Agriculture Data Analytics In Crop Yield Estimation Using IBM Cognos

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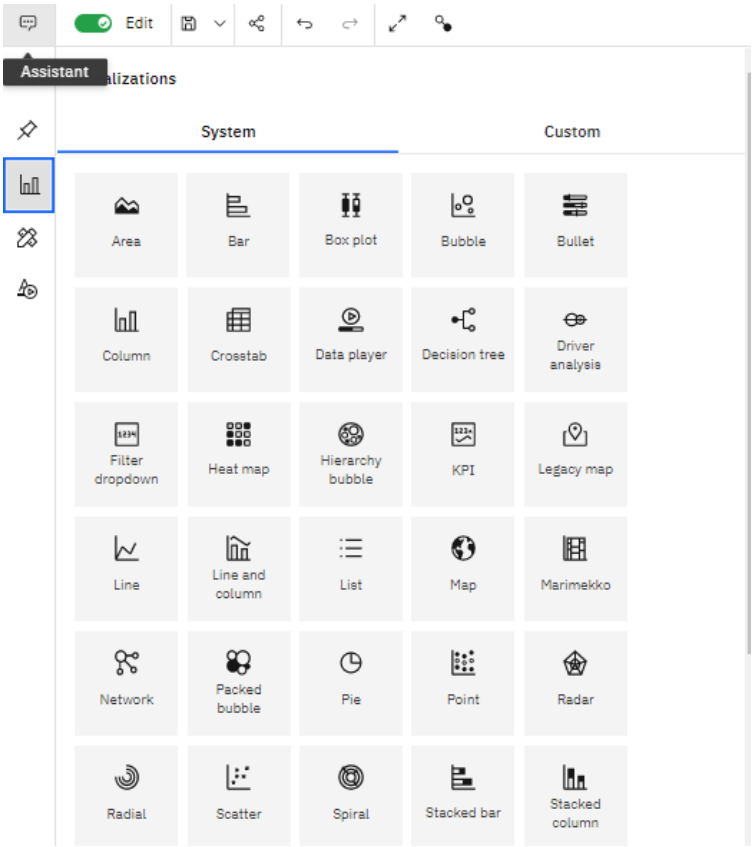
1. INTRODUCTION

1.1 Overview

In this project, IBM Cognos Analytics with watson is used for Data Analytics. Various analysis with respect to different conditions were executed to get a clear picture about the agricultural crop yield estimation. The various plots available are also shown below,



1.2 Purpose

The main purpose of the project work is to get a clear picture about the agricultural crop yield estimation using IBM Cognos Analytics. We can get different types of charts and graphs which clearly explains the scenario.

2. LITERATURE SURVEY

2.1 Existing Problem

In conventional way, It is very difficult to analyse if more than two parameters are involved in a data set. The existing methodology is always to manually document everything and with lot of manpower segregate the work and split the same to get better results. There is also chance for getting wrong answers due to human errors and it is avery tedious process.

