

Crop Production Analysis in India

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Introduction

- India's agriculture overview
 - Agriculture in India's largest economic sector
 - Important in the development of the nation and economy due to its enormous size.
 - Rice and wheat are among the most important crops
 - Agriculture has a major portion of the Indian economy and employs a large section of society.
 - It is highly inefficient and unscientific
 - Problems can be solved by proper analysis of the agricultural data

Problem Statement

- Finding trends in crops in terms of production, area, etc. over the years and studying the reasons behind the changing trends
- Finding how different factors that affect production are related to each other
- Study of crops that do not follow the general trends and show an abnormal trend such as a reduction in production
- Finding similar crops and similar states based on various factors
- Predictions of crops that might be rarely produced

Data Cleaning

- The data needed to be cleaned in the beginning. The challenges faced while cleaning the data are
 - The databases obtained were composed of data from different years, which were not the same across databases.
 - The names of some crops were not present in all the databases.
 - The database also contained a lot of missing data.
 - The data was of varying formats.
 - The naming conventions of crops and states were not the same across databases.
 - The units of measurement were different in different databases.

Exploratory data Analysis

Plotting the heatmap to check the correlation between each variable

Plotting the boxplot to check outliers

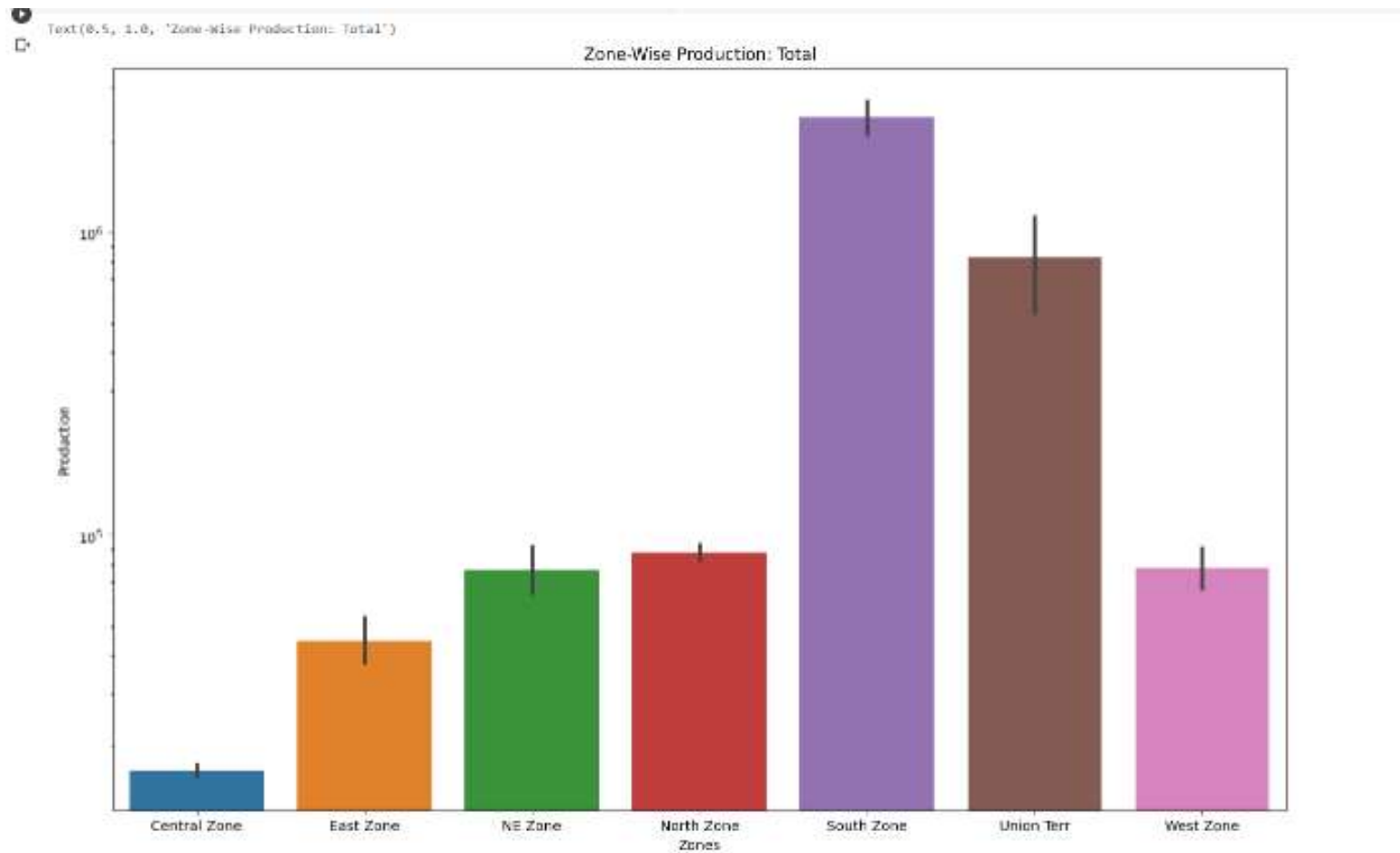
Then I did a bivariate analysis between two variables to know the production

