

Low Level Design (LLD)

Crop Production Analysis In India



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❖ Document Control

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1. Introduction

1.1 What is Low Level Design Document?

The goal of the Low-level design document (LLDD) is to give the internal logic design of the actual program code for the Heart Disease Diagnostic Analysis dashboard. LLDD describes the class diagrams with the methods and relations between classes and programs specs. It describes the modules so that the programmer can directly code the program from the document.

1.2 What is Scope?

Low-level design (LLD) is a component-level design process that follows a step-by-step refinement process. The process can be used for designing data structures, required software architecture, source code and ultimately, performance algorithms. Overall, the data organization may be defined during requirement analysis and then refined during data design work.

1.3 Project Introduction

The agriculture business domain, as a vital part of the overall supply chain, is expected to highly evolve in the upcoming years via the developments, which are taking place on the side of the Future Internet. This paper presents a novel business-to-business collaboration platform from the agri-food sector perspective, which aims to facilitate the collaboration of numerous stakeholders belonging to associated business domains, in an effective and flexible manner. This dataset provides a huge amount of information on crop production in India ranging from several years. Based on the Information the ultimate goal would be to predict crop production and find important insights highlighting key indicators and metrics that influence the crop production.

2. Problem Statement

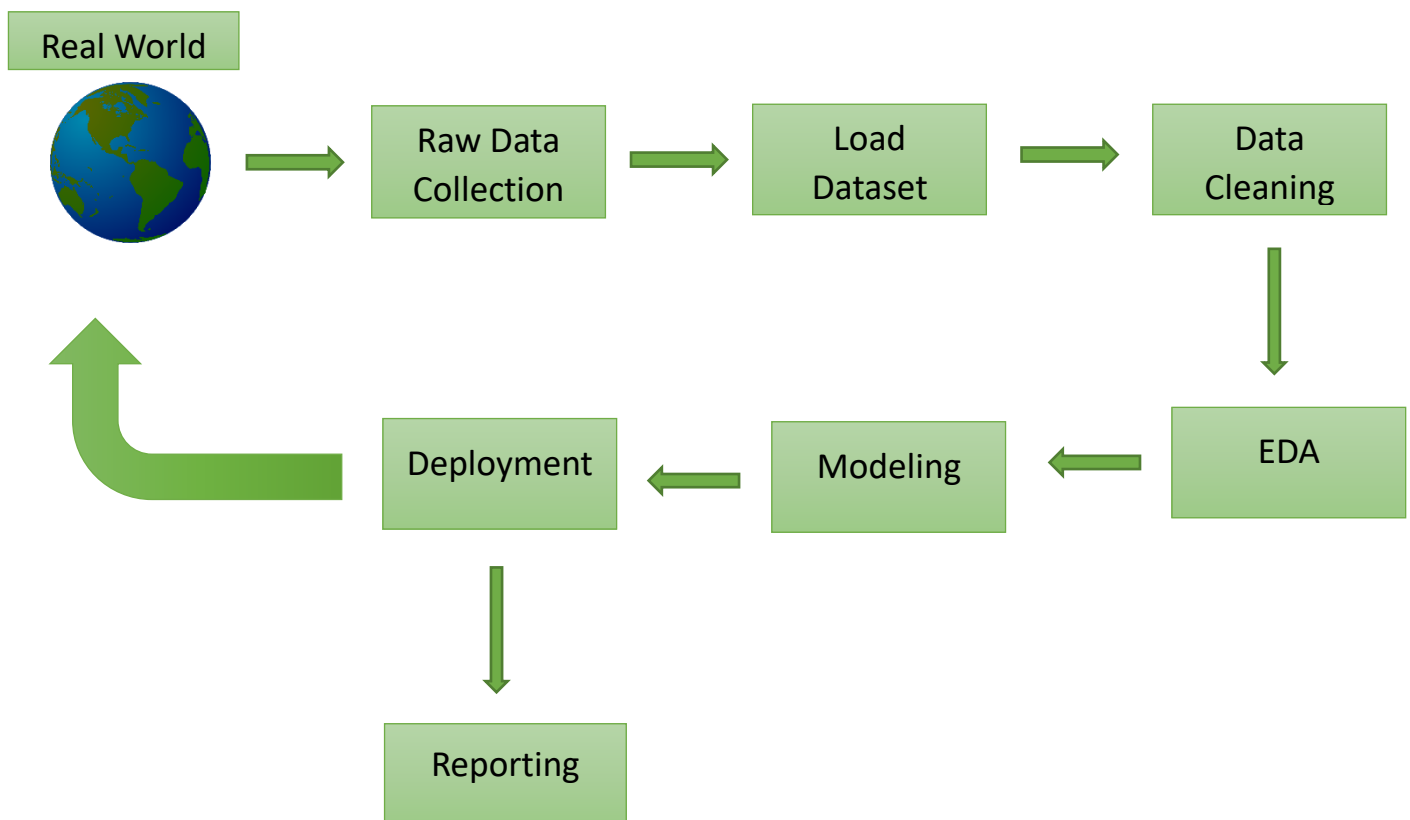
This dataset provides a huge amount of information on crop production in India ranging from several years. Based on the Information the ultimate goal would be to predict crop production and find important insights highlighting key indicators and metrics that influence the crop production.

