

# **Exhaustive Analysis of Indian Agriculture using Power BI**

## **Week-1 Project Submission**

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### **STEP-1**

#### **1. Download Power BI Desktop:**

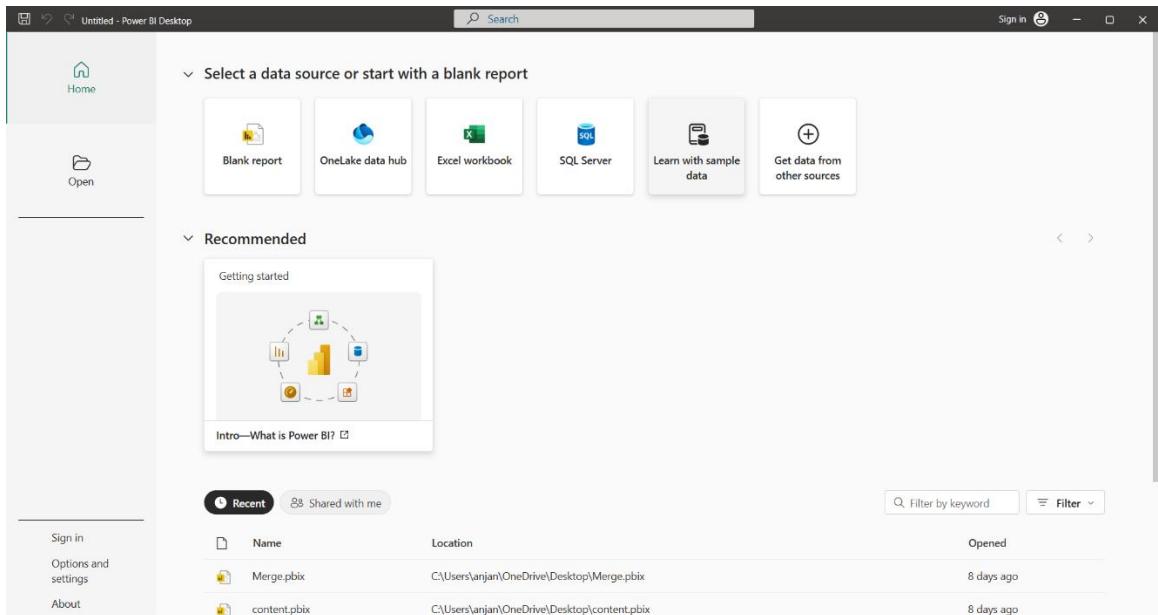
- **From the Microsoft Store:**
  - Open the [Power BI Desktop page on the Microsoft Store](#).
  - Click on the "Get" or "Install" button to download and install the application directly.
- **Direct Download:**
  - Visit the [Power BI Desktop Download Center](#).
  - Click on the "Download" button.
  - Choose the appropriate version (32-bit or 64-bit) that matches your Windows operating system.
  - Run the downloaded installer and follow the on-screen instructions to complete the installation.