2.2 Proposed Solution

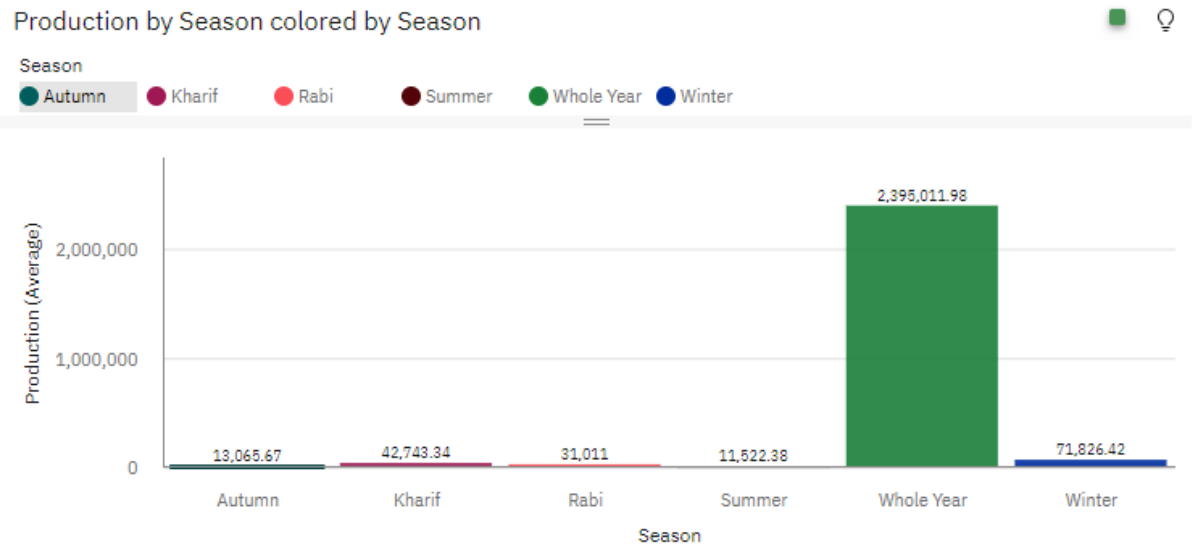
The conventional form of doing job is very difficult, inorder to reduce the burden and also to get better efficient analytics, it is proposed to use IBM Cognos Analytics with watson. This tool is more powerful to split the cumulation of data individually to get a clear conclusion.

3. DATA ANALYSIS

The data to be analysed is downloaded from kaggle platform. The downloaded column consist of columns with State Name, District Name, Crop year, Season, and Crop (Area, Production).

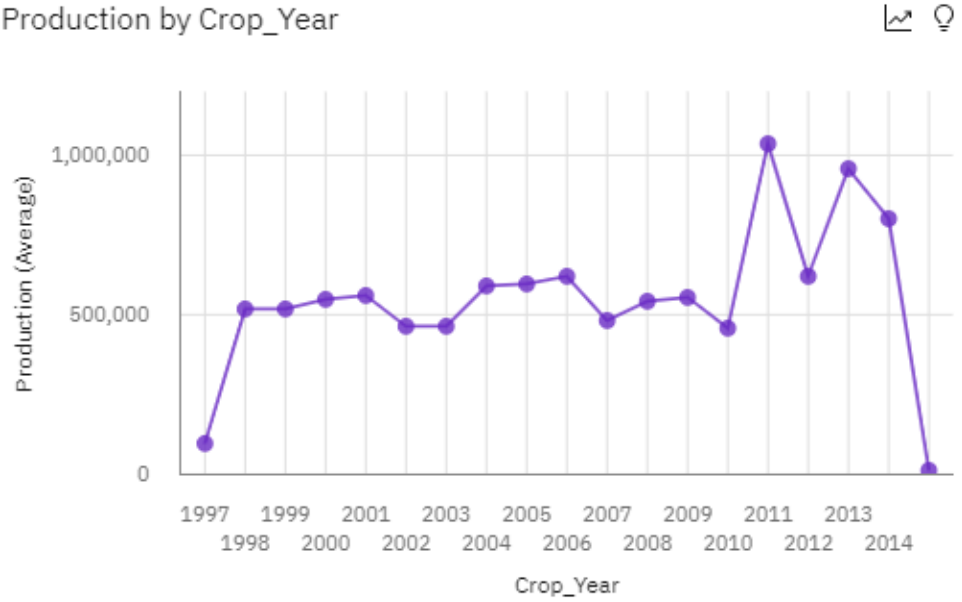
3.1 Different Season with Average Production

The data is drawn as column chart between season in X-axis and Production (Average) along Y axis. It automatically shows the production rate at each season. This clearly depicts the rate of production for the whole year. The image is attached below.

