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Sentiment Analysis and Market Trend Prediction

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ABSTRACT : Big data is defined as data on a petabyte size the total amount of data (for example, music, picture, and many other types of files). The unstructured nature of the data makes it difficult to assess the information extracted from it. Data has grown dramatically as a result of cloud computing and social networking. It is therefore difficult to assess, analyze, and store. Conventional methods do not perform well when processing large amounts of data. Traditional strategies include using relational databases and conducting surveys. Big data platforms are essential for increasing the analysis phase's accuracy. Big data analytics has two primary applications. They undoubtedly include accurate prediction in addition to the processing of large amounts of data. Big data technology is often used in the travel and tourism sector. Tourism business will certainly collect the information obtained by sharing the images and videos in the social media sites like Flickr and Panoramio (which is now discontinued) and finally conclude about highly rated travel destinations and the actions that should be taken to strengthen local economies and enhance visitor security. A considerable number of jobs and opportunities for global wealth creation are being created by this industry, which is currently expanding. According to the World Tourism Organization, there will be 1 new employment for every 11 tourism-related vocations in a few years. As a result, tourism has a big impact on the expansion of the global economy. Every day, social media platforms produce massive amounts of data, which presents a lot of options for better educating decision-makers.

KEYWORDS: Critical Implementation Problems, Datasets, Computational Complexity Optimization, Detection Accuracy Improvement, Data Augmentation.

I. INTRODUCTION

Big data keeps growing exponentially since it is dynamic by nature. Three important v's—velocity, variety, and volume—define big data. The rate of change, often known as velocity, describes how quickly the data is changing. Text files, audio files, video files, images, and other types of data are all available. Data diversification through variety. We must therefore learn how to analyze such mixed data. The amount of data is identified by volume alone and is given in petabytes. The big data platform will help users make informed decisions from a variety of facts. Big data not only just allows us to store and process data, it also helps in extracting information that may be used for solving a particular purpose. For instance, a large organization (let's assume an MNC) sales of various commodities are sizable, so they are processed as large, and the useful information is the sales data of the previous year and the current year, which helps to understand the demand and supply of the commodity and helps to understand the market structure and predict the market equilibrium. As a result, processing such data on a single processor takes a long time. As a result, we want a parallel processing architecture where a large work is split up among numerous processors to help shorten the processing time. Using a big data platform, we organize the data volume in order to uncover some interesting trends and facts. Big data simply refers to large, more detailed data sets, especially those which are obtained from recent data resources. However, these data sets are too big in size to be processed by conventional data processing techniques which includes surveying for collecting the data and using relational databases for storing the data. So, these enormous amounts of data might be commercialized to solve previously unsolved business issues. Some of its characteristics include velocity, volume, variety, veracity, and value. Finding patterns, trends in data variety, and correlations and regression coefficients in enormous amounts of raw data in order to drive data- assisted decision-making is known as big data analytics. With the use of modern tools, these approaches apply well-known to statistical analysis.

II. LITERATURE REVIEW

Additionally, the quantity and accessibility of data have significantly increased in recent years. This reality is mostly caused by the proliferation of several sources (computers, mobile devices, sensors, and social networks) that consistently supply organized, semi-structured, or unstructured data. The sheer volume and complexity of today's data restrict the usefulness and scalability of database management systems and data warehouses, which are no longer the only technologies utilized to store and analyze information. One of the most recent issues is Big Data, which brings with it new demands for data processing, storage, and visualisation. Nevertheless,

properly analysing big data may have significant benefits since it enables the identification of patterns and connections in datasets[1]. Data must be well-preserved to permit reuse. The need to repeat trials might have financial consequences in some situations. Data loss might also mean a chance that will never be recovered in some situations. Funders now perceive data, correctly, as an asset that they are evaluating[2]. For service providers, especially those that currently offer infrastructure service offerings, big data certainly presents a significant opportunity. The fact that new technologies and talents are needed to go into this arena also raises difficulties. However, EMC can assist in this transformation with its products, which are especially made for Big Data use cases, and with its solutions, which expressly cater to the requirements of service providers [3]. The creation of five fuzzy multi attribute decision-making techniques is presented. These approaches are based on the weighted-sum model, the weighted-product model, and the topsis technique, all of which are variations of the analytic hierarchy process (original and ideal mode). Also, two evaluation criteria are looked at in relation to these

methodologies. However, some of the strategies appear to be more accurate than the others, according to computational findings on test issues. The suggested methodology for evaluation may be utilized to assess more fuzzy multi attribute decision-making techniques with ease.