#### **2. Install Power BI Desktop:**

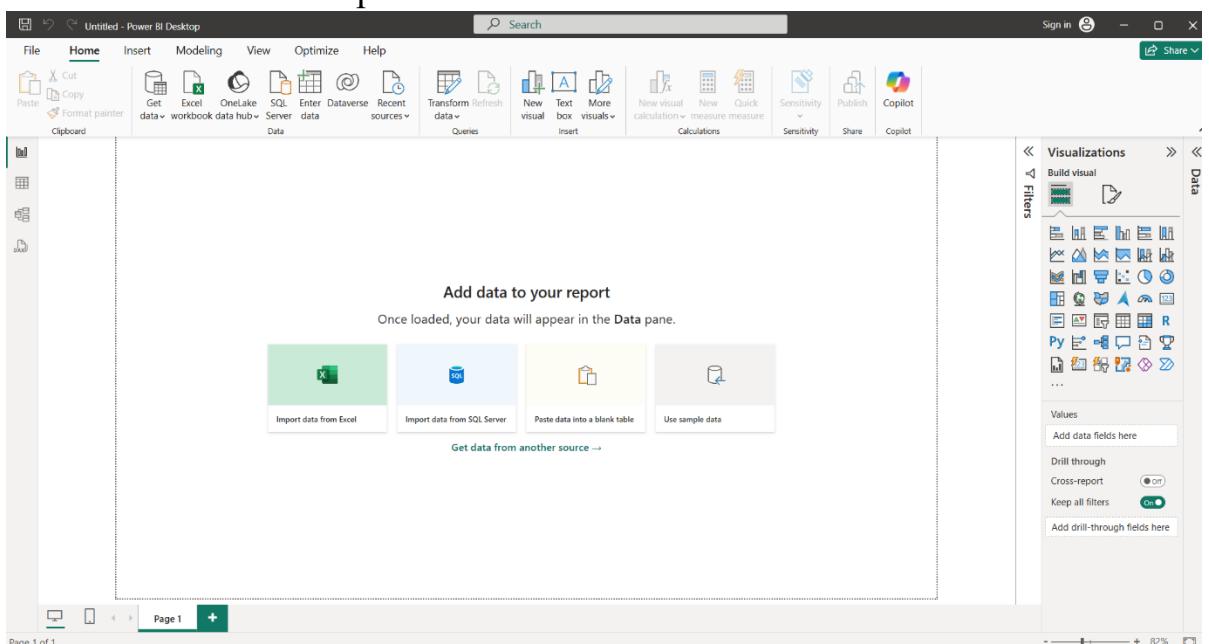
- After downloading, locate the installer file (usually in your "Downloads" folder).
- Double-click the installer to run it.
- Follow the installation prompts to complete the setup.

## STEP-2

- Click on Power BI Desktop to open it.
- The application will start loading and display the Power BI splash screen.



- Now click on Blank Report



- Once it's open, you'll see the **Power BI interface**, with options to load data, create reports, or start with templates.

## STEP-3



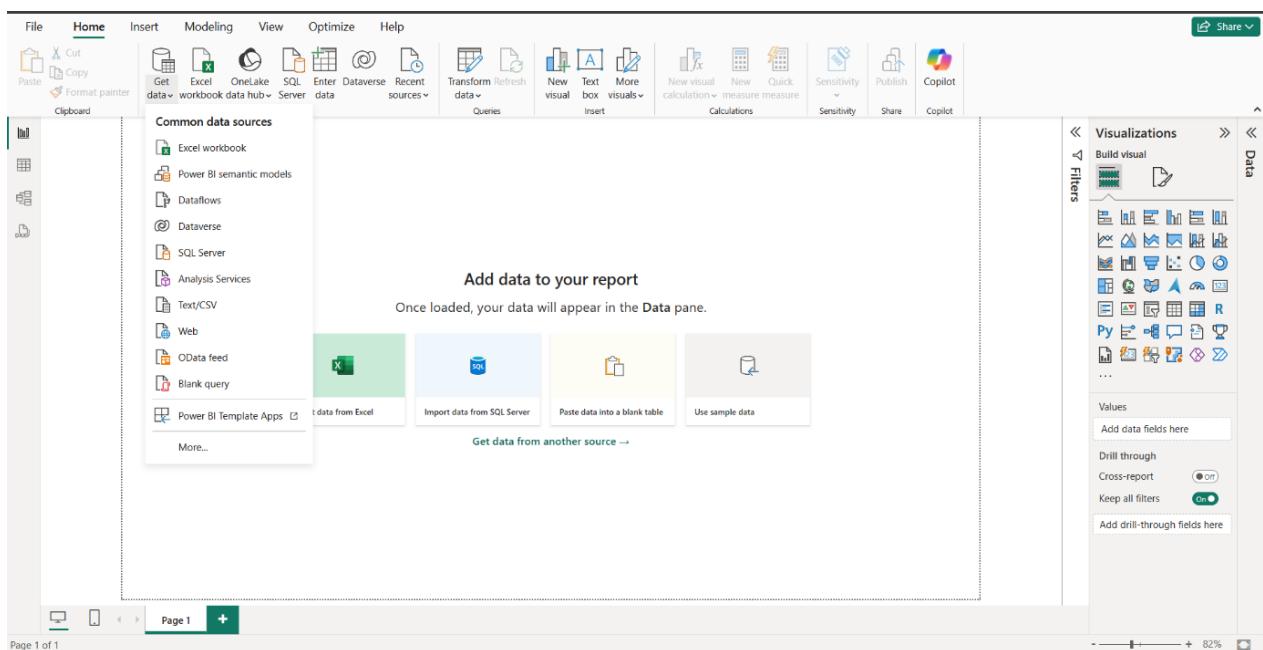
Exhaustive Analysis of  
Indian Agriculture.csv.

