TABLE OF CONTENTS

# SUMMARY

## Conclusions/ Insights

## Challenges

## Future work

# CHAPTER 1. Introduction to datasets (Data acquisition)

## Global Food & Agriculture Statistics ( https://www.kaggle.com/datasets/unitednations/global-food-agriculture-statistics)

### Description

### Data screenshot

### Dataset from https://www.globalhungerindex.org

## World GDP

## (https://www.kaggle.com/datasets/tmishinev/world-country-gdp-19602021)

### Description

### Data screenshot

## Weather/Climate Data

## (Working on NOAA- National Centers for Environmental Information - REST API - [https://www.ncei.noaa.gov/cdo-web/api/v2/{endpoint}](https://www.ncei.noaa.gov/cdo-web/api/v2/%7bendpoint%7d)), UN Data

### Description

### Data screenshot

# CHAPTER 2. Data Preparation

## Cleaning data

### Approach 1

### Approach 2

## Data Visualization

### Plot world maps of Gross Agri Production and GDP (year = 2007)

### Sorted data in table format(Top 5, Bottom 5)

# CHAPTER 3. Data Analysis

## Which countries stand high on the Global Hunger Index scores and low on agricultural production per capita (year = 2007)?

### Data visualization

### Find top 3 agricultural production per capita countries

### Find bottom 3 agricultural production per capita countries

### Extract the relevant countries

## What are the key factors affecting agri production?

### Mean temperature

### 1.1 Visualization

### Precipitation

### Visualization

### Land usage

### 3.1 Visualization

### Relative humidity

### Visualization

### No of hot days

### Visualization

### Fertilizer

### Visualization

### Research Spending

### Visualization

### Corruption(In Zimbabwe), poverty, unemployment, investments in infrastructure, IMF loans(In control)

### Find which of the above factors correlate with top 10 agri prod per capita countries

### Correlation analysis, Regression modeling or hypothesis testing

### Can any of the factors determined above strongly explain high GHI score and low agri production?

### Causal analysis

### Provide insights – discuss factors which can be controlled or outside of countries control

## Which country is most efficient at utilizing their agricultural land? (Maybe scrap this)

### Find top 3, bottom 3 efficient countries

### Analyze if any factor is contributing to their agricultural efficiency

# CHAPTER 4. Predict future trends in agricultural production( for high GHI scored countries)

## Linear regression

### Time Series Prediction

### Multi variate regression prediction

## Try out other ML models

### Decision Tree

### Random Forest

### Support Vector Machines

### Predict future trends in specific agri products

### (e.g. Rice, beans, bananas, almonds, potatoes, maize)

# CHAPTER 5. Conclusion

## Summarize findings

## Provide insights how some developing countries can improve their agricultural production