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# **A Review on Various Data Prediction Technologies**

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Abstract. By analyzing patterns in large amounts of data, forensic analysts can identify trends and behaviors in an industry. These forecasts providing valuable insights leading to better informed business and investment decisions. What forecast data processing? Predictive data processing is the processing of data used to predict or predict trends using business intelligence or other data. This type of data processing can help business leaders make better decisions and add value to the analysis team's efforts. Big Data is a group of technologies. This is a huge set of data that will continue to grow. Predictive analysis is the process by which source data is first processed into structured data. Patterns are then identified to predict future events. A clear example of how any one of the college entrance exams can predict the college grade point average (GPA). Predictive analysis of historical data to predict the use of future events. In general, historical data are used to create mathematical models that capture important trends. That predictive model is what happens next in the current data Used to predict or suggest actions to be taken for optimal outcomes. Forecast is a automated forecasting technique that allows the continuous adjustment of forecasts to detect new opportunities and risks in advance and grow profitably. The definition of a prophecy is a prophecy or a prophecy. An example of a prediction is that a mentally ill couple will be told that the baby will be born soon before they know the woman is pregnant. Report on what will happen in the future. A technique is performed on a database to predict the value of the response variable based on the prediction variable or to study the relationship between response variable and predictive variables. Forecast: We may think that prediction is like something that can happen in the future. As with forecasting, we detect or predict missing or unavailable data for new observations based on previous data we have and future assumptions. For example, if the temperature measurement on a machine is related to the running time at high power, then those two combined measurements may put the engine at risk of malfunction. Predict future status using sensor values.

Key words: Data Prediction, Predictive techniques, Bankruptcy prediction, Rul prediction,

#### 1. Introduction

Predictive analysis to predict the value of the response variable based on the prediction variable or to study the relationship between response variable and predictive variables. Intelligence (AI), Data Mining, Machine Learning, Modeling and Statistics It uses a series of techniques to make these decisions including. Combined with statistical modeling, data processing techniques and machine learning. It is a statistical technique commonly used Predict the future behavior of companies. Predictive modeling solutions are historical and current data that works by analyzing and developing a model that can help predict future outcomes Is a form of mining technology. Regression analysis is a form of prediction modeling technique that explores the relationship between a function (target) and an independent variable. This Technique for predicting and determining the causal relationship between time series modeling and variables Used. Model used to predict values for different or new data will develop predictive models use known results. From the set of input variables Target variable based on estimated importance Modeling results in predictions that represent probability. Prognostic analysis models can identify correlations between sensor measurements. For example, if the temperature measurement of an engine is related to the running time at high power, then those two combined measurements may increase the risk of engine failure. Predict future status using sensor values. Predictive analysis is a branch of advanced analysis. Bankruptcy forecasting is the art of forecasting various actions of bankruptcy and financial crisis of public institutions. This is a broad area of financial and accounting research. The importance of this area is due to the fact that it is appropriate for lenders and investors to evaluate the likelihood of a company going bankrupt. Bankruptcy forecasting is the problem in diagnosing the financial crisis of a business, which can eventually lead to bankruptcy. Tail forecasting has been studied at least since the 1930s. Early models of bankruptcy forecasting used statistical models that did not change financial rates.