## Download the CSV File

- Save the file in an easily accessible location on your computer (e.g., Desktop or Downloads folder).

## STEP-4

- On the Home tab of the Power BI ribbon, click "Get Data".
- Select "Text/CSV" from the list of data sources.
- Browse to the location of your CSV file and select it. Click "Open".



## STEP-5

- Power BI will display a preview of your CSV file.
- Review the data to ensure it is correctly loaded.
- Click "Load" to import the data into Power BI.

Untitled - Power BI Desktop

File Home Insert Modeling View Optimize Help

Search

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Get data+ Excel OneDrive workbook data hub+

Exhaustive Analysis of Indian Agriculture.csv

File Origin Delimiter Data Type Detection

1252: Western European (Windows) Comma Based on first 200 rows

RowID	State_Name	District_Name	Crop_Year	Season	Crop	Area	Production	_1	_2
0	Bihar	NALANDA	2005	Rabi	Wheat	81934	160425		
1	Assam	KARBIA NGLOONG	2019	Whole Year	Onion	257	514		
2	Gujarat	ANAND	2020	Summer	Maize	100	100	Total production	
3	Karnataka	UTTAR KANNAD	2013	Rabi	Groundnut	2872	4572	45168275000	8
4	Uttar Pradesh	JAUNPUR	2016	Rabi	Onion	110	1290		
5	Assam	MARIAGAON	2014	Rabi	Rapeseed & Mustard	6535	2719		
6	Odisha	SONEPUR	2006	Winter	Rapeseed & Mustard	91	6		
7	Rajasthan	DHOLPUR	2017	Whole Year	Garlic	1	1		
8	Karnataka	BELGAUM	2018	Whole Year	Coconut	336	3212		
9	Bihar	MUNGER	2020	Summer	Moong(Green Gram)	125	78		
10	Chhattisgarh	JANJGIR-CHAMPA	2013	Kharif	Other Kharif pulses	223	107		
11	Assam	KARBIA NGLOONG	2019	Rabi	Rapeseed & Mustard	19337	8652		
12	Uttar Pradesh	SHRAWASTI	2005	Kharif	Groundnut	72	58		
13	Gujarat	PATAN	2019	Kharif	Moong(Green Gram)	9100	3300		
14	Tamil Nadu	KARUN	2008	Whole Year	Sweet potato	20	309		
15	Uttar Pradesh	KASGANI	2019	Rabi	Tobacco	5247	28554		
16	Haryana	MAHENDRAGARH	2006	Rabi	Wheat	45074	186000		
17	Assam	DHEMAMI	2017	Whole Year	Turmeric	321	211		
18	Assam	BAKSA	2015	Kharif	Small millets	284	127		
19	Kerala	PATHANAMTHITTA	2008	Whole Year	Sugarcane	224	10950		

Extract Table Using Examples Load Transform Data Cancel

Visualizations

Filters

Data

Values Add data fields here

Drill through

Cross-report

Keep all filters

Add drill-through fields here

- Once you click "Load", Power BI will process the file and import the data.
  - You will see the dataset listed under the "Fields" pane on the right side of the Power BI window.

