# WEATHER PREDICTION USING K- MEANS CLUSTERING AND NAIVE BAYES ALGORITHMS

[1]JAYASRI. R, [2] Dr. R. VIDYA
[1]Research Scholar, [2]Assistant Professor
[1]PG and Research Department of Computer Science,
[1]St. Joseph's College of Arts and Science, Cuddalore, India

**ABSTRACT:**

Weather Prediction is for the most part worried about the forecast of climate condition in the given future time. Weather prediction give basic data about future climate. Predicting the weather is fundamental to help planning generally advantageous and the most exceedingly terrible atmosphere. We should be on caution to the unfriendly climate conditions by adjusting a few safeguards and utilizing expectation instruments for early cautioning of dangerous weather wonders. Many weather predictions like rainfall prediction, thunderstorm prediction, predicting cloud conditions are major challenges for atmospheric research. In Here K-Means Clustering and Naive Bayes Algorithms is used to identify the variation in the weather condition in terms of Temperature, Humidity, Wind Speed, Pressure and Weather.

**Keywords:** Data Mining, Weather Prediction, K-Means Clustering and Hierarchical Clustering

## I. INTRODUCTION:

Data mining is the way toward dealing with extensive informational collections to distinguish designs and build up connections to take care of issues through information examination. Data mining tools enable ventures to foresee future patterns. The foundation of Indian economy is Agriculture. Now a day's weather or precipitation is the invigorating issues far and wide. Rainfall prediction is nothing but weather forecasting [7]. Prediction of weather condition is essential for various applications like Agricultural, Industry, Air Traffic, Marine, Forestry, Army and Navy etc.

Weather predictions are significant for arranging our everyday exercises. Farmers need data to enable them to anticipate the planting and gathering of their yields. weather forecasting encourages us to settle on increasingly educated every day choices, and may even help keep us out of danger.

There are several reasons why weather forecasts are important. The following is a list of various reasons why weather forecasts are important:

- Enables organizations and individuals to get ready for power generation and how much capacity to utilize.
- Enables individuals to plan in the event that they have to take additional rigging to get ready for the climate.
- Enables organizations to get ready for transportation risks that can result from the climate.

- Enables Farmers and nursery workers to get ready for harvest water system and insurance.

## II. REVIEW OF LITERATURE

[1] Prashant Biradar, Sarfraz Ansari-2017 - In this paper they presented the weather prediction system using k-medoids and Naive Bayes Algorithms with the parameters of temperature, wind, humidity. A comparison is made in this paper, which shows that decision trees and k-medoid clustering are best suited data mining technique for this application.

[2] Aishwarya Dhore, Anagha Byakude-2017- In this paper they presented the framework shows a first look on an undertaking to manufacture a numerical climate expectation model in nearby climate. Such models are normally perplexing and will take critical time and assets to achieve. Gather and have every single required datum and manufacture an authentic dataset of climate, precipitation and all conceivable related characteristics. It acknowledges every single complex parameter as info and creates the insightful examples while preparing and it utilizes similar examples to produce the conjectures.

[3] Rohit Kumar Yadav, Ravi Khatri- 2016- In this paper they presented the forecast and for extraction of the climate condition perceptions the K-Means Clustering is utilized. For foreseeing the new or up and coming conditions the framework need to acknowledge the present situations of climate conditions which is implemented on JAVA and also compared with the Traditional ID3 Algorithm under the basis of Accuracy, Error Rate, Time and Space Complexity.

[4] Fahad Sheikh, S. Karthick-2016- In this paper they presented the examination makes a notice of different methods and calculations that are probably going to be picked for climate expectation and features the execution investigation of these calculations. Different other troupe systems are likewise talked about that are utilized to help the execution of the application. They make Comparative study between C4.5, Decision Tree, Naïve Byes algorithms.

[5] P.Kalaiyarasi, Mrs.A.Kalaiselvi-2018- In this paper they presented to anticipate the weather utilizing different information mining procedures. For example, classification, clustering, decision tree and furthermore neural systems. weather related data is likewise called the meteorological information. In this paper the most ordinarily utilized climate parameters are precipitation, wind speed, temperature and cold. compare and analyses various data mining techniques used in whether forecasting on the basis of various parameters.

