PHASE 2: INNOVATION

TOPIC: PUBLIC TRANSPORT EFFIENCY ANALYSIS

INTRODUCTION:

Here, we will introduce innovative techniques and tools to enhance our understanding of the public transport system's efficiency. This phase aims to leverage machine learning algorithms to predict service disruptions and analyze passenger sentiment from feedback, thereby improving the overall quality of service and passenger experience. Below is a detailed description of the algorithms used in this project.

MACHINE LEARNING ALGORITHMS:

ARIMA (AutoRegressive Integrated Moving Average):

ARIMA models are suitable for time series data, making them an excellent choice for predicting service disruptions based on historical service performance data.

Random Forest is an ensemble learning method that can be used for both classification and regression tasks. It works by constructing a multitude of decision trees during training and outputs the class that is the mode of the classes (classification) or mean prediction (regression) of the individual trees.

RECURRENT NEURAL NETWORKS (RNNS):

RNNs are a class of neural networks that are suitable for sequential data. They can capture patterns and dependencies in sequential data, making them useful for time-series data such as predicting service disruptions.

NAIVE BAYES CLASSIFIER:

Naive Bayes is a probabilistic algorithm based on Bayes' theorem, with the assumption of independence between features. It is particularly effective for text classification tasks like sentiment analysis.

SUPPORT VECTOR MACHINES (SVM):

SVMs are supervised learning models with associated learning algorithms that analyze data for classification and regression analysis. They are effective in high-dimensional spaces and are widely used in text classification tasks.

LONG SHORT-TERM MEMORY (LSTM):

LSTMs are a type of recurrent neural network (RNN) known for their ability to capture complex sequential patterns. They can be used when service disruptions have intricate dependencies on various factors.

CONCLUSION:

By incorporating machine learning and sentiment analysis, this section aims to enhance the decision-making process for public transport authorities, leading to more efficient operations and improved passenger experiences.

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