



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
DEHRADUN, UTTRAKHAND, INDIA

Low Level Design

A DATA MINING FRAMEWORK TO ANALYZE ROAD ACCIDENT DATA

BACHELOR OF TECHNOLOGY

CSE (Artificial Intelligence and Machine Learning)

SUBMITTED BY

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INTRODUCTION

1. Scope Of The Document

This document outlines the Low level design of machine learning model that is used to design a data framework to analyze the road accidents in India. This document is a reference design document for developers/implementers so that they can develop systems with minimal effort.

Road accident analysis aims to investigate the main factors that characterize an accident to understand patterns or behaviors and, consequently, to identify the appropriate countermeasures to adopt to avoid the accident.

Researchers have aimed to find out which data mining techniques are most suitable to analyze road accidents, to identify the most significant causes and the most recurrent patterns of road accidents.

2. Intended Audience

- Traffic engineers and government agencies.
- Transportation department to analyze and run instructional recommendation systems.
- Development authorities for constructing effective relevance.
- Firms which deal with accidents and preventions.

3. System Overview

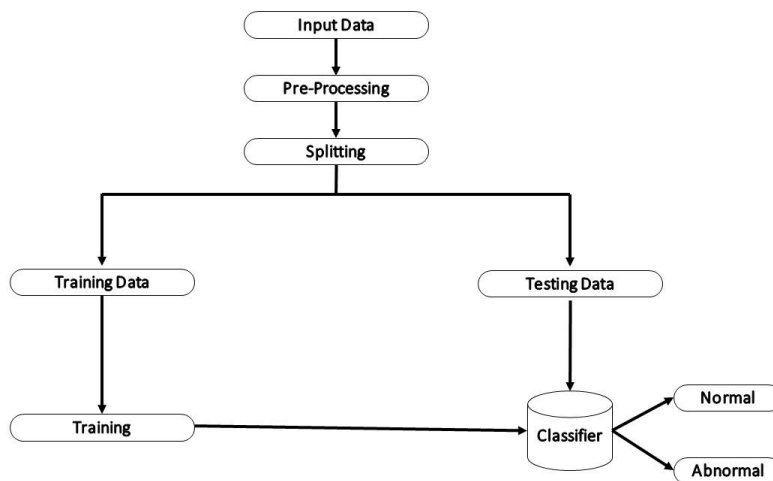


