ANALYSING THE DATA WITH THE REGION TO FINDOUT THE PROPER CROP TO BE CULTIVATED

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ABSTRACT:

Crop cultivation was done by the farmers based on the hands-on expertise. Climatic change made the crop yield badly the farmers were unable to choose the correct crop and soil whereas selecting the crops and land mostly it was not resulted in failure .predicting the crop had given good results in the production. Whereas machine learning plays a terrific role in prediction. Crop prediction is based on the soil,geographic and climatic assign. Crop is a part of prediction it is done by the feature selection technique. This work is a comparitive study of various wrapper feature selection methods are put forth for crop prediction using classification techniques that is suitable crop for the land is suggested

KEY WORDS: unsupervised learning, Crop cultivation, machine learning (ML),k means

I.INTRODUCTION

As agriculture seems to be crucial part in food security as well as economic development of a country, selecting crops for cultivation is a most important aspect in the agricultural planning. It relies on the variety of a parameters which includes weather condition and soil property.The suggested system helps the farmers to select suitable crop based on season and region of sowing. It will in-turn help the farmers by improving the net profit to them. By considering different datasets with respect to three parameters such as rainfall, seasons and production. the system builds a model or method using which can suggest list of crops which is mainly helpful for the farmers decision making.

II.OBJECTIVE

The main objective of the paper is to predict and Analysing the data with the region to find out the proper crop to be cultivated are efficiency and which the year and production area by using k-means algorithm and then predicting the result with the unsupervised machine learning.

III.RELATED WORKS

About 70% portion of India's residents are dependent upon farming as its occupation. The paper [1] focuses on predicting and prognosticate the yield of the crop by learning the farming land's past data. Numerous factors such as rainfall, temperature, soil type and supplementary entities are contemplated by the process to develop a forecasting model by utilizing machine learning techniques. Various machine learning algorithms such as Polynomial Regression, Random Forest and Decision Tree is used. The system can be enhanced by combining this with other departments like sericulture, horticulture and many more who work towards the growth of agriculture of a country.

In paper [2] the dataset is built from former historic statistics which incorporates various influencing parameters like rainfall, humidity and temperature. Here Random Forest is used for prediction which is a well reputed machine learning algorithm. The chosen algorithm had capabilities to predict best crop by taking a smaller number of models. The proposed method assists the farmers while selecting which crops to grow in the field. This approach works for organized dataset. As a future enhancement same work can be extended to work with inputs of independent system as well.

Understanding spatiotemporal variability of soil moisture is important for amplifying the forecasting power of hydrological models, climate and land surface. In paper [3] soil moisture dynamics were inspected in response to irrigation and rainfall events by employing statistics received from non-discrete point quantification regulated below wheat and rice yield for an agricultural area situated within the Ganga Basin, India. Soil moisture control is a task of crop administration exercise and soil intensity in an agricultural atmosphere. The investigation spot was separated into 24 sub spots and an analysis was done by considering 18 plots by collecting continuous data for two seasons and the study was mainly done for rice and wheat crops. [4] they developed an application with an easy interface to farmers of Andhra Pradesh for fetching stronger yield recommendation based on the investigation of historical agriculture statistics, matching for a season, type of soil, rainfall and place type. This work furnishes a good recommendation for the farmers to choose a crop.

The effect of heat stress and slippage of rainfall on agricultural fertility engaging a zestful panel data resemble is estimated and potency of crop diversification in diminishing their unfortunate effect is also assessed. Farmer's decisiveness to embrace productivity amplifying inputs are largely affected by climatic irregularity, which successively influence agriculture fertility. There are dual intelligible inferences for strategies aiming at building agriculture climate strong. [5]

The paper [6] articulated a mechanism named Crop Selection Method (CSM) which solves the above problem and put forward plenty of yield to be considered based on numerous parameter which includes water density, type of the soil, crop type and weather. The efficiency of the proposed method CSM purely depend upon how well and accurately influencing parameters are predicted. There is a necessity of identifying a prediction paragon with increased efficacy and accuracy

IV.METHODOLOGY

K-MEANS ALGORITHM

K-means clustering algorithm computes the centroids and repeats of the optimal centroid is found. The approach kmeans follow to solve the problem is known as a Expectation-Maximization . The E-step assigning a data points to the closest cluster. The M-step is computing is centroid in each of a cluster.

THE FOLLOWING STEPS ARE TO BE FOLLWED FOR WORKING THE K-MEANS ALGORITHM

STEP1: Generate a dataset and download necessary packages.