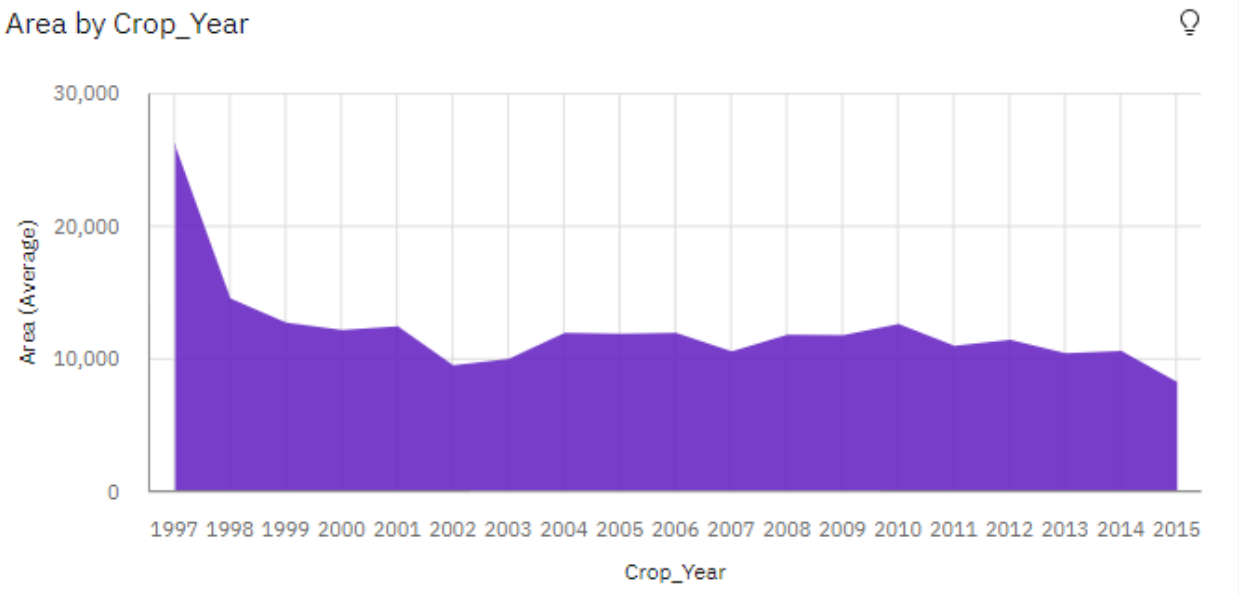


3.2 With Years Usage of Area and Production

In this 2 plots are drawn one with line diagram and another with Area diagram. This clearly shows the production rate at every year. The diagram is shown below,

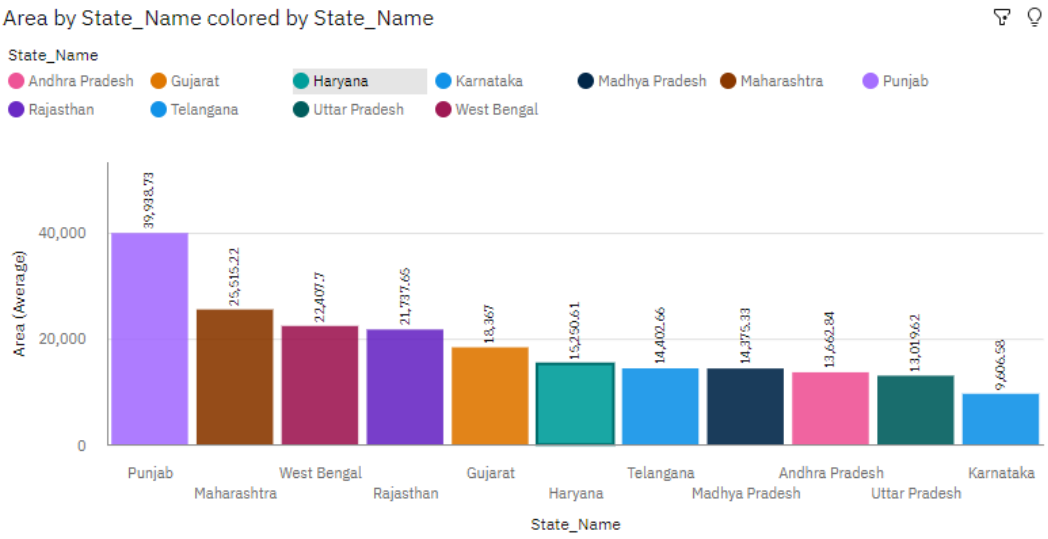


In the second diagram a area plot is drawn between crop year and area. In this graph the average area can be seen for every year. The spread of cultivable land can be seen using this graph.