III. PROBLEM STATEMENT & OBJECTIVE

Daily headlines about the stock market Every time it reaches a new high or low, you hear about it. The speed of investment and business prospects in the stock market may quicken once a trustworthy algorithm for predicting a stock's short-term price is created.

Artificial Neural Networks and Convolution Neural Networks, two earlier stock prediction methods, had an average error loss of 20%. The prospect of creating a model that can forecast stock prices with less inaccuracy is examined in this article. If the answer is positive, we will additionally evaluate the model's efficacy and dependability.

S.No	Paper title	Author's Name	Year	Approach used	Finding	S/w and H/w Required
1	The importance of 'big data': A definition	M. A. Beyer and D. Laney	2012	BIG DATA TECHNOLOGY	Improved operation, better customer service and processing solution to new and existing data for business benefits.	-
2	Big data: How do your data grow?	C. Lynch	2013	DATA SCIENCE	Exponential growth of data and difficulty in processing such data.	-
3	Big data-as-a-service: A market and technology perspective	EMC Solution Group	2012	CLOUD AND ANALYTICS PROGRAMMING ENVIRONMENT	How efficiently the data analytics can be given as a service to store and process data. Way of developing optimized algorithms for processing large datasets.	-

4	Development and evaluation of five fuzzy multi attribute decision-making methods	Evangelos Triantaphyllou	1996	R-SOFTWARE	Computational results on test problems and developing decision making from imprecise data.	-
5	Stock market prediction : A big data approach	Attigeri, G. V., MM, M. P., Pai, R. M., & Nayak	2015	BIG DATA TECHNOLOGY	A model that can be used to make future predictions on the stock market and stock performance.	-

Context level decomposition for the software : This is a context level diagram or level 0 decomposition for the software and contains a single process as a name of the software and lists all the external users of the software.A more detailed description of the high level requirements are explained in the level 1 decomposition of DFD in which each high level functionality is decomposed into several simpler processes which can be executed using a simple set of algorithms and proper set of data structuring.

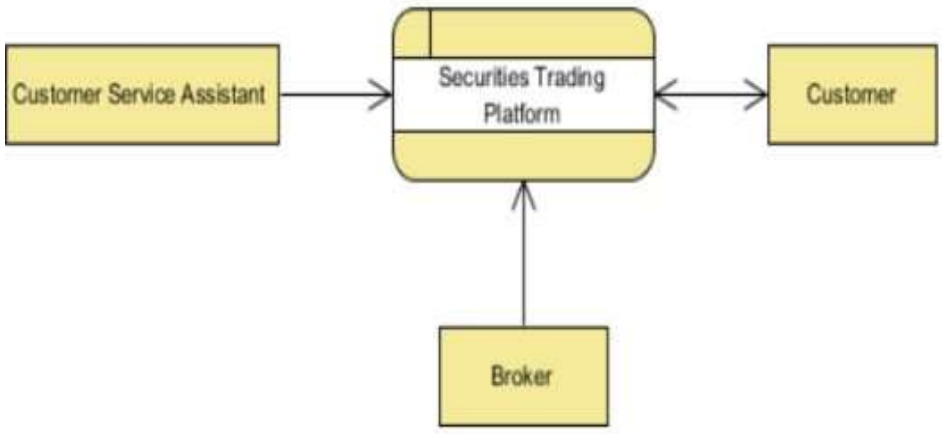

Fig. 1. Context level decomposition for the software.