[6] T V Rajini kanth , N.Rajasekhar-2014- In this paper they presented the prediction of weather using applied K-means cluster algorithm for grouping similar data sets together and also applied J48 classification technique along with linear regression analysis. linear regression line equation that are found in an effectively manner.

[7] Ms.P.Shivaranjani, Dr.K.Karthikeyan – 2016- In this paper provides a survey of different data mining techniques being used in weather prediction or forecasting which helps the farmer for yield worthy productive and nourish the soil fertility such as artificial feed-forward neural

networks (ANNs), fuzzy inference system, decision tree method, time series analysis, learning vector Quantization (LVQ) and biclustering technique.

[8] R. Samya, R. Rathipriya-2016- In this paper is to survey the various forecast techniques for cloudburst using Data Mining and Artificial Neural Network (ANN), in the literature. The most commonly used parameters for analyzing the cloudburst forecast: temperature, rainfall, evaporation and windspeed. From the study, it came to know that forecasting using big data analytics is the best solution to get accurate cloudburst prediction.

[9] Siddharth S. Bhatkande, Roopa G. Hubballi- 2016- This paper develop a model using decision tree to predict weather phenomena like full cold, full hot and snow fall which can be a lifesaving information. Weather phenomena have many parameters like maximum temperature, minimum temperature, humidity and wind speed that are impossible to enumerate and measure. On available datasets we apply the Decision Tree Algorithm for deleting the inappropriate data. Generally maximum temperature and minimum temperature are mainly responsible for the weather prediction. On the percentage of these parameters we predict there is a full cold or full hot or snow fall.

[10] P. Kalaiselvi, D. Geetha-2016- This dissertation uses the Data Mining techniques for weather predictions and studies the benefit of using it. Decision tree J48, EM (Expectation Maximization) and k-means clustering algorithm has been used in this research work to identify the variation in the weather conditions in terms of Temperature, Sunny, Rainfall, Overcast and Wind Fall. K-means algorithm produced a result 89.23%, EM produced 88.60% and DT produced 86.32% result on proposed system.

## EXISTING SYSTEM

The Existing system concentrated on utilization of Data mining in weather prediction. weather forecasting has been a standout amongst the most basic issues the world over in light of the fact that it comprises of multidimensional and nonlinear information. As of late, atmosphere changes causes much inconvenience in precipitation gauging.

## III PROPOSED METHODOLOGY

### K-Means Clustering:

k-means is one of the most straightforward unsupervised learning calculations that take care of the notable bunching issue. The methodology pursues a basic and simple approach to group a given informational collection through a specific number of bunches (expect k bunches) fixed apriori. The primary thought is to characterize k focuses, one for each bunch. These focuses ought to be put in a cleverness route in light of various area causes distinctive outcome. In this way, the better decision is to put them however much as could be expected far from one another. The subsequent stage is to take each guide having a place toward a given informational collection and partner it to the closest focus.

At the point when no point is pending, the initial step is finished and an early gathering age is finished. Now we have to re-ascertain k new centroids as barycenter of the bunches coming about because of the past advance. After we have these k new centroids, another coupling must be done between similar informational collection focuses and the closest new focus. A circle has been produced. Because of this circle we may see that the k focuses change their area well ordered until no more changes are done or at the end of the day focuses don't move any more.

**Naive Bayes:**

Innocent Bayes classifiers are a gathering of order calculations dependent on Bayes Theorem. It's anything but a solitary calculation however a group of calculations where every one of them share a typical standard, for example each pair of highlights being arranged is autonomous of one another. It's anything but a solitary calculation for preparing such classifiers, yet a group of calculations dependent on a typical standard: all naive Bayes classifiers expect that the estimation of a specific element is free of the estimation of some other component, given the class variable.

## IV. RESULT & CONCLUSION:

For the current application of data mining in weather prediction domain, the analysis of K- Means Clustering and Naive Bayes Classification algorithm was done simultaneously with dataset containing weather data collected over a period of 1 year. It was found that the performance of K-Means and naïve Bayes algorithm. The accuracy for Naïve Bayes was 66.4% with respect to classifying the instances correctly. On the other hand, K-Means showed a poor performance of 54.8% while classifying the instances.

## V. REFERENCE:

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