Then I distributed the state between different zones

After that I applied pie chart and barplot on different crops to know the production and profits.

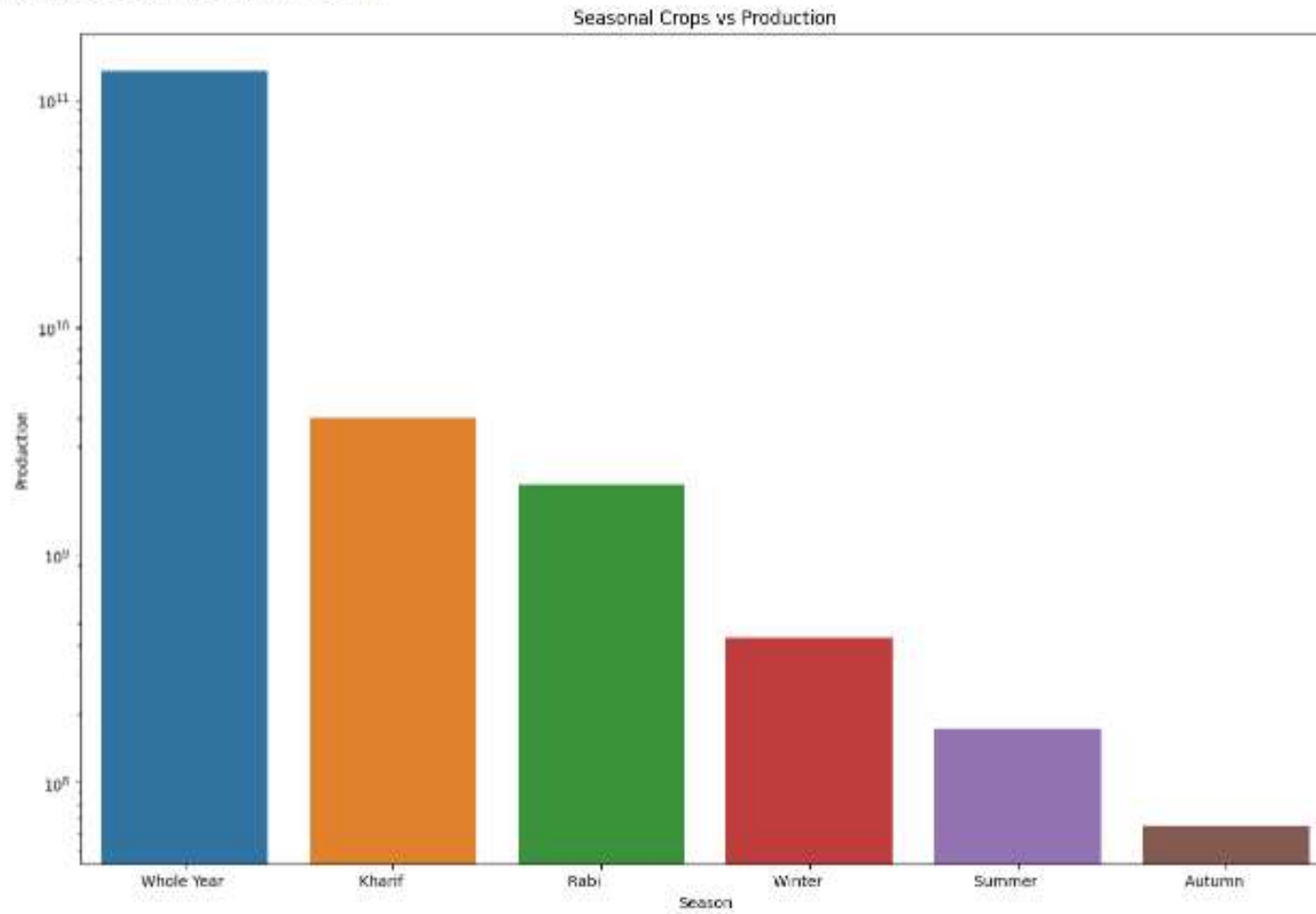
Observations

- The highly produced crop in India is Sugarcane
- India is the second-largest producer of this popular cash crop
- Other crops which are highly produced in the country include rice, wheat, cotton, etc.
- We can observe that most of the agricultural area in India is still depending on monsoon rainfall
- Rainfall can have a direct or indirect impact on the area
- From plots we can see a dependence between area and rainfall in the states like Bihar, Haryana, Madhya Pradesh, Rajasthan, and Telangana
- Rainfall can affect the production of crops in a great way
- From plots we can see in states like Chhattisgarh, Gujarat, Jharkhand, Karnataka etc(where the major crop is rice and sugarcane) increased rainfall is leading to increased production
- In Haryana, Uttar Pradesh, Rajasthan(major crop is wheat) increased rainfall is showing to have negative impact on production