## 2. Data Prediction

User-based collective filtering predicts missing data, while identical user Estimates and item-based collaborations predict the filtering of missing data using identical product ratings. Even if users have their own rating style, if an item is the most popular item and gets the highest average rating from other users, the chances of delivering this item to an active user are high. Therefore, the prediction that valuable data may be ignored can only be used to calculate missing data using user-based approaches or item-based approaches. Data forecasting for Wireless Sensor Networks (WSNs) has been proposed, and within certain precision limits, Extends system life by enabling synchronization to determine sample data with minimal communication from source nodes. Numerous theoretical studies have clearly demonstrated the enormous potential of this approach, which suppresses most data statements in the sources. Numerous theoretical studies have clearly demonstrated the enormous potential of this approach, which suppresses most data statements in the sources. However, the techniques used are relatively complex, and their capabilities are often limited to WSN devices. The basis for using data forecasting is the communication that is significantly reduced for each source sample pool by avoiding transmission. Only when changes in the sample data occur by interacting with the sample to estimate the perceived values can the model with the sink accurately describe them. These databases contain actual stored data, subject to losses or hardware failures on the wireless channel of some nodes. This is different from online application data rating; each node will have accurate recording perceived values. because they are designed at the tip. Therefore, before performing our evaluation, we will reconfigure the correct data series for each node, remove duplicates, and pause for missing values. Similar estimates are found in the literature. In order to assess the impact of the Data Projection Full WSN network stack, we are shifting our focus from the Apps layer to the entire system. As mentioned earlier, occasional traffic with good results, very low results and all data sets achieved by all the data prediction techniques studied. Therefore, we focus here on the evaluation of two applications and data sets representing two peaks, TUNNEL and indoor temperature. Traffic was affected by the DPP. At TUNNEL, sample updates are concentrated at the ends near the subway entrance, and updates are distributed evenly at all ends. Several models have been proposed for data computing in the WSN. Automation lag (AR) model, Utilizes the embedded linear regression function to immerse you in calculating future sensor measurements. By continuously collecting local measurements, the sensor node can calculate the linear coefficients of regression based on past true values. These coefficients are given to submerge the time series to create the forecast. In the context of the AR model, the paper proposed a common framework called PAQ to answer questions in the sink based on the simple AR model. R. The proposed selection algorithm for the adaptation model allows the sensor nodes to be selected individually from a set of best-performing candidate models based on statistical property. The Rana-based adaptation system uses simple linear time series models that have a time-varying function called the trend component, And event variation from time-dynamic function to fixed auto-regression components.

### 3. Predictive Techniques

The primary goal of a modeling system is to determine the compressive strength of concrete when events occur. Must accurately reflect the character. In cases like this, most modeling Techniques Analysis uses mathematics in the form of linear or linear functions. Use test data to obtain samples. The strength of concrete depends only on the ratio of water and cement several studies show that is determined. But test equations are given by other factors the standards for estimating current codes and Compressive strength is additional cement based on concrete tests without materials. In the case of concrete, this is the validity of the relationship with the additional cementation materials and, therefore, the concrete. To improve the mix it is essential to understand the relationship between concrete mix and strength. This study is different because of the concrete Accurate assessment of strength is an important issue in concrete construction. The firmness of the elderly Developed innovative sophisticated techniques to accurately predict compressive strength. Similar works are predicted using the traditional linear regression (LR) technique synthetic neural networks (ANNs) in the literature and its variants and compressive strength in HPC. No one uses support vector machines (SVMs) or other forecasting techniques such as meat grades such as the Multiple Hobby Tree (MART) and Baking Hobby Trees (BRT). Therefore, this study fills this gap. This sheet is organized as follows. Review the relevant literature in the "Related Works" section. Section "Methods and Experiment Methods", a using predictive techniques the case describes the results of the study and a brief overview of the set of experimental data Provides inquiry. The "Results and Discussions" The section discusses the reports and forecast results for the five models, and the "Results" section review Ends. With summaries and suggestions. In general, previous studies are minor, changes and some traditional Have used ANN techniques such as regression techniques. Reliable for this purpose, Compatible and practical models. More is needed to predict HPC compressive strength. The models not only meet the modeling requirements, they are strong enough and easy to model should be. The purpose of this study is to primarily determine the compressive strength of HPC, utilizing existing data processing forecasting techniques to improve component performance modeling and strength forecasting performance. The following section describes in detail what is proposed.

#### 4. Bankruptcy Prediction

Bankruptcy forecasting is central to business analysis due to the importance of accurate and timely strategic business decisions. The accuracy of the forecast model is the most important criterion. However, the understanding of the model and the transport capacity are important. For shareholders, lenders, policymakers and business managers accurate forecasting of bankruptcy is an important issue. This in the financial and other fields here are several researches used in the field. and traffic. NNs critically can provide precision and transparency and transparency. About bankruptcy forecast based on data processing methods reviewing previous research, the article is organized as follows. Describes data processing methods. Discusses collected data and data analysis and forecasting modeling methods and provides our results from a variety of data processing techniques. Altman was the first researcher to predict corporate bankruptcy. Altman Classical Used the technique of multivariate discrimination analysis, which is the application of taxonomy is basically fast process, both classes have equivalent coverage measurements, which are normal Assumes that it has distributions. Aldman used the following financial