Untitled - Power BI Desktop

File Home Insert Modeling View Optimize Help

Search

Paste Cut Copy Format painter Clipboard

Get data from Excel OneLake SQL Server Enter data Dataverse Recent sources Transform Refresh data New visual Text box More visuals Insert New measure Quick measure Sensitivity Publish Copilot Copilot

Build visual

Filters

Build visual

Exhaustive Analysis...

\_1

\_2

\_3

Area

Column1

Crop

Crop, Year

Production

RowID

Season

State\_Name

Add data fields here

Drill through

Cross-report

Keep all filters

Add drill-through fields here

Page 1 +

After importing data, Power BI provides three main views for working with your dataset:

## 1. Report View (Default View)

- **What It Is:** The Report View is the main area where you create visualizations (charts, graphs, tables, etc.).
- **How to Use It:**
  - Located in the left sidebar, represented by a  chart icon.
  - Drag and drop fields from the **Fields pane** into the **Canvas** to create visualizations.
  - Use the **Visualizations pane** to customize charts, apply filters, and format data.
- **Purpose:** Helps in designing dashboards and interactive reports.

## 2. Data (Table) View

- **What It Is:** This view allows you to see the raw imported data in a table format.
- **How to Use It:**
  - Click on the  table icon in the left sidebar.
  - View all rows and columns from your CSV file in tabular form.
  - You can check data types, rename columns, or verify data accuracy.
- **Purpose:** Used to inspect raw data before creating reports.

## 3. Model View

- **What It Is:** The Model View shows the relationships between different tables in your dataset.
- **How to Use It:**
  - Click on the  relationship icon in the left sidebar.
  - If you have multiple datasets, Power BI will try to detect relationships automatically.
  - You can manually create relationships by dragging fields between tables.
- **Purpose:** Helps in setting up **data relationships** for complex reports.

## STEP-6

- Click on "Transform Data" in the Home tab of Power BI.
- This opens the **Power Query Editor**, where you can modify your data before using it in reports.

The screenshot shows the Power Query Editor interface with a table titled "Table.TransformColumnTypes(#'Promoted Headers',{{\"RowID\", Int64.Type}, {\"State\_Name\", type text}, {\"District\_Name\", type text}})". The table contains 999+ rows and 12 columns. The columns are: RowID, State\_Name, District\_Name, Crop\_Year, Season, Crop, Area, and several unnamed columns from 2 to 11. The "Properties" pane on the right shows the query name is "Exhaustive Analysis of Indian Agriculture". The "Applied Steps" pane shows a single step named "Changed Type".

RowID	State_Name	District_Name	Crop_Year	Season	Crop	Area					
1	Bihar	NALANDA	2005	Rabi	Wheat						
2	Assam	KARBI ANGLOONG	2019	Whole Year	Onion						
3	Gujarat	ANAND	2020	Summer	Maize						
4	Karnataka	UTTAR KANNAD	2013	Rabi	Groundnut						
5	Uttar Pradesh	JAUNPUR	2016	Rabi	Onion						
6	Assam	MARIGAON	2014	Rabi	Rapeseed & Mustard						
7	Odisha	SONEPUR	2006	Winter	Rapeseed & Mustard						
8	Rajasthan	DHOLPUR	2017	Whole Year	Garlic						
9	Karnataka	BELGAUM	2018	Whole Year	Coconut						
10	Bihar	MUNGER	2020	Summer	Moong(Green Gram)						
11	Chhattisgarh	JANGIR-CHAMPA	2013	Kharif	Other Kharif pulses						
12	Assam	KARBI ANGLOONG	2019	Rabi	Rapeseed & Mustard						
13	Uttar Pradesh	SHRAVASTI	2005	Kharif	Groundnut						
14	Gujarat	PATAN	2019	Kharif	Moong(Green Gram)						
15	Tamil Nadu	KARUR	2008	Whole Year	Sweet potato						
16	Uttar Pradesh	KASGANI	2019	Rabi	Tobacco						
17	Haryana	MAHENDRAGARH	2006	Rabi	Wheat						
18	Assam	DHEMALLI	2017	Whole Year	Turmeric						
19	Assam	BAKSA	2015	Kharif	Small millets						
20	Kerala	PATHANAMTHITTA	2008	Whole Year	Sugarcane						
21	Chhattisgarh	JANGIR-CHAMPA	2018	Rabi	Linsseed						
22	Chhattisgarh	DHAMTARI	2020	Whole Year	Banana						
23	Karnataka	BELLARY	2016	Rabi	Maize						
24	Assam	TINSUKIA	2020	Autumn	Rice						
25	Uttar Pradesh	RAE BARELI	2016	Kharif	Maize						
26	Karnataka	KOLAR	2020	Rabi	Cowpea(Lobia)						
27	Madhya Pradesh	NEEMUCH	2019	Whole Year	Sesamum						
28											