Fig1: System Block Diagram

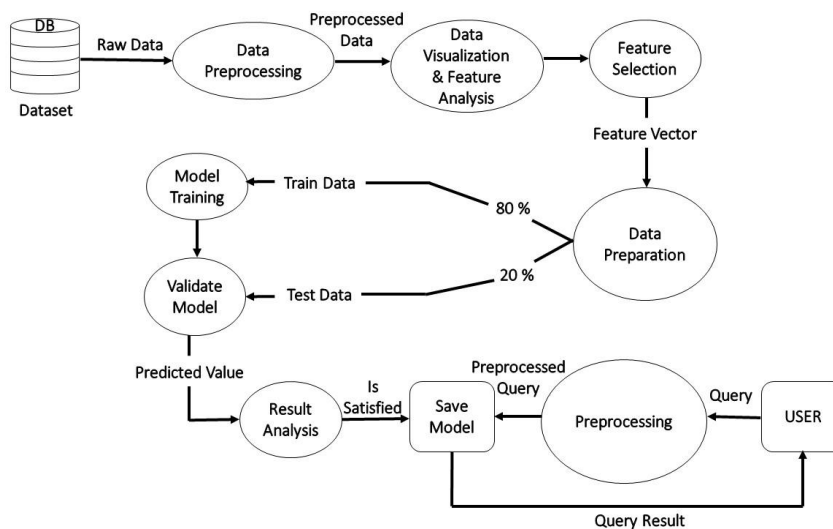


Fig2: Data Flow of System

Low Level System Design

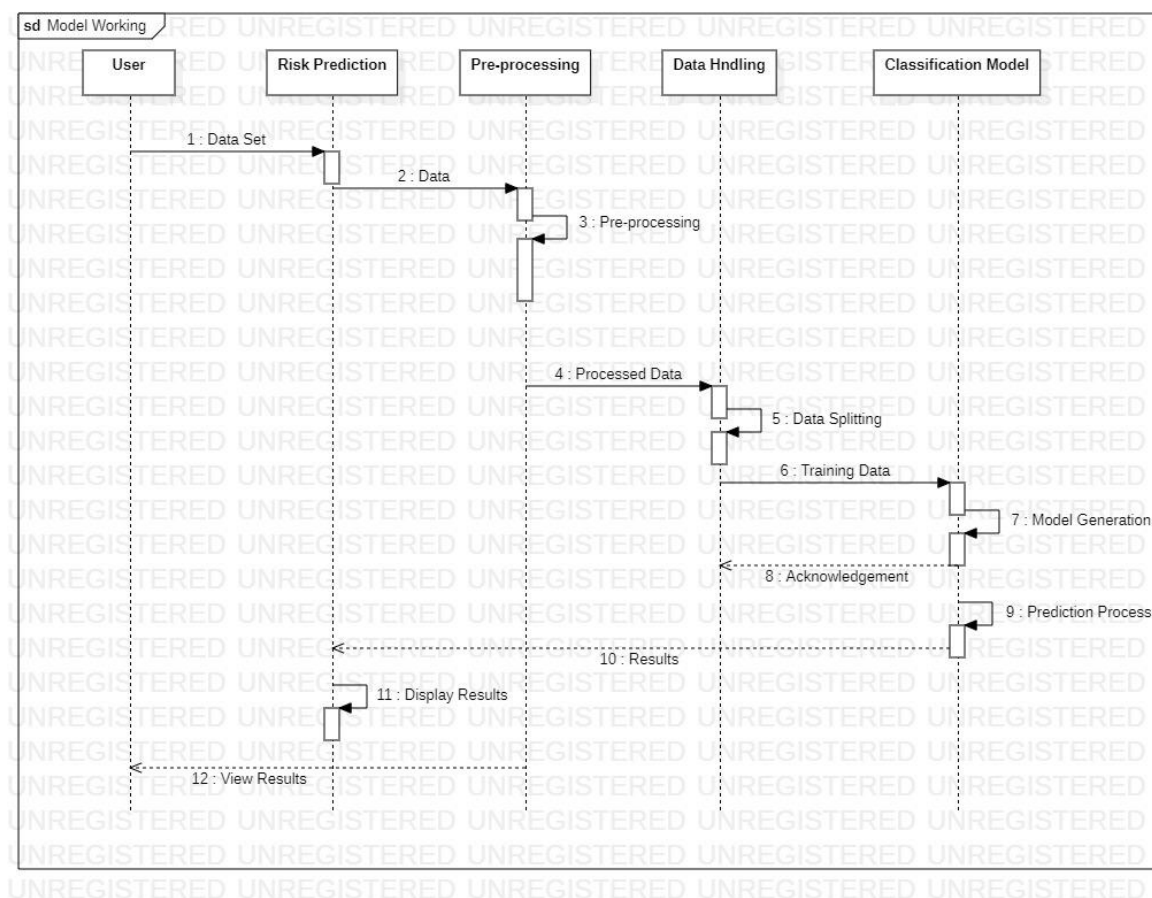


Fig3: Sequence Diagram of System

Details of other frameworks being Used

Session Management:

In this we will use different data mining algorithms to analyze the data. Different algorithms are applied to group the accident locations into clusters and mining techniques are used to characterize the locations. Most state of the traffic management and information systems focus on data analysis. Python, and Jupyter notebooks are mainly used. Since Python has a large number of libraries and packages, it has a very large ecosystem. Python is used both in data scraping and in developing the server. Jupyter notebook is an open-source and web based interactive environment for making notebook documents. The primary Jupyter online application and Jupyter python web server are the substances required for making a notebook.

Unit Testing

We will develop and train the machine learning model from scratch and subsequently a testing framework will also be made for the classification module. We will use many classification datasets to test the model .We will also document the performance and accuracy of our model.

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