ratios as inputs: working capital / total assets; Retention of income / total assets; Income / total assets (ROA) before interest and taxes; Market capitalization / total debt; And sales / total assets. Both the MDA model and the logistic regression model in many academic studies are in practice widely used. These are the standard criteria for a credit default forecast problem. Meanwhile, artificial neurology for bankruptcy prediction Research into the use of the network began in the 1990s and is still active. Sample The data showed that 100 U.S. companies were bankrupt. The same company has created many Achievements in different years. We got about 400 bankrupt company names using google.com and then using the CompUSA database we found the ticker name of each company. And the consequences of the economic crisis wanting to analyze, we obtained the data of the bankrupt companies separately. Company once the ticker code list is available, these companies report the financial ratios received from the database Calculate. Which we can use to assess that financial data and the bankruptcy of the company Factors. Factors we collect include total assets, book value of a share, inventory, liabilities, receipts, Price of goods sold, total dividend, pre-tax income, Gross profit (loss), net income (loss), after depreciation Includes operating income and gross income. , Sales, stock dividends and wholesale market Respect. In comparison, approximately the same fund for the same number of companies that failed in the same period We collected rates, we first found out whether the SEC was filling the company using LexisNexis. Database, i.e. companies is still active. 100 companies from this research and results we companies. The reason, of bankrupt and non-bankrupt companies the samples were the same number.

#### 5. Rul Prediction

The total number of publications 572, while the number of publications in the last five years is 854, up from 15 More than the total number of years. Fantastic review of some of these publications There are articles. For example, focuses on predictions of rotating machines and strength and Provides a brief overview of RUL forecasting approaches for vulnerabilities and the RUL forecast Discusses the classification of approaches and their benefits Disadvantages from the perspective of industrial applications, which are the forecast and health management (PHM) system Provided a review of the design and provided training on how to compare RUL forecasting approaches with their pros and cons. C And others. Statistical data focused primarily on RUL forecasting approaches and detailed descriptions of their basic principles and mechanisms. Provided overview. The above documents are interesting reviews related to machine forecasting have provided. However, they have the limitations; Most of them were published five years ago. It is possible to observe that many articles have been published in the last five years. Therefore, requires a new study covering the developments in this field in recent years. Although the note has been published in recent years, Ref. Statistical Data Motivation Approaches and Ref. Focuses only on linear and transient issues. These documents review the last technical process of machine prediction, namely RUL computation and The other three processes, namely data acquisition, the HI system and, however, the HS type are generally ignored by existing reviews. In conclusion, a comprehensive project review of the machine forecast for its improvements over the years, including the latest systematic, is not included. This paper fills in these gaps and is the four technologies of machine predictions that provides a systematic overview of processes compared to existing research articles.

#### 6. Conclusion

The database we use contains light measurements that report every 30 seconds from each node for 47 days. 5,414,400 measurements - the largest of the databases we consider here. To provide an intuition of the data, The line at the top of 6b is the source sensor at one end near the entrance to the tunnel, We consulted in designing the control mechanism of the lighting engineers to establish the lighting conditions that establish the correct value and time tolerance Considering the intrinsic error of the light, the sensors state, "V<sup>1</sup>/4; 5; 25P, i.e., the values generated by the model may vary from the original sensor reading of the data sets described in the literature, for example, with unexpected errors. Another problem that glass glass ash is not mentioned is that super plasticizers are manufactured by different manufacturers and contain different chemical compounds. The compressive strength of concrete is determined not only by the ratio of water to the concrete, but also by other materials, concrete has five components besides cement and water. Many materials, in addition to the elegance of concrete structures, complicate the calculation of compressive strength and use these complex inputs when modeling the compressive strength of HPC proposed by the following forecasting techniques. If incorrect classification costs are introduced, the resulting wood samples receive a uniform distribution of precise ratios. With higher cost factors, final trees can achieve the highest type I accuracy In general, forecasting approaches can be classified as model-based approaches, data-based approaches, and hybrid approaches. Understanding the formal physics and basic structural decay models of failure, Luo et al developed a modelbased prediction technique that relied on an accurate simulation model for computer malfunction prediction and used this technique in vehicle suspension systems. Provided a breakdown modeling framework for RUL projections of rolling element bearings under time-changing operating conditions or in the absence of previous deformation information.

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