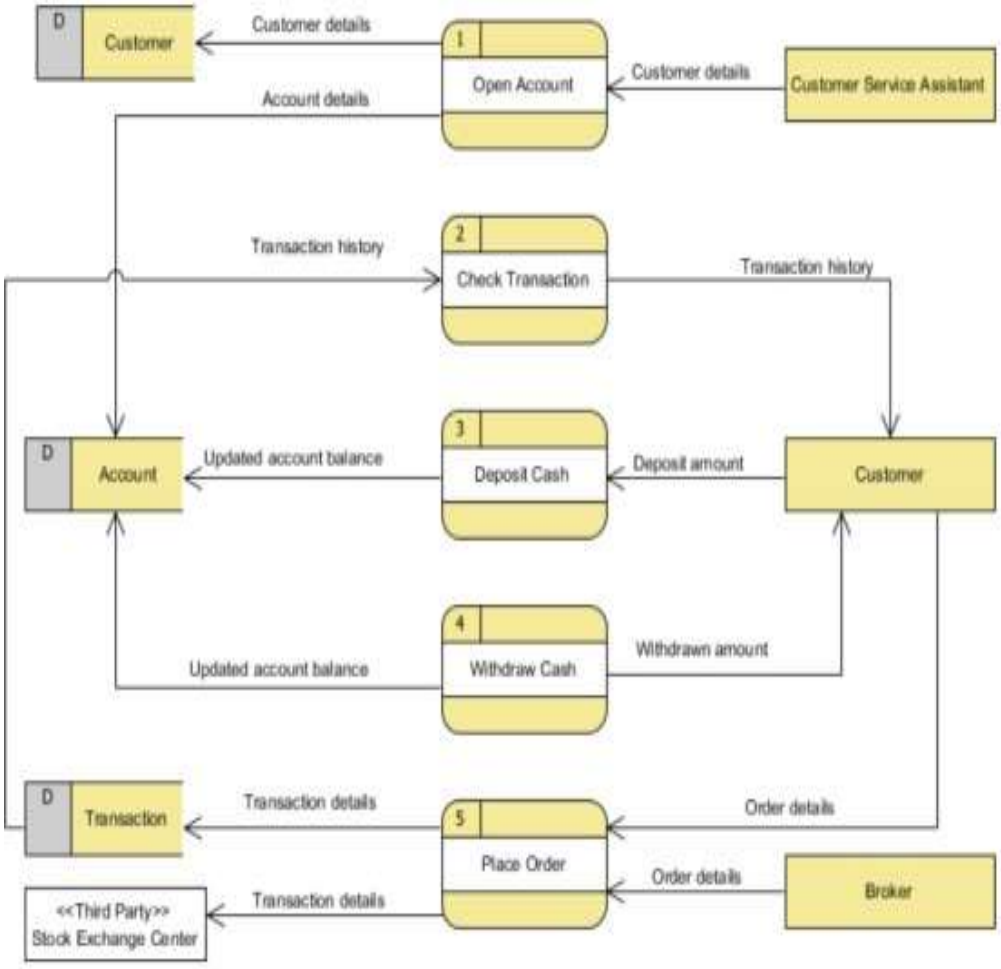

Fig. 2. Level 1 decomposition for the software.

IV. CONCLUSION AND FUTURE SCOPE

In this paper we introduced the importance of big data and came up with various use cases and a signal to introduce the blockchain concept in big data analytics for safe data sharing.

The analytics concluded by showcasing the following results: -

- Coefficients Regression Model
- Predictions from the test data
- Evaluation Metrics: R- squared value and MAE

Big data analytics are effectively applied in this study's stock market analysis and forecasting. We want to automate the analyses to advance the research utilizing the scheduling tool, then get recurring trading advice for US equities.

V. FUTURE SCOPE

- Different algorithms can be analyzed and can be modified and optimized in order to get accurate analysis of large data.
- As data continues to grow and expand, cloud space providers like Microsoft Azure Google Cloud, AWS and are going to rule in storing big data.
- Looking at stats it can be determined that organizations are adopting this new technology and in the future, Big Data is going to be one of the best technologies.

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