why the accident has happened by following three factors: driver's seat belt usage, light condition of the roadway and driver's alcohol usage. It improves the performance of analysis in fatal and non-fatal accidents. Speed also available.

3. IMPLEMENTATION

3.1. System Architecture

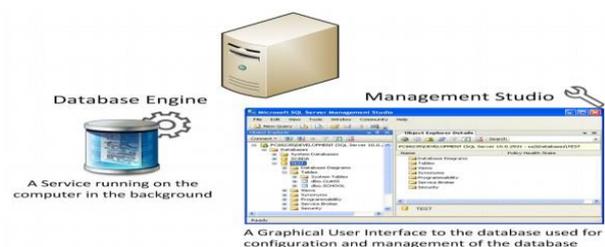


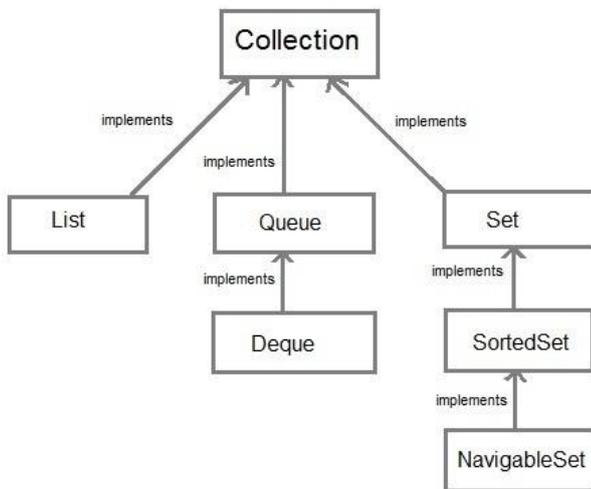
3.2. MySQL

SQL Server Management Studio can also be used to create a new database and we can retrieve or delete or update the databases. It includes query windows which provide a GUI based interface to write and execute the queries.

3.3. Java Collection Framework

Collection framework wasn't a part of original Java unleash. Collections were more to J2SE one. Prior to Java two. Java provided adhoc categories like lexicon, Vector, Stack and Properties to store and manipulate teams of objects. Assortment framework provides several necessary categories and interfaces to gather and organize cluster of alike objects.





4. MODULES DESCRIPTION

4.1. User Interface Module

This module provides user associate degree interface to register or login into the system. Once the user is logged in, he will choose Analysis or route. In every of those modules the user will choose sure attributes and create a prediction or analysis. Once the user has completed the analysis, he can logout.

4.2. Login Module

When the user of the system confronts the login page, he will be required to enter his username and his password to be able to log into the system. If the user needs to be successfully logged in then the username and password given by the user need to be same.

4.3. Registration Module

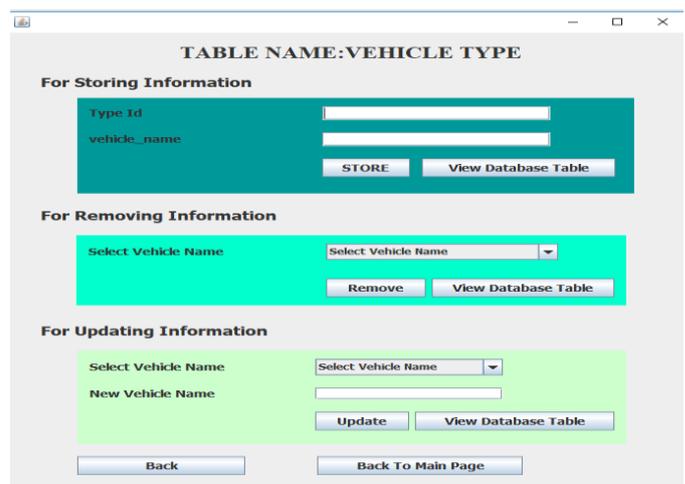
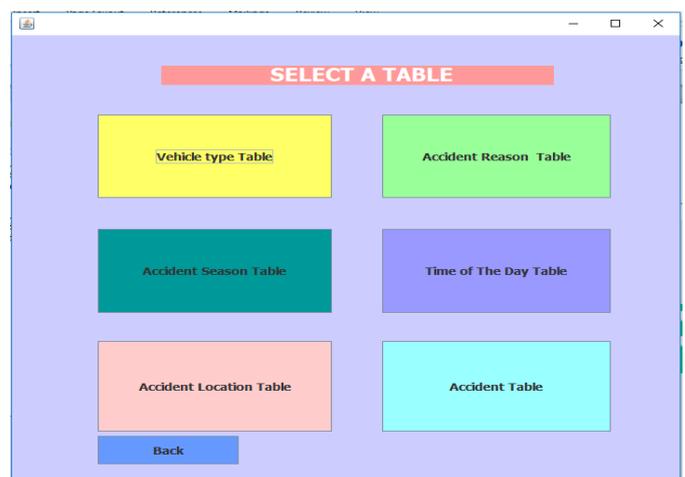
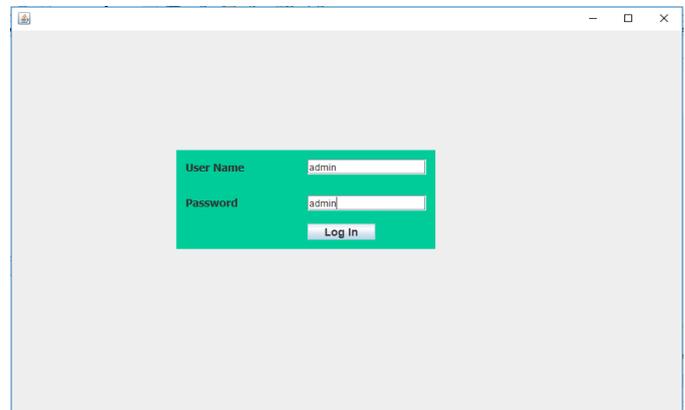
The user of the system is required to provide his/her username, password, Full name, phone number and email address. Once user enters these details, the data will be sent into the database.