3.3 States with most area

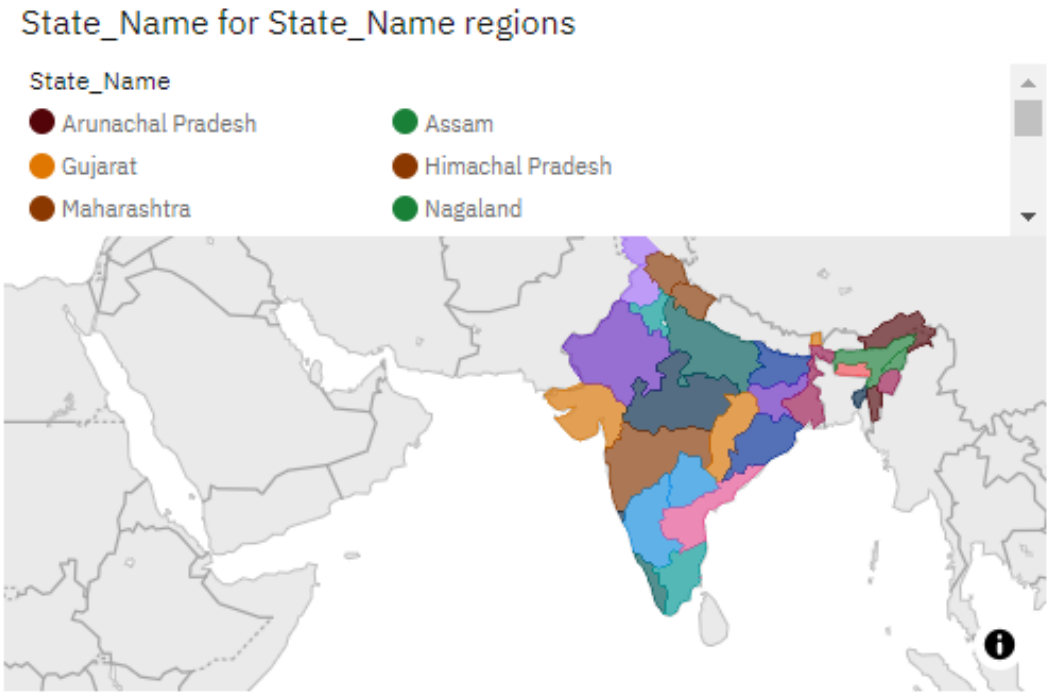
Using this chat the average cultivable area for each states can be determined. In this figure the top 11 states can be seen. The image obtained from cognos Analytics is shown below.



3.4 States with Crop Production

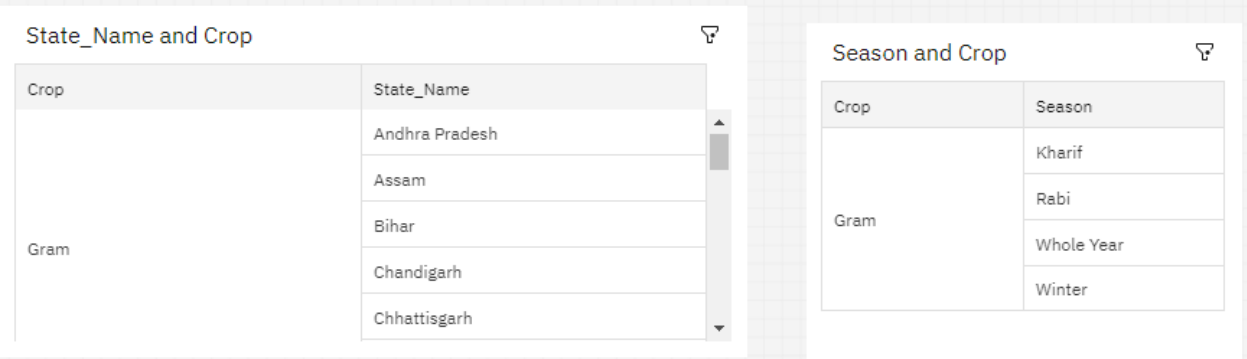
The map is drawn between states and crop production. In this states and crop production is selected for plotting map. A filter is included for crop production. By selecting the specific crop, the map shows the areas in which specific crop is cultivated. This map is used to easily identify the cultivable areas and crops produced. The image

obtained using IBM cognos is shown below.