### 1. Remove Unnecessary Columns

- Select the columns you don't need.
- Click "Remove Columns" in the Home tab.

### 2. Rename Columns for Better Readability

- Double-click a column header to rename it.
- Alternatively, select the column and click "Rename" in the ribbon.

### 3. Change Data Types

- Ensure columns have the correct data type (e.g., Date, Text, Number).
- Select a column and choose the correct data type from the **Data Type dropdown** in the toolbar.

### 4. Handle Missing or Null Values

- Click on a column, then select "Replace Values" to fill missing values.
- Alternatively, use "Remove Rows" to delete incomplete data.

## 5. Split or Merge Columns

- Use "**Split Column**" (under the Transform tab) to separate values based on a delimiter (e.g., a comma in names).
- Use "**Merge Columns**" to combine multiple columns into one.

## 6. Filter Rows (Keep or Remove Data)

- Click on the **dropdown arrow** in a column header to apply filters (e.g., remove empty rows, filter by a specific value).

## 7. Remove Duplicates

- Select a column and click "**Remove Duplicates**" to eliminate repeated entries.

## STEP-7

- Go to the "View" tab in the Power Query Editor.
- Click on "Column Quality" to enable it.

The screenshot shows the Microsoft Power Query Editor interface. The 'View' tab is active at the top. In the 'Query Settings' group, the 'Column quality' checkbox is checked. The main area displays a table with the following columns and data:

	A <sub>c</sub> State_Name	A <sub>c</sub> Distri_Name	1 <sub>3</sub> Crop_Year	A <sub>c</sub> Season	A <sub>c</sub> Crop	1 <sub>2</sub> Area	1 <sub>2</sub> Production
1	Bihar	NALANDA	2005	Rabi	Wheat	81934	160425
2	Assam	KARBIA NGLONG	2019	Whole Year	Onion	257	514
3	Gujarat	ANAND	2020	Summer	Maize	100	100
4	Karnataka	UTTAR KANNAD	2013	Rabi	Groundnut	2872	4572
5	Uttar Pradesh	JAUNPUR	2016	Rabi	Onion	110	1290
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18	Assam	DHEMIAJI	2017	Whole Year	Turmeric	321	211
19	Assam	BAKSA	2015	Kharif	Small millets	284	127
20	Kerala	NATTAMANALITTA	2000	Whole Year	Cucumber	???	???

At the bottom left, it says "7 COLUMNS, 999+ ROWS - Column profiling based on top 1000 rows". At the bottom right, it says "PREVIEW DOWNLOADED AT 13:53".

Once enabled, Power BI will show three quality indicators below each column:

- **Valid (% in Green)** → Percentage of values that are correctly formatted.
- **Error (% in Red)** → Percentage of values with errors (e.g., incorrect formats, missing data).
- **Empty (% in Gray)** → Percentage of blank or null values.

## Fix Data Quality Issues

- **For Errors:** Click on the error percentage and replace or remove faulty data.
- **For Empty Values:** Fill in missing data using "**Replace Values**" or remove them.
- **For Incorrect Data Types:** Change column data types to ensure accuracy.

## STEP-8

### Apply and Save Changes

- After reviewing and fixing data quality issues, click "Close & Apply" to return to Power BI Desktop.