Project – Crop Production Analysis in India

Akash Shital Patil
UM.ID. – UMIP5670

Conclusion and Documentation:

Findings Summary:

- The analysis of agricultural data revealed significant insights into production trends, crop distribution, and seasonal variations across different regions and states.
- Uttar Pradesh, Maharashtra, and Tamil Nadu emerged as the top three states contributing nearly 50% of the total production.
- Sugarcane dominated crop production, followed by rice and wheat, representing 76% of the total crop production.
- Kharif season accounted for the highest production, followed by Rubi season. However, winter and summer seasons contributed relatively less to the total production.
- State-specific insights highlighted the major crops and production patterns in Uttar Pradesh and Maharashtra.
- Crop-wise analysis identified sugarcane, rice, and cotton lint as major crops during the kharif season, while wheat, potato, and gram dominated during the Rabi season.
- The analysis also revealed yearly trends in crop yield, with sugarcane, papaya, and banana showing high yields in specific years.
- Dataset completeness varied across different years, with 2002 having the highest availability of crop data.
- Regional production analysis indicated significant contributions from North India, particularly during the kharif season.

Conclusions:

- The agricultural sector's production dynamics are influenced by factors such as seasonal variations, crop types, and geographical regions.
- Understanding production trends and crop distribution patterns can aid policymakers, farmers, and stakeholders in making informed decisions regarding crop planning, resource allocation, and market strategies.
- Further research and analysis could focus on exploring the impact of climate change, technological advancements, and government policies on agricultural productivity and sustainability.

Documentation:

Data Cleaning: Removed unnecessary columns and handled missing values.

Exploratory Data Analysis (EDA): Analyzed production trends, crop distribution, and seasonal variations through visualizations and statistical measures.

Model Selection and Training: Chose a regression model, split data, scaled features, and trained the model.

Model Evaluation: Assessed model performance using Root Mean Squared Error (RMSE) and R-squared (R2) score.

Conclusion and Documentation: Summarized findings, drew conclusions, and documented the workflow for future reference.