3. Dataset Information

- ❖ State_name = Name of States in India (categorical : 'Andaman and Nicobar Islands', 'Andhra Pradesh', 'Arunachal Pradesh', 'Assam', 'Bihar', 'Chandigarh', 'Chhattisgarh', 'Dadra and Nagar Haveli', 'Goa', 'Gujarat', 'Haryana', 'Himachal Pradesh', 'Jammu and Kashmir', 'Jharkhand', 'Karnataka', 'Kerala', 'Madhya Pradesh', 'Maharashtra', 'Manipur', 'Meghalaya', 'Mizoram', 'Nagaland', 'Odisha', 'Puducherry', 'Punjab', 'Rajasthan', 'Sikkim', 'Tamil Nadu', 'Telangana', 'Tripura', 'Uttar Pradesh', 'Uttarakhand', 'West Bengal')
- ❖ District_Name – Name of Districts in India (categorical: 'NICOBARS', 'NORTH AND MIDDLE ANDAMAN', 'SOUTH ANDAMANS', 'ANANTAPUR', 'CHITTOOR', 'EAST GODAVARI', 'GUNTUR', 'KADAPA', 'KRISHNA', 'KURNOOL', 'PRAKASAM', 'SPSR NELLORE', 'SRIKAKULAM', 'VISAKHAPATANAM', 'VIZIANAGARAM', 'WEST GODAVARI', 'ANJAW', 'CHANGLANG', 'DIBANG VALLEY', 'EAST KAMENG', 'EAST SIANG', 'KURUCropNG KUMEY', 'LOHIT', 'LONGDING', 'LOWER DIBANG VALLEY', Etc)
- ❖ Crop_Year – Year of Crop Production (Numerical: 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2010, 1997, 1998, 1999, 2007, 2008, 2009, 2011, 2012, 2013, 2014, 2015)
- ❖ Season – Season of the Crops (Categorical: 'Kharif', 'Whole Year', 'Autumn', 'Rabi', 'Summer', 'Winter')
- ❖ Crop – Name of the Crop Sown (Categorical: 'Arecanut', 'Other Kharif pulses', 'Rice', 'Banana', 'Cashew', 'Coconut', 'Dry ginger', 'Sugarcane', 'Sweet potato', 'Tapioca', 'Black pepper', 'Dry chillies', 'other oilseeds', Etc)

- ❖ Area – Area Under cultivation (Numerical)
- ❖ Production – Production of the crops (Numerical)

4. Architecture



4.1 Architecture Description

1. Raw Data Collection

The Dataset was taken from iNeuron's Provided Project Description Document.
[India Crop Production - State wise - dataset by thatzprem | data.world](#)

2. Data Pre-Processing and Cleaning

Data cleaning is the process of fixing or removing incorrect, corrupted, incorrectly formatted, duplicate, or incomplete data within a dataset. Before building any model, it is crucial to perform data pre-processing and cleaning to feed the correct data to the model to learn and predict. Model performance depends on the quality of data feeded to the model to train.

This Process includes:

- a) Handling Null/Missing Values
- b) Handling Skewed Data
- c) Outliers Detection and Removal
- d) Remove duplicate or irrelevant observations
- e) Filter unwanted outliers
- f) Renaming required attributes

3. Exploratory Data Analysis (EDA)

Exploratory Data Analysis refers to the critical process of performing initial investigations on data to discover patterns, spot anomalies, test hypothesis and to check assumptions with the help of summary statistics and graphical representations.

4. Reporting

Reporting is a most important and underrated skill of a data analytics field. Because being a Data Analyst you should be good in easy and self explanatory report because your model will be used by many stakeholders who are not from technical background.

- a) High Level Design Document (HLD)
- b) Low Level Design Document (LLD)
- c) Architecture
- d) Wireframe
- e) Detailed Project Report
- f) Power Point Presentation.

5. Modelling

Data Modelling is the process of analysing the data objects and their relationship to the other objects. It is used to analyse the data requirements that are required for the business processes. The data models are created for the data to be stored in a database. The Data Model's main focus is on what data is needed and how we have to organize data rather than what operations we have to perform. Analysis Model is a technical representation of the system. It acts as a link between system description and design model. In Analysis Modelling, information, behaviour, and functions of the system are defined and translated into the architecture, component, and interface level design in the design modelling.

6. Deployment

We created a Power BI Dashboard