STEP2: Split the dataset into test and training dataset Training set used to train the model.

STEP3: Visualization gives a better scope of interactivity of the algorithm to covey a better understanding of the data set.

STEP4: Define a prediction value using k-means algorithm.

WORK FLOW

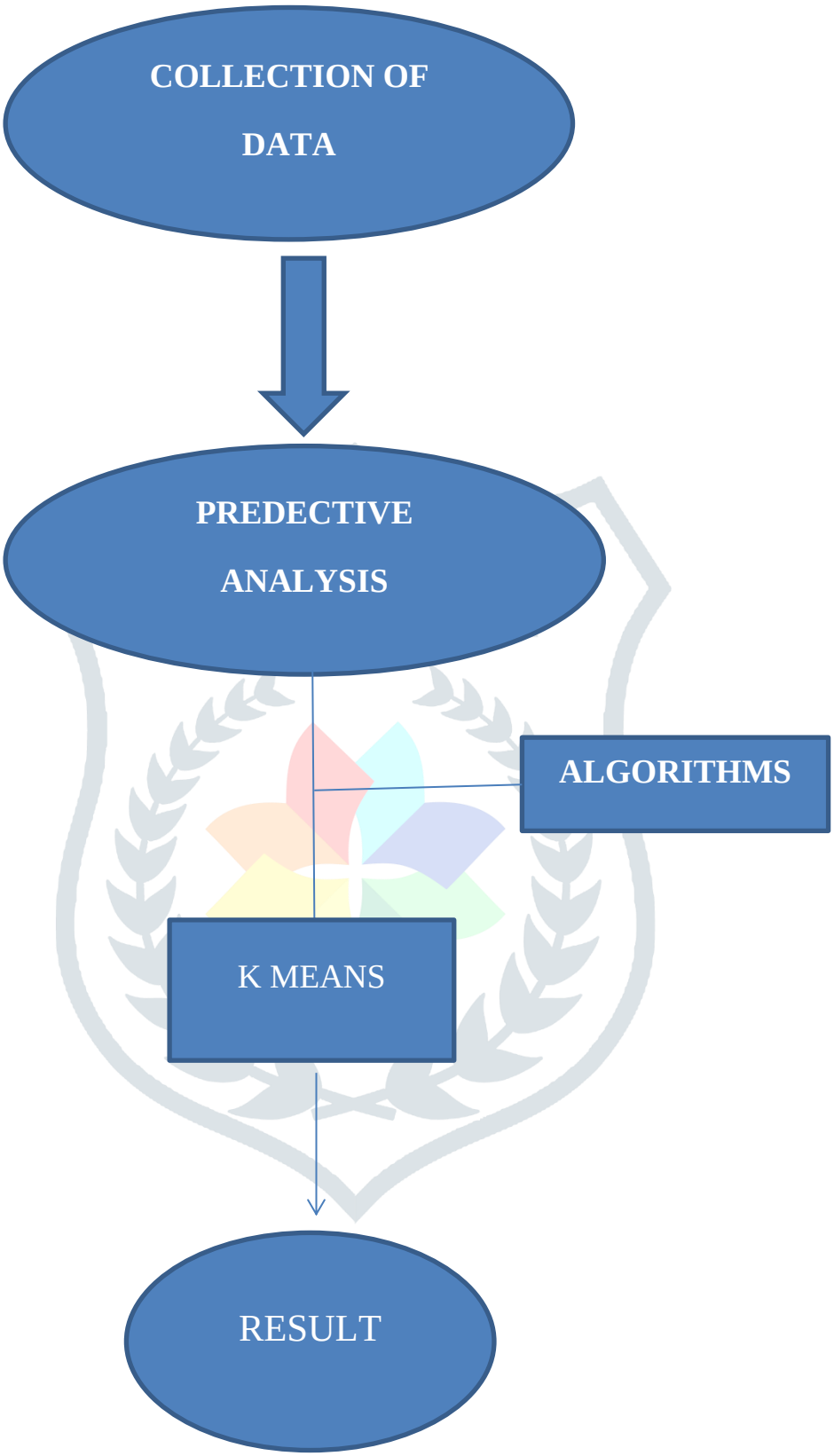

Fig 4.1

V.RESULT

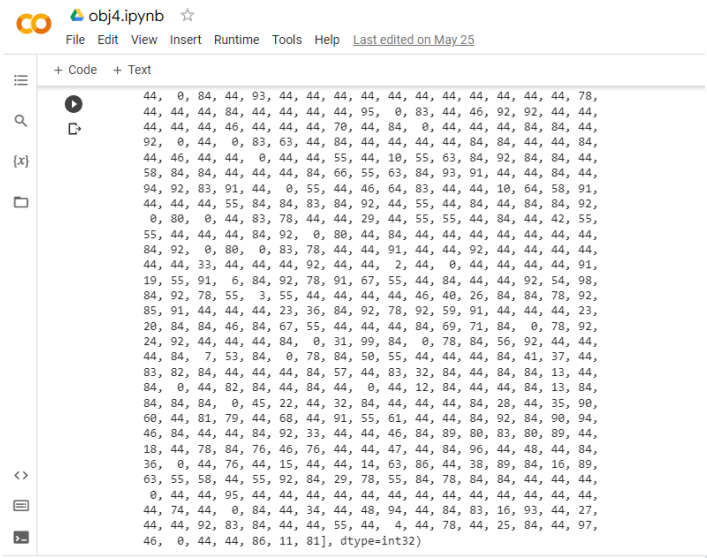

Fig 5.1

Execute the K-means clustering in a given dataset for different K values (ranging from 1-100). For each value of K, calculates the WCSS value. Plots a graph/curve between the WCSS values and the respective number of a clusters K.