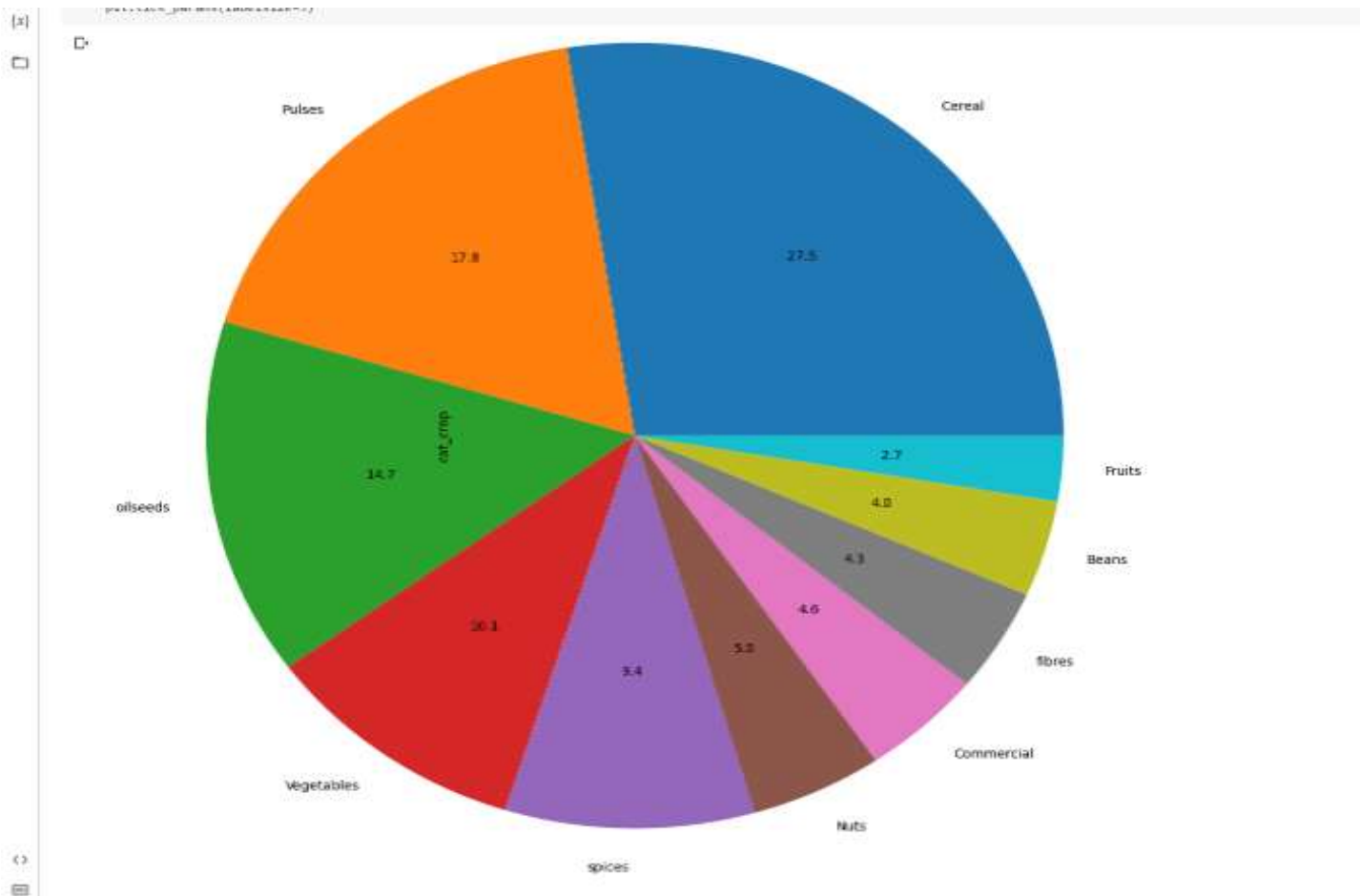


Zone-wise production, South-zone has a maximum production

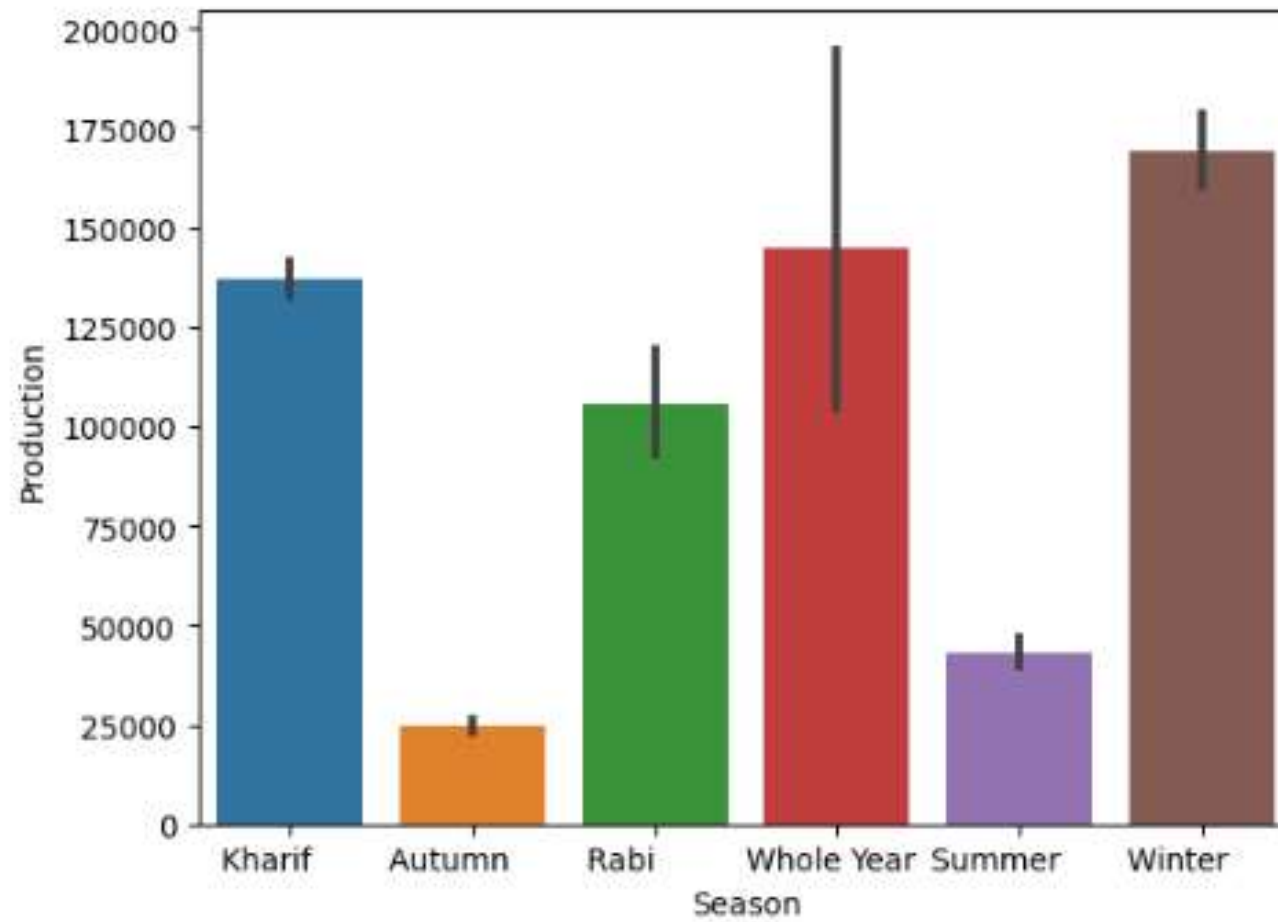
Text(0.5, 1.0, 'Seasonal Crops vs Production')



Seasonal Crops Vs Production



Different proportions of crops of India



Production Vs Season