4.4. Analysis Module

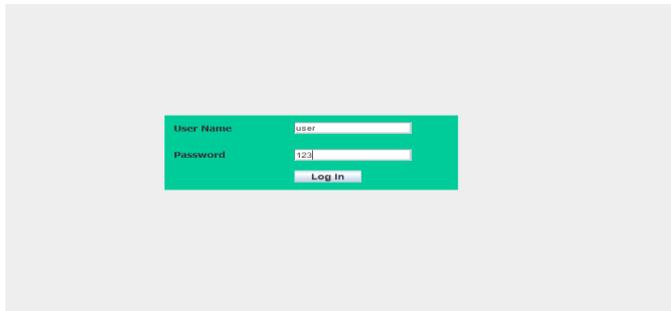
In this module the user specifies a particular attribute based on which an analysis with respect to its effect on accident can be determined. The analysis will be done using the training data set and the attribute specified by the user. The output will in form of a graph.

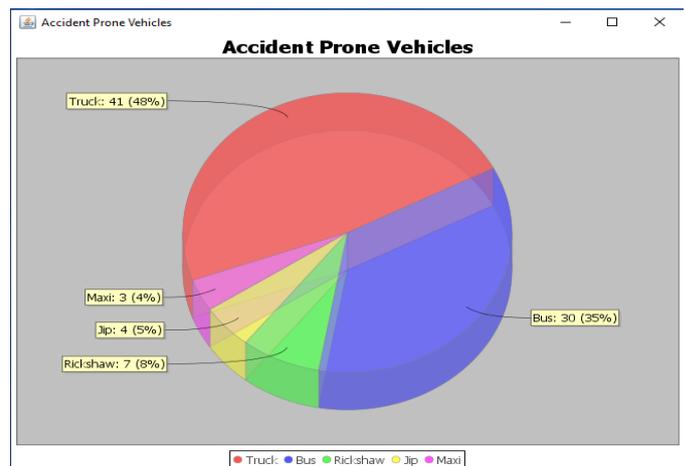
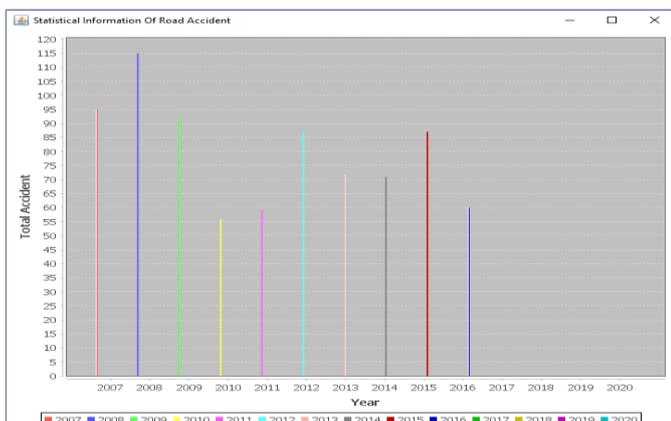
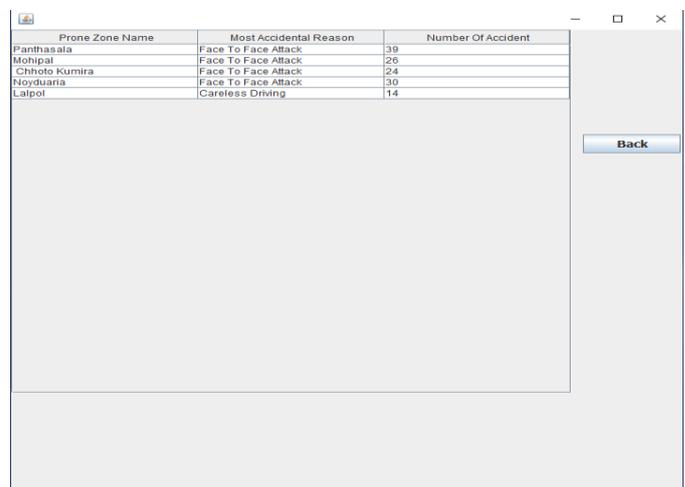
5. RESULTS

1. Results for admin login



2. Results for user login



Prone Zone Name	Most Accidental Reason	Number Of Accident
Panhasata	Face To Face Attack	39
Mohipal	Face To Face Attack	26
Chihoto Kumira	Face To Face Attack	24
Noyduaria	Face To Face Attack	30
Laipol	Careless Driving	14

6. CONCLUSION

As seen in statistics, association rule mining, and grouping, the environmental factors like roadway surface, weather, and light condition do not strongly affect the fatal rate, while the human factors like being drunk or not, over taking the vehicle, have stronger effect on the fatal rate. From the result we could find that some states/regions have higher fatal rate, and no of accidents while some others lower. We may pay more awareness when driving within those risky states/regions. Through the task performed, we noticed that data seems never to be enough to make a strong decision. If more data, like non-fatal accident data, weather data, fare data, and so on are available more test could be performed thus more suggestion could be made from the data.

7. FUTURE ENHANCEMENT

This project can be developed even more by increasing the potency for locating the inclined space by dividing the Google maps into blocks and find the inclined areas of just one block during which user is present.

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