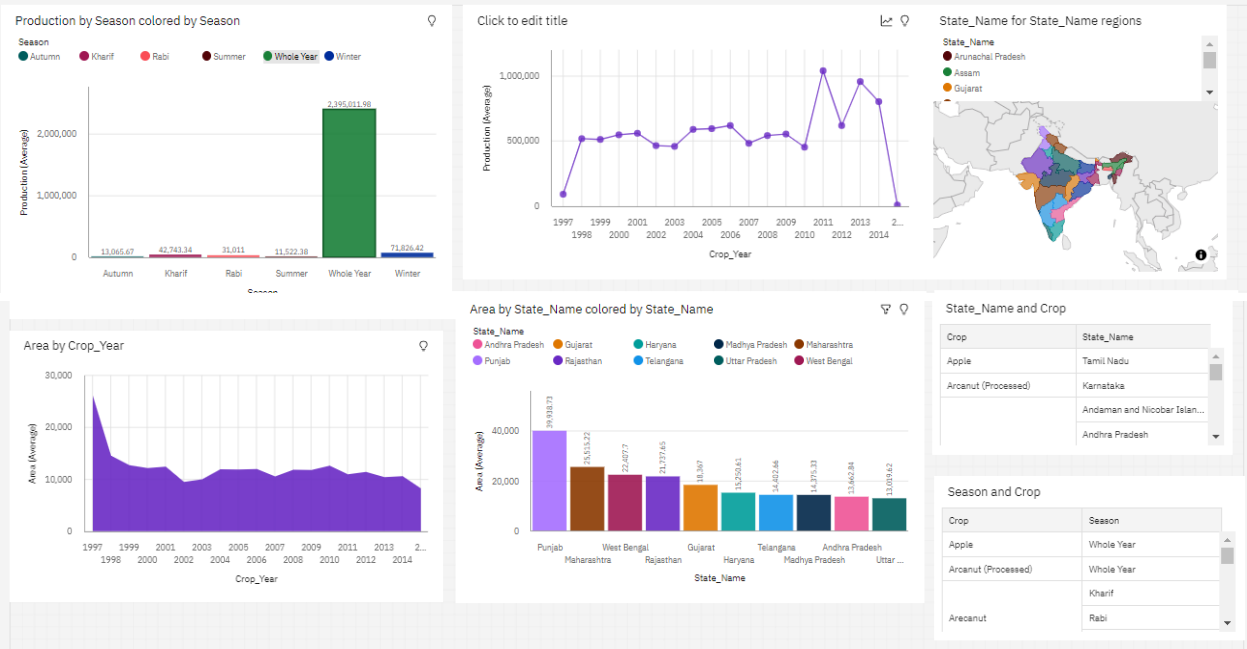
3.5 Table

Another data analytic tool used for data analysis is table. In this table, the state name and crop is added. This table clearly shows the production of specific crop and their location. The second table shows the crop and season in which the crops are cultivated. In addition to this a filter is also included for crop type, which clearly explains the cultivable area and seasons in which the crop is produced.



3.6 Dashboard

This is the final document of data analytics in which all the plot developed in each sections are consolidated to a specific tab. In this tab a filter is included for crop type. When a specific crop is selected all the plot included in the table will change. Which helps to identify the key areas in agricultural development.



4. APPLICATIONS

The IBM cognos Analytics with watson is a powerful tool,

- To identify the areas in which agriculture is laging.
- Clearly shows the pictorial representation of crops.
- Map plot can be obtained using this tool.
- can be used in all aspects to analyze the trend.

5. CONCLUSION

As a conclusion, IBM cognos Analytics is a powfer data analytics tool, which can be used for analysing complicated data. This helps to identify the market suppy, demand and trend. This develops new business strategies based on future demands. Many different plots are available in this software, which can be used for advanced level of data analytics.

6. FUTURE SCOPE

The data analytics software is the future. This can be used to do research and development to improve the crop productivity. The low productive crops can be identified and suitable measures can be taken. This leads to better productivity of crops and will cater the demands of the future.