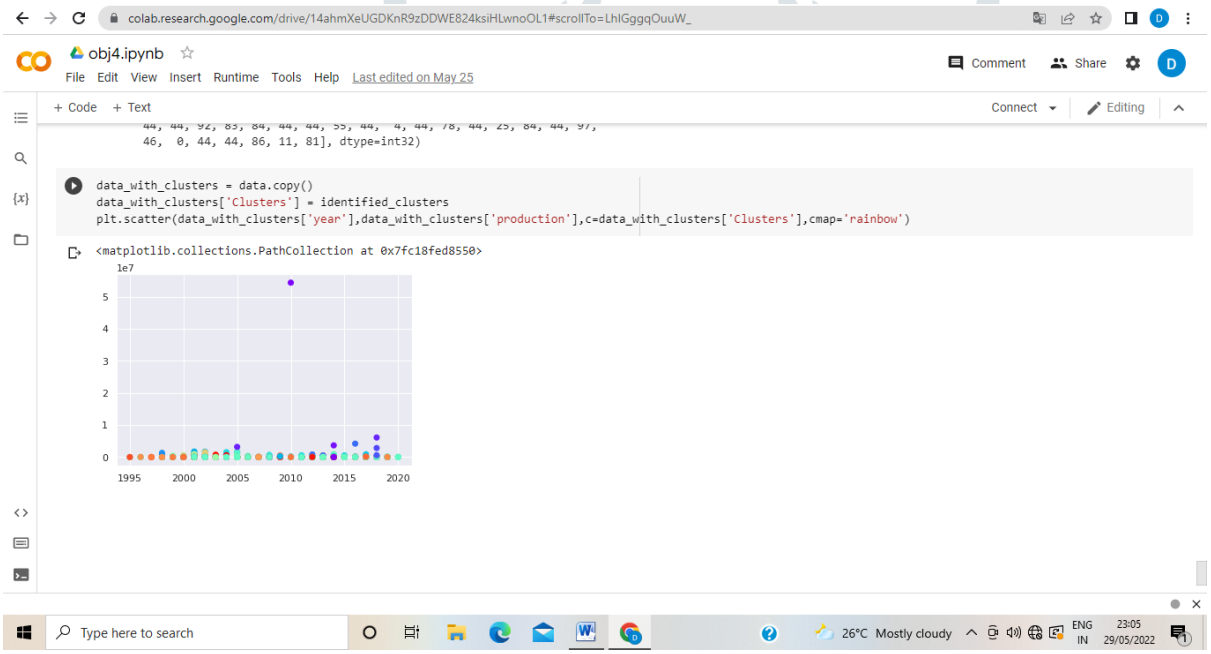

Fig 5.2

The clustering is done by the two main attributes taken place in the dataset. It has been clustered and it has been presented in a different colour to differentiate between different clusters. This represents the required year and its productions. This shows the similar grouping in the figure 5.2.

VI. CONCLUSION

This paper gives focal point on the study of the agriculture data and finding its optimal parameters to enlarge the crop production using data mining.

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